Workforce Diversification Patterns and Trends in India Since the Early 1980s: A Study of Major States

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DECLARATION

I declare that the thesis entitled **"Workforce Diversification Patterns and Trends in India since the early 1980s: A Study of Major States"** submitted by me for the award of the degree of **Doctor of Philosophy** of Jawaharlal Nehru University is an original work. The thesis has not been submitted for any other degree of this university or any other university.

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CERTIFICATE

We recommend that this thesis be placed before the examiners for evaluation.

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To

My Parents

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Anjana Rajagopalan

ACRONYMS

CIEPDEC- Coimbatore Innovative Electronic Product Development Consortium (P) Ltd
CLS/ CES- Casual Labour Status/ Casual Employment Status
CODISSIA- The Coimbatore District Small Scale Industries Association
COINDIA- Coimbatore Industrial Infrastructure Association
CSP- Community, Social and Personal Services
CTI- Central Training Institute
DFID- Department for International Development
EPW- Economic and Political Weekly
EUS- Employment and Unemployment Survey
FAO- Food and Agriculture Organisation
FBR- Finance, Business and Real Estate Services
GDP- Gross Domestic Product
GVA- Gross Value Added
IAY- Indira Aawaas Yojana
ICT- Information and Communication Technology
IRDP- Integrated Rural Development Programme
IRIMEE- Indian Railways Institute of Mechanical and Electrical Engineering
ITC- Imperial Tobacco Company of India Ltd, renamed India Tobacco Company Ltd
ITI- Industrial Training Institute
MGNREGS- Mahatma Gandhi National Rural Employment Guarantee Scheme
MOSPI- Ministry of Statistics and Programme Implementation
MPCE- Monthly per Capita Expenditure
MSE- Medium and Small Enterprises
MSME- Micro, Small and Medium Enterprises
NCAER- National Council of Applied Economic Research
NCEUS- National Commission for Enterprises in the Unorganised Sector
NFS- Non-Farm Sector
NREGA- National Rural Employment Guarantee Act
NSDP- Net State Domestic Product
NSS- National Sample Survey
NSSO- National Sample Survey Office
NTPC- National Thermal Power Corporation Limited
OAE- Own-Account Enterprise
OAME- Own-Account Manufacturing Enterprise
OBC- Other Backward Class
OECD- Organisation for Economic Co-operation and Development
PLFS- Periodic Labour Force Survey
PMGSY- Pradhan Mantri Gram Sadak Yojana
PMKVY- Pradhan Mantri Kaushal Vikas Yojana
RES- Regular Employed Status
RNFE- Rural Non-Farm Employment
SC/ ST- Scheduled Caste/ Scheduled Tribe
SES- Self Employed Status
SEWA- Self-Employed Women's Association
SHG- Self Help Group
SIDCO- Small Industries Development Corporation
SIPCOT- State Industries Promotion Corporation of Tamil Nadu Ltd
SITRA- South India Textile Research Association
TAHDCO - Tamil Nadu Adi Dravidar Housing and Development Corporation Ltd
TFR- Total Fertility Rate
THR- Trade, Hotels and Restaurants
TSC- Transport, Storage and Communication

GLOSSARY

Current Daily Status Approach of Employment (CDS): It ascertains the activity status of an individual for each day of the reference week by reporting the time disposition of an individual on each day of the reference week.

Current Weekly Status Approach of Employment (CWS): Under this classification, a person is considered to be employed if he or she pursues any one or more gainful activities for at least one-hour on any day of the reference week.

Labour Force Participation Rate (LFPR): It measures the proportion of people in the labour force who are actually participating in it by working or are seeking/ looking for work and currently unemployed. This is expressed as a percentage of the total labour force-eligible population in an economy.

Subsidiary Status (SS): According to this approach, all individuals who are either unemployed or outside the labour force, but have worked for a minor period of not less than 30 days during the reference year are classified as subsidiary status workers.

Usual Principal Status (UPS): The status of activity on which a person has spent relatively longer time of the preceding 365 days prior to the date of survey is considered to be the usual principal activity status of the person.

Usual Principal and Subsidiary Status (UPSS): UPSS is a more inclusive measure as compared to UPS. It also identifies (subsidiary) 'workers' out of those who were classified as 'unemployed' or as 'outside labour force' on the basis the majority time criterion of the UPS approach. The status of an individual under this approach is thus determined on the basis of his usual principal status and usual subsidiary status taken together.

Work Participation Rate (WPR): This is defined as the percentage of total workers to the total population

.....Development in the broadest sense is in essence.....replacing the domination of circumstances and chance over individuals by the domination of individuals over chance and circumstances.....Karl Marx and Friedrich Engels, The German Ideology (1846)

Chapter 1: Introduction

'...the future depends on what you do today...' Mahatma Gandhi

1.1. Background

India has come a long way since the structural reforms in 1991. The new economic regime of liberalisation, privatisation and globalisation are believed to have helped India break free from the 'hindu' rate of growth and reach higher levels of economic growth. However, this growth has been uneven and unable to significantly translate into structural transformation of the workforce, which the East Asian Miracles were able to achieve to a considerable extent. The question that then arises is this: if the reforms could boost economic growth, why has the structural transformation of the workforce lagged behind?

Past documentation shows that economic shift in India has not been commensurate with employment shift. There has been asymmetry between change in share of GDP and employment in India over the last three decades. For instance, share of agriculture in GDP has declined more rapidly than that of employment and agriculture still employs roughly around 48 per cent of total workforce while its share in GDP is around 15 per cent (Economic Survey, 2015). Another peculiar trend seen in the case of India is that India's growth seems to be predominantly service-led, with services accounting for about 60 per cent of the GDP, while the employment share in services is just around 26 per cent (for instance, see Papola and Sahu, 2012). Manufacturing meanwhile has remained sluggish.

Therefore, this study compares pre and post reform periods as well as developments in the recent decade to see why change in workforce structure has lagged behind the changing shares and growth of each economic sector. More importantly, "workforce diversification" is seen both in terms of a long-term change in workforce structure across sectors as well as shorter-term diversification of employment in the form of multiple jobs and/or pluriactivity within and across sectors. This is particularly pertinent because the size, structure and composition of workforce and the structural transformation processes, along with industrialisation (and urbanisation) are some of the key determinants of the economic development of a country.

1.1.1 'Stylised' Models

One of the basic theories on economic development, the structural change theory, also revolves around this aspect. The most noted propounders of the theory, Lewis (1955) and Ranis-Fei (1961), theorised that development would necessarily require a shift from agriculture to industrial sector which in turn means a transfer of the 'unlimited' supply of labour from the farm sector to the 'industrial one'. Structural transformation of an economy thus begins with reallocation of economic activity across three broad sectors viz primary, secondary and tertiary (Clark (1957), Chenery (1960), Kuznets (1966)). With such a structural transformation taking place, new goods would be consumed over time, and labour would necessarily be reallocated across activities over time, leading to diversification of workforce (Herrendirf, Rogerson and Valentinyi (2013)).

However, these models, although relevant in case of developed countries, have not been found to be valid for developing countries (for instance, see Jha, 2003). There have been multiple trajectories across the globe in the intertemporal sense when it comes to studying workforce diversification patterns. Diversification patterns and their drivers differ across continents (Asian Productivity Organisation, 2004). In fact, varying historical experiences in different areas often define the explanation for current inter-regional diversities with respect to the nature and relative magnitude of the non-farm sector; it has been noted that non-farm activities are quite significant in South and Southeast Asia, less so in most parts of Africa, and not pervasive in many Latin American contexts (for instance, see Saith (1992)).

In the Indian context, the discourse on workforce diversification, along with structural transformation of the economy, has been focussed around the transformation from agriculture to non-agriculture and more importantly the movement and drivers of labour from farm into non-farm activities, mainly in rural areas (Vaidyanathan, 1986; Basant and Kumar, 1989). As already discussed, these trends have been in contrast with standard theories of structural change, especially in the case of India. The economic shift has been followed by employment shift at a much lower pace (Papola & Sahu, 2012)[1].

[1] Papola and Sahu (2012) argue that employment growth was recorded at 1.84 per cent per annum during 1993-94 to 2004-05, as compared to 2.02 per cent in the previous ten year period, while during 2004-05 to 2009-10, employment growth was found to be abysmally low at 0.22 per cent per annum. They further argue that the

The global literature points out that public policy as well as growing urbanisation and demand-consumption led linkages have been shaping workforce diversification patterns in the developing world (for instance Denis and Zérah, 2014; Davis, 2014; Christiaensen et al, 2013; Huang, 2004; Tacoli, 2003). Thus, stylised models of structural transformations of workforce from agriculture to manufacturing may not be dominant, with growing importance of service-related activities as witnessed in India. To understand the alternate trajectories and explanations in India, this study looks at workforce diversification patterns post 1980s, since the period has seen growth as well as changes in public policy.

1.2. Understanding Workforce 'Diversification'

'Diversification' of workforce may be defined in various forms depending on the nature of the process. Diversification may be of a long-term nature in the form of ***shift*** of workers to some other sector(s). It may also be of a more temporary nature in the form of ***pluriactivity***, i.e. multiple jobs across different sectors or multiple jobs within the same sector. This shift or pluriactivity may be ***across industries*** such as from agriculture to manufacturing or services and so on. It may also be ***spatial*** i.e. from rural to urban areas or to other districts/ states/ geographical regions etc. (See, for instance, Start and Johnson (2004); Loughrey et al (2013)). Diversification is also measurable in terms of principal (main) and subsidiary (marginal) jobs. Diversification can also be seen in terms of household work profiles and changes in current work structure of some of its members.

To better understand workforce diversification, it would be prudent to analyse diversification within rural and urban areas separately. This is all the more so given that workforce structure varies significantly in urban areas vis-à-vis rural areas. This is true not only for agriculture, but non-agricultural sectors also; such as Manufacturing, Construction, Trade, hotels and restaurants, Transport, storage and communications, and other services. There are significant differences between all the major states as well.

deceleration in employment took place with acceleration in growth of GDP recorded at 5 per cent during 1983-84 to 1993-94,which rose to around 6.3 per cent during 1993-94 to 2004-05 and further rose to 9 per cent during 2004-05 to 2009-10, when employment virtually stagnated (see Papola and Sahu, 2012).

1.2.1. Relevance of Workforce Diversification

The issue of diversification of workforce is a complex phenomenon with multiple factors contributing to the process. While a number of studies are focussed on this aspect, not many studies, especially those covering recent years, have looked at the composition within non-agricultural workforce. While services contributed significantly to GDP growth, their contribution to employment growth particularly in rural areas has not been commensurate. In fact, it is construction that has emerged as a major contributor to workforce additions at the all-India level and also for most of the major states, as shall be seen later in the study.

Analysing the diversification trends would provide useful insights on the structural composition and transformation of the workforce, and the resilience of the workforce in today's globalised world, where labour is a major linking factor in the circular flow of the economy. This is important for any country to see the extent, nature and kind of policy intervention required. For holistic development, economic growth and labour market outcomes must be catered to at the aggregate as well as household levels.

1.3. Indian Workforce Diversification Debate: An Outline

The discussion on workforce diversification in India stems essentially from the agrarian question; Patnaik (1988) claimed that the land reforms in India led to a new class of capitalist producers; India was industrialising and agrarian changes were its consequences. He argued that there could be reciprocal effects of how agrarian relations affected rate and structure of industrialization. In the current neo-liberal regime however, the agrarian transition does not seem to have resulted in industrialisation, but rather a movement of workers to construction or service sectors (Lerche, 2013). It is evident that agrarian issues, as well as urbanisation and rural-urban links impact both structural changes as well as diversification of the workforce. Analysing the role of public policy and public investment in explaining spatial diversities in employment growth and diversification is thus relevant (for instance, see Sen and Ghosh, 1993; Sen and Jha, 2005).

A brief look at the Indian literature suggests interesting points. A predominant view is that agrarian distress is a major factor that 'pushes' rural households to diversify into non-farm

activities in order to mitigate risk from agriculture or increase their household income whenever it goes below the reservation level. This view dominated the debate in literature till the 2000s, since it was observed and argued that crises often brought out even women and elderly to work (who were not participating earlier in the labour market), who tended to withdraw when conditions improved (Himanshu 2008; Abraham 2009). Since 1990s, 'pull' factors such as agricultural prosperity, and in particular urbanisation, have been identified as stimulating diversification (Papola 1992; Bhalla 1997; Himanshu et al. 2011), with empirical evidence that small towns which are closely connected to surrounding rural areas often tend to have stronger spill-over effects as well as a stronger impact on rural non-farm employment growth (see Lanjouw and Murgai, 2008 & 2010).

The trends in non-agricultural workforce up to mid-90s revealed that share of Non-Farm Sector (NFS) of total labour force increased since the 1970s (more for males than females), which came from the tertiary sector (see Visaria and Basant, 1994). It was argued that bulk of seasonal fluctuation in Rural Non-Farm Enterprises (RNFE) could be explained by change in job structure of rural Casual Labour Status (CLS) who shifted between agriculture and Non-Agriculture (Visaria and Basant, 1994; Basu and Kashyap, 1992; Saith, 1991; Basant and Kumar, 1989). Two decades post the reform period, many of these earlier arguments are still valid. Workforce diversification in the Indian context has been associated with 'Casualisation of workforce, eviction of tenants and share-croppers, deindustrialisation of traditional rural artisans etc. with migration also becoming an important issue in work participation' (Jha, 1997). There is a general consensus that most of the jobs being created in non-agriculture are generally in informal sector, casual in nature and in low productive activities – whether in manufacturing, construction or services (for instance see Srivastava, 2010). In fact, there are also concerns that India is facing premature deindustrialisation with stagnant employment share in manufacturing (Chakraborty and Nagaraj, 2019; Rodrik, 2015; Chaudhuri, 2015).

Meanwhile, corresponding to global debates, urban linkages have also been at work in the Indian case (Lanjouw and Murgai, 2010; Lanjouw and Shariff, 2002; Ravallion and Datt, 1996). Hazell (1990) had observed that the most dominant rural non-farm activities in India included commerce, service, and small-scale manufacturing that largely catered to farm and rural consumer demands. Retail trade in particular emerged as a significant source of jobs particularly

in rural areas. Bhalla (2005) has argued that the significant shift towards retail trade for modern goods such as consumer durables may be in areas closer to urban areas. There has also been an emerging acknowledgement of 'commuting' workers between rural and urban areas and workers with no fixed places, the major sectors of employment for commuting workers being construction, wholesale and retail trade and other services and manufacturing (Sharma and Chandrasekhar, 2014; Chandrasekhar, 2011).

Studies at village level have also added to the discussion and brought forth inter-regional differences. Mukhopadhyay (2011) argued that Indian villages are integrating into a growing urban economy which is happening through labour markets and increasing demand for labour to undertake non-farm jobs in urban centres nearby, leading to rise in share of non-farm incomes in total income. While Indian villages may indeed be urbanising, the trend is not uniform across regions. For instance, while Bihar shows high agrarian workforce and deindustrialisation (MDI, 2015), Tamil Nadu shows well dispersed urban pockets and diversified jobs. As explained by Rukmani (in Harriss-White (2003)), this has been possible due to: 'even spread of irrigation infrastructure across regions leading to better agricultural management and a marketable surplus, relative absence of large-scale industry (in smaller towns), and a well networked physical infrastructure including roads, railways and markets', reiterating the role of public investment. As argued by Jayaraj (in Harriss-White (2004)), structural transformation of workforce is a component of socio-economic transformation, which must be brought about by active public investment in the socio-economic sectors.

1.4. Emerging Issues and Research Questions

The question that comes to mind is, whether there is some stylization possible in developing countries based on past experience. The shift within and between agriculture-manufacturing-services for GDP and for workforce was much less in developing countries vis-à-vis those anticipated based on the experience of developed countries. The pattern for India has especially been even more curious, with services leading over manufacturing. Construction is turning out to be a major sector for employment. The recent Economic Survey highlights that construction is a borderline between manufacturing and services. Is construction substituting manufacturing? Post the debates on agrarian crisis and structural reforms, a number of issues and questions remain at best only partially answered and still open for debate.

What has been the long run impact on workforce structure? How different is farm to non-farm diversification post 1980s? Who is diversifying? Proportion of people and agricultural GDP has fallen but rural population still high. What are they doing? With agricultural holdings' declining size, what is the workforce scenario in manufacturing and services? Since the 1980s, how much workforce diversification has taken place, especially to different components of manufacturing and services? How different are these trends among major states in India? It is also important to ascertain the proximate determinant(s) for such shift in the Indian context. Is increasing urbanisation facilitating opportunities for workforce to enter into manufacturing or service jobs? What implications does this have on livelihoods? What has been the role of the state in terms of public investment and expenditure? This is an important question for policymakers, and for understanding the path of structural change in the economy.

1.4.1. Rationale behind the study

Since the 1980s, much of the Indian debate has been centred majorly around distress versus prosperity led diversification. Moreover, many of these are prior to 2000. Not much has been studied on the workforce diversification patterns, especially in urban areas and within manufacturing and services sectors. Although there has been lot of work on diversification from agriculture to non-agriculture (in rural areas), there needs to be thrown more light on the trends within non-agriculture (rural as well as urban) to know the quantum and pathways of diversification and how to devise policies in future. Recent studies have looked at the relationship between urbanisation and workforce diversification but a deeper understanding of the pathways underlying this diversification through micro level studies would be useful.

1.5. Objectives of the Study

This study seeks to add to the literature and understanding of workforce diversification in India and provide insights for better policies. Hence the following are the broad objectives:

- Map dynamics of workforce diversification for rural and urban areas
- Understand the major correlates of such diversification patterns
- Comparative analysis of employment in manufacturing and services
- Investigation of 'premature deindustrialization' hypothesis in India

1.6. The Point of Departure for the Present Study

This study hopes to add to the existing literature and debates by keenly investigating workforce diversification patterns and trends in India since the early 1980s along with emphasis on the major Indian states. The main aim of this study is to dissect diversification patterns at the macro (India) level, the meso (State and district) level and finally at the micro level (through town/village case studies). The use of multiple secondary sources of data and case studies from primary surveys used in tandem in this study will be a further step towards consolidating existing and new evidence for further policy debates. This will be an extension of, and an addition to the different streams of literature on workforce (and livelihood) diversification; linking the branch of studies looking at household diversification strategies and outcomes (Ellis, 2000; Lanjouw and Lanjouw, 2001; Davis and Bezemer, 2003 and so on) with the branch of studies stressing the role of public policy and expenditure and job creation (Sen and Ghosh, 1993; Sen and Jha, 2005 and so on), and further with studies examining different hypotheses pertaining to several (exogenous) variables such as income growth, agricultural productivity and so on (for instance Vaidyanathan, 1986; Chandrashekhar, 1993; Himanshu et al, 2011 and so forth).

The focus of this study will mainly be on issues ranging from structural transformation of the economy and GDP, along with the size, structure and composition and diversification of the workforce. These trends are analysed for rural and urban areas separately, across major economic sectors (for farm and non-farm components in employment) as well as spatially (across major Indian states and their districts). Along with looking at GDP, a point of departure of this study from existing studies is the emphasis on public investment in rural and urban areas separately and its correlation with workforce diversification. The micro level case studies also bring an important aspect to the forefront, showing that one of the many vital reasons for differences across geographical regions in terms of employment in particular stems from socio-economic differentials.

1.6.1. Approach of this study

This study uses quantitative as well as qualitative research methods to look at temporal and spatial patterns of workforce diversification and its correlates. The analysis looks at various secondary sources of data for aspects such as principal and subsidiary status of work, gender, age

and caste based work patterns and education levels among other variables; which is supplemented by detailed aspects from the primary survey. Analysing correlates and processes of workforce diversification will help in understanding the pathways for a better workforce absorption and development in future policy initiatives.

1.6.2. Scope/ Outlook of the study

It would be prudent at this juncture to specify the broad outlook and scope of this study. It is abundantly evident that the literature on structural transformation and workforce diversification covers a wide range of additional issues such as the agrarian question, agrarian distress, productivity and wage levels, informalisation and casualisation, quality of jobs etc. Although all such important and relevant issues are mentioned and acknowledged, it is not possible to discuss everything in detail, and the study must have a focussed structure. The scope of this study is therefore set to analyse pathways, patterns and correlates of workforce diversification, while looking at temporal and spatial trends. Emphasis is also laid on sectoral employment elasticities to study structural transition in a more detailed manner, as well as on public investment patterns as an important correlate of workforce diversification.

1.7. Statement of Method

This study uses two major secondary sources of data for looking at temporal and spatial patterns of workforce diversification. The first is from the National Sample Surveys (Employment-Unemployment Survey Rounds 38, 50, 61 and 68), and the second, from the Census of India for 2001 and 2011 to look at more recent trends. For additional analysis, data from Annual Survey of Industries have been used where required. For a long time-series of public investment, data have been taken from the EPW research foundation. Data from NSS has been used to extensively examine the patterns and trends of workforce diversification and its proximate correlates. The role of public investment as a correlate of non-farm employment has been tested using a pooled model across time and major states. Employment elasticity and growth in workforce across sectors at the district level has been estimated from Census data for 2001 and 2011 to check the patterns of structural transformation and to test for the premature deindustrialisation hypothesis. Using various data sources, other aspects correlated with diversification have been discussed.

Along with this, primary data with sequential multi-stage random sampling of workers in major non-farm enterprises in the industrial cluster have been collected and analysed. Qualitative data were also obtained from households and entrepreneurs through semi-structured interviews with the key informants such as non-farm enterprises, business units, small scale commercial units and workers. The primary survey (of households as well as non-farm enterprises) was undertaken to compare two regions from 2 different states; Bihar (Munger and Bhagalpur region) and Tamil Nadu (Erode and Coimbatore region). This helps to understand issues of migrant workers, multiple occupations, seasonal work, and whether household livelihood strategies are making them diversify jobs. This also addresses the urban and peri-urban locality, leading to clues about rural-urban linkages as pathways to workforce diversification.

1.8. Chapter Scheme

The study is structured as follows:

Chapter 2 summarises the relevant literature revolving around workforce diversification.

Chapter 3 discusses the trends and patterns of workforce diversification from the National Sample Surveys (Employment and Unemployment Rounds) for pre and post reform periods in terms of principal and subsidiary work, status of work and household type; and cross-tabulations for looking at diversification pathways at the individual as well as household level.

Chapter 4 looks at the trends in labour market as well as sectoral employment elasticities at the state level for major states to understand the supply as well as demand side of employment. It further examines the trends in rural and urban public expenditure patterns across major states.

Chapter 5 explores the correlates of workforce diversification such as education, age, gender, social and religious groups etc. Furthermore, it tests some important hypotheses of workforce diversification in the current context using a Dynamic OLS model, while at the same time determining the impact of different correlates on the decision to participate in a particular economic sector of work using a multinomial logit model. Furthermore, these results are decomposed using the Fairlie technique to determine the exact extent to which these explain diversification in rural and urban areas.

Chapter 6 tracks urban workers in the labour market using the Periodic Labour Force Survey by constructing panels and checking sectoral and occupational mobility as well as comparing average wage ratios before and after diversification.

Chapter 7 focuses on the spatial dimensions of workforce diversification using district level data from Census of India, and also examines evidences of premature deindustrialization in India. It also compares manufacturing and services sector as well as changing nature of occupations, to gain insights on the haphazard and insufficient structural shift in India.

Chapter 8 gives a snapshot of 4 regions in Tamil Nadu and Bihar, their peculiarities, similarities and differences to give a basis of understanding the wide differentials in structural shifts despite similar initial conditions.

Chapter 9 presents the quantitative as well as qualitative results from the field surveys in terms of sectoral shifts of work, deindustrialization, and emerging migration patterns.

Chapter 10 concludes

Chapter 2: Trajectories of Workforce Diversification: An Overview

'.....Through job creation, quality public services and better working conditions, people, communities and countries can lift themselves out of poverty, improve livelihoods, engage in local development and live together in peace.....' Sharan Burrow

2.1. Diversification Frameworks

Workforce diversification ensues from the livelihood choices and decisions of workers in the economy. This diversification may be seen in the form of 'farm' versus 'non-farm' (Barrett et al, 2001), or farm intensification towards higher value crops and wage employment in non-farm jobs (Khatun and Roy, 2012), or as wage work versus self employment (Warren, 2002) and so on. The pathways for such diversification may be varied; it may be a shift to another sector or industry of work (such as agriculture to manufacturing or services), or in the form of multiple activities in one or more sectors (pluriactivity)[2]. The drivers and/or correlates of such diversification are also multi-fold. These aspects, and other related issues are discussed in this chapter in detail.

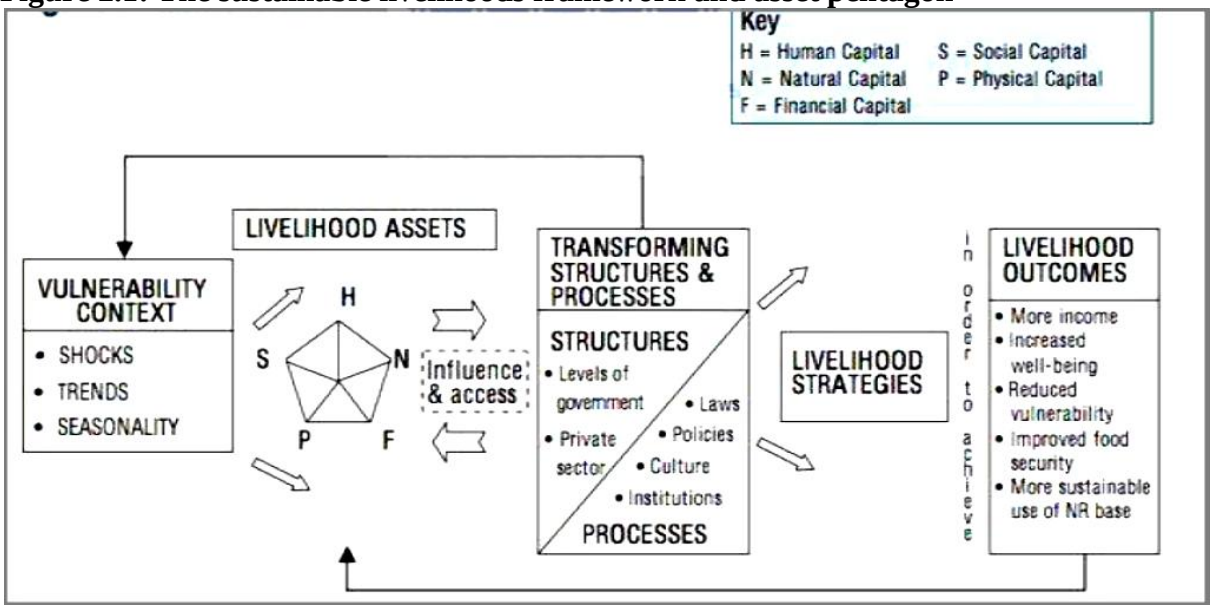
2.1.1. The Sustainable Livelihoods Approach

Diversification of workforce especially in rural areas from agriculture to other sectors has been discussed widely in literature as a prerequisite of sustainable development for improving livelihoods of workers and reduction of poverty (OECD, 2009; Haggblade et al, 2007). Workforce diversification approaches essentially evolve from challenges and livelihood choices and strategies of workers when faced with difficult situations to reduce their vulnerability or in general to achieve what they aspire. The focal point of this discourse in literature is in the form of rural livelihood diversification, which has been defined by Ellis (2000) as a process by which rural households often '*attempt constructing a diverse portfolio of activities for the purpose of surviving as well as to improve their living standards*', over a period of time[3] (emphasis added). He has also argued that 'diverse livelihood systems are less vulnerable, more resilient and sustainable than undiversified ones' (Ellis, 2000).

[2]See for example, OECD (2009).
[3]Ellis (2000), Ellis (1998)

The concept of 'Livelihood' is associated with the means of living of households and individuals. In this context, the asset-pentagon framework[4] discussed in the literature stresses on the importance of different kinds of assets, viz physical, natural, human, financial and social capital, which play important roles in determining the living status of a household. It has been argued that these assets ought to also include social networks and skills as these complement household work decisions; with the resulting diversification, there is an increasing trend of heterogeneity seen in the non-farm sector. A livelihood comprising all such assets and capabilities to perform different activities to withstand shocks or stresses without undermining the natural resource base would be deemed sustainable (Fine, 1999; Scoones, 1998; Chambers and Conway, 1992).

Figure 2.1: The sustainable livelihoods framework and asset pentagon



Source: DFID (1999)

2.1.2. Livelihood Strategies

Livelihood strategies are work choices/ decisions taken by households/ individuals for survival. These strategies may depend on their initial conditions as well as external shocks and thus be driven by their aspirations or by distress. Hence, livelihood strategies may entail long-term shift to other jobs/ sectors or short-term risk mitigating multiple activities, depending on the capital

[4]Asset-pentagon framework; see DFID(1999)

and assets possessed by the household/ individual. Workforce diversification and migration are the collectively visible impacts of such livelihood choices.

There are various debates in literature surrounding the patterns and drivers of these livelihood strategies and workforce diversification trends. This chapter reviews the existing literature around diversification and is structured as follows. Beginning with an overview on different theories on workforce diversification and global patterns, the discussion moves towards the Indian case and various aspects surrounding the issue. The final section of the chapter sums up the debates and gaps in literature and streamlines the way forward for further research.

2.2. 'Stylised' Facts and Theories

The global literature discusses various models looking at workforce diversification through different lenses. This section sketches some of the major theories and issues around diversification debated globally. Most of these theories begin with the transformation of the rural economy, learning from the experience of various countries as well as theoretical constructs; therefore although they may not always be generalised, they do provide some ideas and approaches on diversification.

2.2.1. Conceptual and Theoretical Background

The discourse essentially stems from the process of structural change in the economy followed by a structural change in employment (for instance Kaldor (1967), Clark (1960) and Kuznets (1972), wherein proportion of workers in agriculture declines and increases correspondingly in the manufacturing sector with rising income per capita. This process is visible in both urban as well as rural areas, with transition from agriculture to industry, and economic development leading to changes in the employment and occupational structure (for instance, Todaro (1997)). The transformation of workforce then begins with transformation of the rural economy. Similar to economic development and structural change models, 3 broad stages of rural transformation have been identified[5]. In the first stage, rural non-farm activities often tend to be in some way related to agriculture. In the second stage, rural labour-intensive manufacturing faces competition from urban manufacturing which is capital-intensive and hence service activities

[5]See, for example, FAO (1998)

start to take off. The third stage begins with employment generation and economic growth in non-agricultural sectors (Start and Johnson, 2004; FAO, 1998; Chenery et al, 1986; Kuznets, 1971).

These theories however do not completely explain the transition of the Indian workforce. Between the 1950s and 1970s, despite high growth in per capita incomes as well as agricultural income coupled with a decline in the share of agriculture in GDP, agricultural workforce remained stable, a process often attributed to weak linkages between the agricultural and non-agricultural sectors, as well as the low employment generating ability of industry (Vyas and Mathai, 1978).

Farm and non-farm sector linkages have been of much debate; with Hirschman's (1958) unbalanced growth theory stressing on a push in the industrial sector leading the transformation, to Ho's (1982) stress on agricultural growth and decentralized industrialization for rural growth in tandem. But none of these theories completely explain the patterns in India, where almost bypassing the manufacturing sector, decline in agricultural workforce has rather been matched with increases in services sector (for instance, see Nagaraj (1990); Bhalla (1997) and so on)[6]. The issue often raised is the limited capability of job creation by the manufacturing sector and hence the pressure on agriculture remaining put. Meanwhile, post the 1970s, rural non-farm sector in India showed some increase over the years, an important alternative for the rural transformation process (Visaria, 1995). The pathways and patterns of rural and/ or urban transformation are therefore important.

However, although the *idea* of structural transformation has more or less been agreed upon in the literature, there are differing views as to the *process* of diversification as part of the structural transformation. The first view is based around 'development', wherein agricultural transformation is driven by mechanisation, modernisation and urbanisation. High agricultural productivity yields surplus for further investment in non-agricultural activities to meet the changing demands for various goods and services driven by increased (rural) incomes. This leads to '*prosperity-induced*' diversification of workforce towards manufacturing and services through

[6] There was also the debate regarding Kuznet's theory (1966) of structural transformation with focus on industry, versus Gemmel's empirical findings (1986) which seemed to suggest an equal if not greater importance of the service sector in this transformation process.

backward-forward linkages (the linkage effect), as labour is required to produce the goods and services now being demanded (Kuznets, 1966; Unni, 1994; Chadda, 2008). The second view on the other hand argues that it is agrarian distress caused by stagnation or crisis in agriculture coupled with high population that creates a surplus of agricultural labour, which when unable to find work in industrial sector ends up turning towards low productive (informal) service jobs. Such diversification towards non-agricultural work is '*distress-induced*' (McGee, 1971; Start, 2001; Davis and Bezemer, 2004).

Based on the debates and arguments around prosperity versus distress induced diversification, a few of the then contemporary as well as subsequent works in literature began to view diversification through the lens of '*income diversification*', instead of just '*activity*'; as the ultimate goal of diversification would be either to reduce vulnerability or increase wealth by changing/ increasing the sources of income (Ellis, 2000; Barrett et al, 2001; Minot et al, 2006). These studies list the channels through which such diversification decisions undergo.

Among the most discussed is the '*risk-minimisation*' motive that spurs diversification strategies. It has been argued that income uncertainties or sudden loss of income stream for an individual/household is one of the major factors for such entities to pursue ***multiple jobs*** for a smooth income and consumption stream, while at the same time mitigating the risk that arises out of just working in one job. This strategy is however also not without cons as these entities, especially if they are generally farm workers, then have to weigh between income and job security, which may not necessarily be guaranteed by working in a non-farm sector (for instance, see Reardon, 1998; Ellis, 2000; Davis and Pearce, 2000; Barrett and Reardon, 2001; Start, 2001). A more extreme form of battling such risks due to investment constraints and/or extreme poverty falls under the '*distress*' diversification, which may often also lead to ***migration*** (see Davis and Bezemer, 2003).

The other most debated issue is the '*economic-expansion*' motivation, where accumulated wealth and assets are used in response to new opportunities or due to choice or desire for more (see Ellis, 2000). This is also called '*demand-pull*' diversification, which is more likely to lead towards a ***shift*** in sector of employment, backed by optimal usage of social, human, physical and

financial capital. Such a diversification is more far-sighted with focus on work satisfaction and future income streams (Dunn, 1997; Start, 2001; Davis and Bezemer, 2003).

2.2.2. Diversification Pathways

Workforce diversification across the globe has shown a multitude of pathways. As discussed in the previous section, these diversification channels and patterns differ based on the most significant motivation driving these (be it risk-minimisation or economic-expansion or a combination of these and other factors) as well as the way diversification is being measured. Diversification has been measured in the literature in three broad ways: '*assets*' in which a household invests keeping in mind its future; '*activities*' in which individuals/ households work; and '*income*' sources of individuals/households (for instance see Barrett and Reardon, 2000). While the 'income' measure explains motivations as discussed earlier, the 'activities' approach reveals trends and patterns of diversification. This section delves into the literature on various pathways of workforce diversification witnessed in different parts of the world.

Shift of workforce to other sectors

Workforce diversification patterns have generally been discussed in terms of ***shift of activity*** from 'farm' to 'non-farm' sectors or from agricultural to non-agricultural sectors (see for instance Lanjouw et al, 2011; Barrett et al, 2000; Basant and Kumar, 1989). However, such workforce diversification patterns from primary to secondary and tertiary sectors have not been in conformity with industrialisation, urbanisation and economic growth in many developing countries (Start and Johnson, 2004; Mitra, 2008 among others), which led to debates on stimulation of agrarian change and workforce diversification either through more economic growth and industrialisation (for instance Byres, 1998), or through increased focus on rural farm and non-farm sectors (for instance Lipton, 1983). However, there are also at the same time a multitude of other pathways of workforce diversification as discussed below.

Supplementary/ Subsidiary activities

It has been widely documented that individuals/ households often supplement their income sources/ livelihoods my taking up ***subsidiary activities*** (see, for instance, Barrett et al, 2001). Engagement in such supplementary activities has many a times been associated with the

economic-expansion motive, and is expected to result in poverty reduction (Lanjouw and Lanjouw, 2001; Ellis and Mdoe, 2003). However, it has also been argued that it is the distress-driven motivation that often drives workers to engage in subsidiary work (Bhalla, 1989), when and wherever available.

Pluriactivity/ Multiple jobs

Pluriactivity is another pathway often adopted by individuals/households (especially rural) when they want to diversify widely to dilute risk, by having ***multiple jobs*** at a point of time for a continuous inflow of income (see Ellis, 2000; Barrett et al, 2001). As argued by Coppard (2001), employment patterns for such pluriactive households keep varying. Coppard's arguments have also been backed by World Bank (2010) suggesting an '*Inverted U hypothesis'*, wherein (rural) households often engage in a wide variety of (non-farm) occupations at low levels of development; and begin to specialize (in non-farm activities) with increasing development (Coppard, 2001; World Bank, 2010). Although such a model may be too generalised, pluriactivity as a diversification channel remains a significant point.

Seasonal Shift in Livelihood Activities

The literature on *distress-driven* diversification also suggests a seasonal pattern in non-farm diversification arising out of seasonal labour demands in agriculture, also known as the '*residual sector hypothesis*' (for instance, see Vaidyanathan, 1986; Basant and Kumar, 1989). The non-farm sector also absorbs excess (idle/ casual) labour from agriculture during off-seasons, as it involves low opportunity costs. This is another form of pluriactivity, albeit of a more temporal rather than spatial nature, with multiple jobs across different seasons.

Migration of Workers

Migration of labour/ workforce is most commonly seen in the rural to urban stream; it may be season induced or distress push or caused by the desire to achieve more and hence of a more long-term nature (for instance, see Deshingkar and Start, 2003). However, seasonal migration between rural and urban areas is often a (rural) distress driven phenomenon due to agrarian crises and/or population pressure (McGee, 1971; Breman, 1996; Wiggins and Hazell, 2011), while it may sometimes also be the result of a pull from growing cities (Wiggins and Hazell, 2011). For

such migration to take place, it is often social networks that help workers to migrate and find new jobs (Dréze et al, 1998; Davis, 2002; Pastakia and Oza, 2011).

2.2.3. Diversification: Correlates

The basic argument given for diversification of workforce is that these workers (and the households to which they belong), must have the ***motivation*** as well as the ***ability*** to shift/diversify/migrate/take up subsidiary or multiple jobs which are remunerative (for instance, see Davis and Bezemer, 2004; Ellis, 2000). Motivation, as discussed earlier, may come from risk-minimising or economic-expansion desires of the households/ individuals. The ability to diversify comes from a wide range of factors, which are discussed below.

Landholding/Capital resources

It has been argued that the decision to diversify, particularly in rural areas, is often driven by the size of its landholding (if any). For instance, when a household possesses land, the decision to diversify is in terms of time allocation on the farm and off the farm, comparing marginal returns and earnings from the two activities; when non-farm incomes are higher, such households are likelier to diversify to off farm jobs. The size of landholding determines the 'ability' to diversify; households with larger landholdings may remain in farm jobs or invest earnings from farm into non-farm / non-agricultural activities based on returns, while households with smaller/ no landholdings are likelier to be 'pushed' towards non-farm activities (see Ellis, 2000). Similar logic also applies to households with financial or capital assets as will be discussed further on. Basant and Joshi (1994) showed that diversification occurs at both ends of the spectrum; households with landholdings usually diversify into agro-processing, trade or other productive non-farm activities, while the poor into casual and less productive non-farm jobs.

Household Size

Apart from landholdings, rural households often also have a surplus of labour supply, due to a higher household size on average. It is in this context that studies have also quoted the quantity of labour as a correlate of non-farm employment (for instance, see Reardon, 1997). The argument is that larger sized households with more number of members often end up with disguised unemployment with excess labour on farm than required and negligible marginal

returns; which was in fact the major assumption of the surplus labour theory by Lewis (1954), Dasgupta (1954), Nurkse (1953), Dasgupta (2003), Krishnamurty (2008), and so on. These surplus workers often tend to search for non-farm activities.

Social capital/ education

Social capital, more importantly education (and skill) is an important correlate of workforce diversification in terms of the 'ability' to diversify to more productive sectors of employment (see Reardon et al, 2007; Davis and Bezemer, 2004 and so on). Often taking the education level of the household head as a measure, it has been argued that those with lower education status often end up in farm or low-productive non-agricultural activities, and at the same time more educated households are able to work in various skill-intensive non-farm sectors (Shrivastava and Shrivastava, 2010; Hossain, 2004; Lanjouw and Shariff, 2002; Abdulai and Delago, 1999)

Networks

Social networks, or social relations within/among households/individuals, often lead to interactions, and reduce transaction costs in the sense that they help in flow of information to those who desire/require jobs in other sectors from those who have already diversified (Davis, 2003; Reardon et al, 2007). It is typically seen in cases of migration for work that social networks have been used for information and contacts (Dréze et al, 1998).

Location

Workforce diversification has also been postulated to be dependent on *location* (see Start, 2001 for instance). Rural and urban differentials become important in this context. When rural economies are distant from urban centres, they are more dependent on their local resources and are generally farm-based economies. With growth and spread of urban centres as well as connectivity, opportunities for migration and diversification to other sectors of work present themselves (for instance, see Wiggins, 2001).

Infrastructure

Immediately following from the previous point, there is a wide literature stressing on the importance of infrastructure and connectivity through communications, roads and transport in

driving diversification by reducing distances and transaction costs of information and hence increasing the opportunities to work in different sectors (Davis, 2003; Reardon et al, 2007). Proximity to urban centres as well as levels of physical infrastructure such as roads, electricity etc. are therefore often taken as proximate correlates of workforce diversification.

2.3. '*Push*' versus '*Pull*': The global debate summarised

The literature is replete with debates on whether workforce diversification patterns in different parts of the world are *demand-pull* or *distress-push*. Having looked at the major pathways of diversification witnessed across the globe as well as the most proximate correlates, a brief summary of these debates is recapitulated here before proceeding to the scenario in the developing world and in particular in India.

Demand-pull diversification has generally been associated in the literature with richer households with financial capital and technologically advanced regions with developed markets (for instance see Davis and Bezemer, 2004). It has also been argued that regions which are developed in agriculture also endow farm households with incomes that can be invested in non-farm activities to further increase household incomes/ profits, and lead to demand-pull diversification (Ellis, 2000; Ellis, 1998; Bryceson, 1997). The pull factors for diversification are in the form of positive correlates for income expansion; these pulls factors may be in the form of a productive agriculture, good infrastructure, better connectivity and markets, technological innovations, higher levels of education and so on (for instance, see Haggblade et al, 2007). Further classifying the pull factors, Wiggins and Hazell (2011) have argued that prosperity in agriculture and close urban proximity are strong pull factors, while moderate growth in agriculture and poorer connectivity to towns/ cities leads to a weak pull.

On the other hand, the literature on distress-push diversification is even much wider and debated. Unlike demand-pull diversification, distress-push diversification has been associated with poor agricultural performance and relatively poorer households especially in rural areas, generally diversifying into low-productive non-agricultural activities. The push factors are in the form of negative correlates forcing diversification strategies for coping or survival by reduction of vulnerability and risk-minimisation; these may be in the form of poor agricultural performance, climate externalities such as floods/ droughts, lack of infrastructure, under-developed markets

and so on (For instance, see Martin and Lorenzen, 2016 and Haggblade et al, 2007). Reardon (1992) argued that it is the poor households affected by distress, as they have little assets, low education and so on. As further classified by Reardon et al (2007), such households are thus faced with risk-managing (*ex ante* diversification) or risk-coping (*ex post* diversification) strategies. Push factors have again been classified by Wiggins and Hazell (2011) as strong push associated with stagnant farming, population growth and low-productive jobs in construction and other informal sectors for the less educated. This is also supported by Breman (1996). It was in this context that Carter and May (1999) argued that when diversification is distress-driven, poorer households are often likely to be more involved in non-farm activities and if the diversification is of a demand-pull nature, richer households were more involved in non-farm activities.

The ensuing debates and discussions lead to the possibility of a bimodal distribution of household incomes. As suggested by Davis and Bezemer (2004), bimodal distribution of household incomes is due to co-existence of demand-pull and distress-push diversification, and that "the existence of two clusters of low and high return activities would be visible, in which poor and affluent households indulge in respectively" (Davis and Bezemer 2004). This is disturbing, as diversification of workforce is expected to raise standards of living by raising household incomes (Reardon et al, 1992; Abdulai and Delgado, 1999).

2.4. Diversification Patterns in the Developing World

Given the existing literature on various global stylised facts on diversification of workforce, it would be interesting to look at the scenario in developing countries (especially Asia, Africa and Latin America) in a historical sense given such stylised models based on the experience of the developed world. Historical trends in the developing world provide various insights on workforce diversification patterns in the current context, especially for rural areas.

Huang, (2004), studying the trends in Taiwan, has argued that the land reforms implemented in Taiwan in the 1950s encouraged farming, and resulted in increased production. In the 1960s, manufacturing and commerce developed, while agriculture slackened. However, the government in Taiwan improved infrastructure, and established industrial parks in rural areas which led to a gradual increase in part-time job opportunities for farmers. A similar scenario was seen in Korea,

where till 1980s, 11 per cent of total income of the farm households was recorded to have come from rural non-farm activities (Choe, 1985)). With government measures such as 'Side-Job Promotion' in the 1960s, 'Saemaul Industry Program' in the 1970s, 'Rural Industrial Complex Project' in the mid-1980s, and 'Green Tourism Program' in the 1990s, Korea was successful in raising off-farm incomes, and non-farm job opportunities of farm households (Kyo Suh (2004)). However, (Oh, 2001) noted that there is very less room left to raise non-farm incomes in future in Korea[7].

In the case of Philippines, it was seen that in the 1980s, 31.4 per cent of the farm households' total family income, and 81 per cent of the total family income of the rural non-farm households seemed to come from rural non-farm activities (Fabella 1985). Later, using data from the Laguna survey, Reyes (1990) suggested that proportion of time spent by rural households on non-farm activities increased. Nonfarm income rose sharply from 8 per cent in 1974 to 36 per cent in 1987. It is generally assumed that manufacturing is the most important sector in developing countries in Asia; however it was not found to be so in Philippines & Malaysia (Sanchez, 1991). In Philippines, rural non-farm employment was found to be dominated by consumption-linkage activities as observed from a large share of trade & services to total rural non-farm employment (Ranis *et al*. 1990). Similarly, for Indonesia, it was seen that small-scale businesses were the most important job-generators while farm jobs were declining (Baroroh, 2004). Even in Thailand, Booranasanti (2004) noted that 56.5% people were engaged in agriculture, and 43.5 per cent in non-agriculture. The major industries in non-agriculture sector included wholesale/retail trade; repair of motor vehicles, motorcycles, personal and household goods, lastly followed by manufacturing.

Davis (2014) looking at Sub-Saharan Africa using the RIGA (Rural Income Generating Activity) database expressed the view that there is significant importance of small towns over large cities in leading to better work opportunities. It was found that majority of rural households were involved in agriculture, and often held on to some farm activity, even at higher levels of GDP. It has been argued in fact that 'while describing the composition of non-farm employment, manufacturing rarely turned out to be the main component of rural non-farm economy'(Carletto et al (2007) quoted in Reddy et al, 2014).

[7]See Asian Productivity Organization (2004), 'Non-Farm Employment Opportunities in Rural Areas in Asia'

Clearly, structural transformation processes especially in case of workforce across developing countries show varying patterns[8]. In the case of India especially, the workforce has somehow meandered around manufacturing and moved to various services and more visibly into construction activities. The sustainability of such a model seems to be precarious[9]. The following section summarises and consolidates the debates and trends in India's workforce diversification over the past four decades.

2.5. The Indian Scenario

It has been noted that in India, job diversification has been lagging behind GDP diversification (Binswanger, 2011). According to Mitra (2008), in the 2000s, 'jobs growth picked up; however, economic growth as well as employment generation turned out to be more beneficial to the upper income strata as compared to the poor'. He argues that the evidently faster jobs growth in 2000s could be attributed in part to the revival of agricultural jobs that had declined during the 1990s. It is clear that **a**long with changing GDP structure (shift away from primary to secondary and tertiary sectors), there has been a shift in the workforce during last 3 decades, even though workforce shift has been much lower (slower) than that of GDP structure. The nature of shift away from agriculture has been covered extensively in literature.

There has been an extensive debate on the growth of non-agricultural sector since the mid-80s. In the Indian case, it is the socio-economic transformations that have been widely discussed in literature in the form of the agrarian question, land reforms, public expenditure and structural change in the economy itself apart from productivity of different sectors in the economy. The discussion on workforce diversification stems essentially from the agrarian question; with the presence of 'agricultural, land and nature related constraints'. The economic logic of the agrarian question was 'how to finance the transition from domestic surpluses, that is, agriculture', to catch up on industrialisation and urbanisation in the West (Jha, undated). Arguing the case for India, Patnaik (1988) claimed that the land reforms in India were not very successful and led to a new class of capitalist producers; India was industrialising and agrarian changes were its consequences. Also, as argued by Patnaik (undated), 'there exist possibilities of reciprocal

[8]Most of the discussion in the literature revolves around rural non-farm; while non-agricultural activities in urban areas are discussed in much lesser detail.
[9]For instance, see Banga (2005)

effects of the way agrarian relations impacted the quantum and structure of industrialisation', the impact of which is still witnessed.

2.5.1. Public Policies post 1980s in India

India's New Economic Policy of liberalisation, privatisation and globalisation in 1991 also entailed policy changes especially in terms of declining public expenditure. The 1980s had witnessed a period of workforce diversification beginning to assume significant proportion. However, the early 90s did not see any significant acceleration in this trend. As argued by Sen and Ghosh (1993), Sen (1996) and Bardhan, Mookherjee and Kumar (2009), non-farm employment and poverty trends have followed suit given such policies.

The slow growth of non-agricultural workforce (especially in the early 90s, directly post the reforms) has been attributed to different reasons: ***public investment*** saw a decline (see Sen and Ghosh, 1993) and in particular a reduction in share of public investment in agriculture, for instance in irrigation (see Bardhan, Mukherjee and Kumar, 2009). Public investment was adversely affected by economic stabilisation and neo-liberal policies, partly as a result of liberalisation measures accompanying the economic reform process (see Sen and Ghosh, 1993; Bhalla, 1997). Also, ***land reforms*** over time may have been necessary for abolition of the Zamindari system, but the reforms that were made were insufficient; and access to land still continued to remain highly uneven or unequal: landlessness and/or small/marginal holding was high (see Rawal, 2008) especially for lower socio-economic groups (SC/ST) thus leading to productivity decline (Bhalla, 2014). Land reforms therefore had very limited success (Patnaik, 1988). It was also argued that during the period of land reforms, NSS data showed area under tenancy to be declining (Jha, 1997) and reverse tenancy was seen to be on the rise in some areas (Bardhan, 1976), wherein small farmers leased land to capitalists. Was this distress or positive diversification? How did it affect the trends post-reform?

Sen and Jha (2005) have argued that public investment in the 1980s led to more than 80% increase in employment in non-farm. According to them, hardly any increase took place during the first half on the 1990s essentially due to a decline in (rural) public expenditure post-reforms. The increasing diversification of non-farm rural workforce could mainly be attributed to recovery in the sector since 1999–2000, albeit more in the form of unorganised manufacturing or

services (see Sen and Jha, 2005). Further, Sen and Ghosh (1993), Sen (1996) and Bhalla (1997) reason that reduction in public expenditure during the structural adjustment period led to decline in rural non-farm employment, linked to the matching trends in real wage rates in agriculture and poverty ratios (Jha, 1997). However, Jha (1997) argues that many factors have been associated with workforce diversification in Indian context such as the casualisation of workforce, eviction of tenants and sharecroppers, deindustrialisation of traditional rural artisans etc. Migration also became an important issue in work participation' (Jha, 1997). Therefore, to restore the process of workforce diversification, active state participation has been put forth as a necessity by Sen and Jha (2005).

The role of the state therefore becomes important when trying to understand the trends in workforce diversification in India. For instance, in the sector of Construction, the Eleventh Plan made a heavy planned investment in infrastructure which went into construction of roads, bridges and infrastructure. Since then, additional public investment especially in the rural areas has also been promoted through schemes such as the MGNREGS, IAY and PMGSY. This shows that public investment and expenditure have a major role to play in workforce diversification, as construction sector has emerged as one of the major sources of (additional) jobs over the years, owing to these policies and public investment. Private investment also seems to have gained importance. For instance, looking at the respective significance of land reforms versus private investment on irrigation in West Bengal, Bardhan, Mookherjee and Kumar (2009) have argued that in the 1980s, improvement was 'more due to private investment in groundwater irrigation, contrary to the existing view that it was due to operation Barga'. Therefore, workforce diversification also needs to be understood from a policy perspective.

Trends in India around the reforms period

Vaidyanathan's (1986) study has been considered a seminal work initiating a lively debate on the underlying process of growth in non-agricultural sector, especially its workforce in rural areas. Non-agriculture was considered as a residual sector absorbing labour that may have been either displaced by mechanisation in agriculture or due to slow growth in agriculture and its low productivity.[10]

[10]Vaidyanathan (1986) on residual sector hypothesis

The trends in non-agricultural workforce upto the mid-90s have been captured well by Visaria and Basant (1994) in a summary of the national trends. In response to the residual sector hypothesis mentioned above, they found that participation in rural non-farm activities seemed to be inversely proportional to the landholding size possessed by a household. They also found that though there was a rise in non-farm labourforce since the 1970s, much of it was from the tertiary sector and in seasonal casual labour switching from farm to non-farm; or non-farm work rather than full-time non-farm enterprises in rural areas. The diversification moreover was higher for males. Much of the diversification was also found to be in secondary capacity (or supplementary work).Although the trends in diversification slowed down in the 90s, they picked up again towards the end of the decade but gave rise to the unorganised and 'informal' economy which has increased manifold in the contemporary stage (see Sen and Jha, 2005).

2.5.2. Discourses on India's workforce diversification

As discussed earlier, the discourse on workforce diversification stems from the agrarian processes. The share of non-agricultural workforce in rural areas however overtook agricultural workforce by 1988, albeit in the tertiary rather than secondary sector, and casual rather than regular work (see Jha, 1997). As per the literature, this could have been due to 'economic development led non-farm jobs growth' or mechanization in agriculture that pushed out under-employed farm workers, or stagnation in agriculture that forced out labour into low paying non-farm jobs (Papola 1987; Basant and Kumar 1989; Chandrashekhar 1991, Unni 1991 and Shukla 1992). Previously, Bardhan (1977) had suggested that change in composition of work was when better-off households used surplus from cultivation to expand their economic activities. It was later debated that in the years of 'high growth of agricultural employment, growth of non-agricultural employment was low and vice versa' (Unni and Rani (in Nayyar (2005)).

As argued by Kundu et al (2005), the shift of workers across sectors may not always be assumed to be a positive development. During the 90s, the most accepted theory came to be that the 'residual sector hypothesis' seemed to be true in India; with the rural non-farm sector absorbing excess labour, acting as a counterpart to the informal sector in urban areas (Vaidyanathan, 1986; Basant and Kumar, 1989; Kumar, 1992; Eapen, 1995; Dev, 1990; Bhaumik, 2002; Sidhu and Toor, 2002; Ghuman et al, 2002 etc.). Interestingly, Verma and Verma (1996), found a strong relation between unemployment rate and non-farm rural male employment due to the rising level

of disguised unemployment in the traditional non-agricultural sector. Saith (1991) argued that it was low agricultural productivity which often drove households to engage in multiple non-agricultural activities for livelihood and survival. In the Indian case, the residual non-farm 'activities' in which labour (mostly casual) were concentrated, were mining and construction (Bhalla, 1994), and retail and personal services which offered slightly higher wages for similar role as agriculture (Fisher et al, 1997).

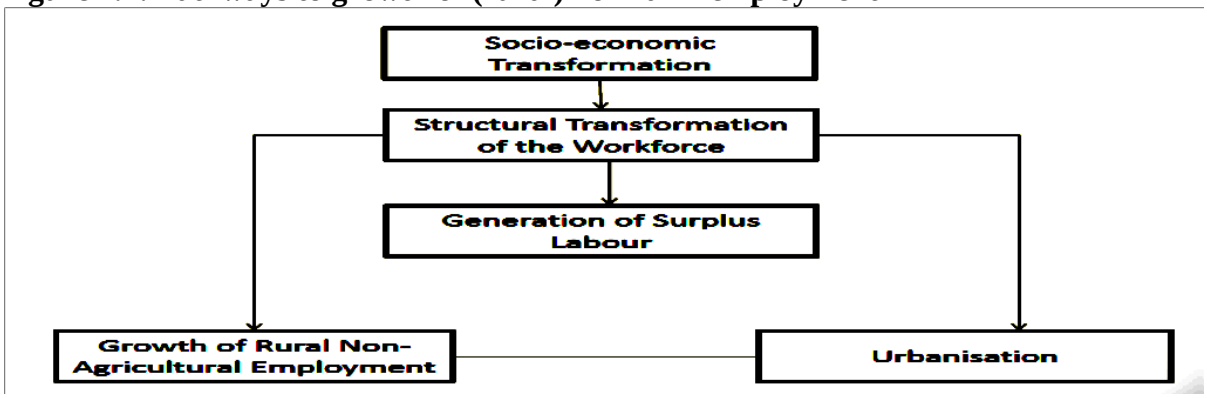
The discourse has moved to the role of growing urbanisation and proximity to towns as important factors leading to workforce diversification (Lanjouw and Murgai, 2010).However, despite the belief that towns would have strong spill-over effects on nearby rural areas, thereby pulling up non-farm jobs, it was earlier thought that these forces were comparatively weaker before (for instance, see Basant and Kumar, 1989; Papola, 1987), while rural industries were found to be 'characterised by low productivity and earnings' (Papola, 1987). Although the positive role of urbanisation was acknowledged more later on, the situation of rural industries continued to be dismal. For instance, Lanjouw and Shariff (2002) pointed out some important issues in India's 'non-farm' sector: strong and multifarious inter-linkages between 'farm' and 'non-farm'; widespread but less productive small enterprises in rural areas in terms of employment; growth of employment in non-farm upto 1990s, but mostly of a casual nature (see Lanjouw and Shariff, 2002).

More recent village level studies in India (focussing on rural non-farm diversification) stress on the importance of landholdings and education levels in the household as indicators of participation in non-farm activities. According to studies in Palanpur village, evolving demography, improvements in agricultural technology, growth of neighbourhood towns are the major enabling factors for workforce diversification (Himanshu et al, 2011). However, the authors argued that diversification in Palanpur only very gradually showed some impact on rural poverty decline, since the poor were initially less able to diversify.

A model that tries to depict the contemporary Indian context was formulated by Jayaraj (2004), indicating that it is the *socio-economic transformation* of the economy which would lead to a structural transformation of workforce and the generation of surplus labour. This structural transformation of the workforce may be seen with growth of rural non-farm employment and/ or

increasing rural-urban linkages. This socio-economic transformation may take place in the form of public policies and investment, human capital formation by households through education and so on, as will be discussed in later chapters in this study.

Figure 2.2: Pathways to growth of (rural) non-farm employment



Source: Jayaraj (2004).

2.5.3. Debates on rural farm to non-farm employment in India

The literature is replete with discussions on rural non-farm sector in India as discussed previously. Agricultural development was found to increase disparities in income distribution, especially in more developed regions, while farm size determined the existing inequalities (Singh, 1986 in a case study in rural Punjab). Further, Singh et al (1999) found that farmers earned farm incomes from crop cultivation as well as through livestock; smaller farmers earned over 60 of their income from sources other than crop production. Himanshu (2005) has also observed that role of non-agriculture is overplayed and agricultural performance does influence rural transformation, directly or indirectly. According to Himanshu (undated), agricultural productivity is rather important in explaining variation in agricultural wages over time, along with literacy, casualisation, non-farm employment and unionisation of workforce.

As documented by Bhalla (2014), during the mid 60s to early 80s, Green Revolution technology was confined to a few regions, which led to slower growth of labour productivity in agriculture, while mechanisation in the 70s slowed any shift into agriculture; it was in the 80s that the workforce shift out of agriculture began due to low employment elasticity and rising average worker productivity due to higher crop yields, with no more scope of increasing net sown area unlike the 50s to raise output (see Bhalla, 2014). Moreover, Sundaram and Tendulkar (2002)

observed that agriculture absorbed most of the incremental jobs between 1961 and 1980, which hampered income growth. Interestingly, Shylendra and Thomas (1995) indicated that growing pressure of population, the overall inability of rain-fed agriculture in absorption of surplus labour and general economic development directly led to a high magnitude of diversification which gave rise to two kinds of non-farm activities; proper non-farm jobs due to pull factors, and ***migratory*** non-farm jobs due to distress which the authors argued would continue to remain a major source of jobs.

At the same time, it was also argued that a distress-induced push during agrarian crisis and low agricultural productivity have driven the workforce diversification (see Radhakrishna, undated). Foster and Rosenzweig (2004) corroborated this and argued that non-farm trends are more easily witnessed where productivity growth is low. It was argued that till 1980s, agriculture had lower labour productivity than the economy's average labour productivity, essentially due to 'traditional technology, family-owned self-employed enterprises and limited opportunities for technology upgrading' (for instance, see Radhakrishna, undated).Lanjouw and Murgai (2008) also found little empirical evidence of production and consumption linkages with agriculture having an influence in driving non-farm growth over the previous two decades. The status of self-employment in the non-farm sector was found to be a major safety net in areas with slow/declining productivity in agriculture (for instance, see Lanjouw and Murgai, 2010).

It was pointed out that the economic reforms in 1991 were not able to deliver on the employment front as expected; the growth of rural non-farm employment fell between 1993 and 1999 as compared to 1983-93, thereby reversing the trends prior to the policy (Chadha, 2002; Kundu, 2005). However, prior to the reforms, between 1981 and 1991, it was noted that around 40 percent of new non-farm jobs were in rural areas, which in fact accounted for one-third of the total new jobs for male workers (for instance, see Bhalla, 1993). Unni (1996) reported that at the macro level there was a continuous shift of the male workforce in rural areas away from agriculture towards non-agriculture. Bhaduri (1996) suggested that slow growth of agricultural labour productivity was due to the inability of agriculture to gainfully absorb further labour, while the slow transfer of labour from agriculture reflected to some extent the inability of non-farm sector to create jobs correspondingly. It has often been noted that slowdown in rural non-farm job creation would have the effect of pushing people back into agriculture in regions where

they may be absorbed as self-employed or hired workers in agriculture; this increase in farm workers would tend to decrease the value of output per worker in agriculture (Bhalla, 2005).

It must be noted that in India, rural non-farm diversification has been found to be a function of both agrarian prosperity as well as distress, given the dualistic nature of India's labour market (for instance, see Jayaraj, 1992; Papola, 1994). Therefore, when looking at diversification of workforce, a more holistic approach is required, with focus on proximate correlates of such diversification.

The Asset Pentagon revisited

As mentioned earlier, for a household in rural areas to diversify into non-farm activities, factors such as incomes, assets, gender, age, education, etc. would prove important (Davis and Bezemer, 2004). In the Indian case too, diversification involves participation in different/ multiple activities, and is influenced by household size, income levels, education levels, landholding, agricultural development, credit availability, proximity to urban towns, infrastructure and so on (for instance, see Basant, 1993; Murty and Durga, 1992).

Landholding has been found to be a major factor in India; land ownership of households has been found to be an important determinant of participation in non-farm activities and whether it is casual or regular. However, there is a debate surrounding size of landholding and non-farm participation; for instance, Thorat (1993) argues that here would be higher diversification of landless or those with smaller holdings than those with large landholdings. On the other hand, Singh and Tripathi (1995) and Jayaraj (1996) have argued that households with larger landholdings have resources and hence find better access to non-farm activities (in the form of self-employment)

Simultaneously, social networks also broaden the possibilities of diversifying through kinships/ friendships (Davis, 2002). In the Indian village of Palanpur in Uttar Pradesh, Drèze et al (1998) noted a clustering around establishments where some workers from the village entered and helped others (generally from similar social backgrounds) to enter; thereby showing the importance of personal contacts in explaining farm and non-farm participation patterns, wage gaps and so on.

2.5.4. Significance of urbanisation and rural-urban linkages

For an integrated development of an economy, interlinkages between agriculture and non-agriculture and inter-dependence of rural and urban areas have been emphasised as vital (see Bharadwaj, 1989; Unni, 1994). As argued by Jayaraj (in Harriss-White, 2004), rural-urban linkages led to the generation of surplus labour which can come from agriculture, or urban non-farm sectors, decline in cottage industries and so on; this surplus labour is central to workforce diversification. He also claims that investing farm incomes in manufacturing or services or spending on these, would lead to further urbanisation and diversification.

Trends from secondary data in India have revealed that for the decade from 1983 to 1993-94, growth in non-farm jobs was around 2 per cent per annum, which gradually increased to 3 per cent per annum in the post reform period (1993-94 to 1998-99) owing to growth picking up in the latter half of this period[11], and further to 4 per cent per annum between 1999 to 2004-05 (for instance, see Himanshu et al, 2011). It has also been pointed out that *rural* non-farm jobs in particular tend to grow faster where urban incomes grow (Lanjouw and Murgai, 2008). Following the earlier claims of Shylendra and Thomas (1995) about *migratory diversification*, Mukhopadhyay (2011) argues that Indian villages are integrating into a growing urban economy through labour markets and increasing demand for labour in non-farm jobs; the income of these village households/ individuals also largely comes from non-farm activities and it is often witnessed that people migrate from villages to work in urban centres nearby.

Role of Urbanisation

The gradually growing influence of urbanisation on rural non-farm employment was laid out in great detail by Papola (1992) and Visaria and Basant (1994). For instance, by expanding markets for rural enterprises and presenting them with economies of scale due to lower transaction costs, urbanisation encourages non-farm activities in the secondary and tertiary sectors to meet local as well as non-local demands. Since transport costs decline, rural resources and markets become open for exploitation and opportunities for specialisation arise. Rural households also find it easier to shift/diversify jobs by commuting. They argue that non-farm activities could be further

[11] As discussed earlier, Sen and Jha (2005) have argued that a decline in public expenditure led to slowdown in growth of non-farm jobs in the early 90s, and the growth of non-farm employment picked up only in 1999-00.

encouraged by policies of relocating industries in backward areas. In particular, Papola (1992) stressed on the role of small towns in serving as 'catalysts for improving and increasing the sustainability of rural enterprises'; he argued that rural non-farm enterprises evenly spread within widespread urban settlements in rural hinterlands were more productive, essentially due to forward-backward linkages. Bhalla (1993) further contended that increased demand of better quality products as well as shift to 'urban produced inputs', resulted in non-farm sector growth in regions of agricultural productivity.

Using a large sample of Indian districts (from 1983–1999), Cali (undated) confirmed that urbanisation led to systematic rural poverty reduction mainly due to its positive spillovers to rural economies through forward-backward linkages and increased demand for local agricultural products rather than movement of rural poor to urban areas and the ensuing urban-rural remittance flow. Urbanisation has been found to impact rural non-farm sector and to positively influence rural non-farm employment (see Kashyap and Desai, 1990; Kundu, 1991), as well as a means to reduce social exclusion (World Bank, 2011). Lanjouw and Murgai (2010) and Himanshu et al (2011) suggest that urbanisation (in particular coming from small towns), has stronger spill-over effects and impact on non-farm job growth.

Proximity to urban centres, agglomeration benefits, regional industrialisation, road networks, electrification and infrastructure development in general have been found to positively impact diversification (Singh's study of Haryana, 1993; Shukla's study of Maharashtra, 1992). More importantly, proximity to small towns and infrastructure development schemes were found to have created sources of supplementary incomes to poor rural households through expansion of construction activities (Dasgupta et al, 2002; Nirankar and Dubey, 2002).

Urban Growth and its Impact on Rural Transformation

It has been argued that the process of urbanisation involves that following steps leading to profound transformation in rural lives (see Dasgupta (undated)): i) Transfer of population from rural to urban areas or migration, and rural areas act as a reservoir of manpower from which urban factories and various services secure labour supply. ii) Transfer of food, to be produced by a relatively smaller proportion of agriculturists out of a smaller amount of available land, for a relatively larger proportion of non-agriculturists residing in the towns. This necessitates higher

agricultural productivity, shift in cropping patterns and distribution of agricultural surplus to the town population. iii) More of the agricultural production would have to be shifted towards production of commercial crops, in place of the subsistence crops to provide raw materials for industries. iv)Urban based industrialisation would require the use of rural sector as a major market for its products, which takes place often at the cost of rural industries, thereby causing displacement of rural artisans. v) Urbanisation would necessitate a new rural order, which is responsive to market demand and technological challenges emanating from the broader economy, compared to isolationist, self-reliant and subsistence production coupled with some petty commodity production for a protected market.[12]

As argued more recently by Harriss-White (2005), this would imply 'growing disintegration of the feudal production relations, and a freer movement of labour, goods and services with their attendant social and political implications'. Further, a mature urban society cannot be based on pre-capitalist forces of production forces/and relations of production. Rural Urban linkages are also impacting the manner in which rural labour market is stratified (Urmila, undated). Rural-Urban commuting is also another pathway that increases the strength and extent of Rural-Urban linkages (Sharma and Chandrashekhar, 2005).

Access to markets/ Missing Markets

The linkage between urbanisation and non-farm employment being discussed, the importance of access to markets also comes into play. Basant and Joshi (1994) suggest that linkages between urbanisation and rural non-farm employment are facilitated by the presence of internal markets, thereby promoting economic activity. While market access, information and transport infrastructure influence workforce diversification, the absence of markets could deter diversification through entry barrier or lack of credit and so on. It has been argued that non-farm sector in India may have indeed been hampered by lack of credit. For instance, Chadha (1995) identified high transaction costs and low credit access to village industries as limiting to non-farm sector, which was also confirmed by Eapen (1996) in a study of Kerala.

[12] See Dasgupta (undated) on the nature of links building between rural and urban areas and the effect thereof on workforce diversification patterns and socio-economic development as a whole

Associated with the presence of markets is the issue of connectivity. Hazell and Haggblade (1991) argued that rural infrastructure was a major factor in augmenting the income multipliers of agricultural growth to the non-farm sector in India. At the state level, Jayaraj (1994) stressed on the role of transport infrastructure for rural non-farm employment avenues and opportunities in Tamil Nadu, while in Maharashtra's case, Shukla (1992) found that it was the *trading* and *non-household manufacturing* segment that benefited most from the construction of roads while *household manufacturers* were found to be disadvantaged, suggesting that competition from urban manufacturing due to opening of markets might have affected small household manufacturers, leading back to the discussion on assets and capabilities of households to diversify.

2.5.5. Employment Structure: Rural and Urban 'Non-farm' Sector

The heterogeneity in non-farm sector due to diversification remains to be explored in much greater detail. Hazell (1990) observed that services, commerce and small-scale manufacturing that catered to agricultural and consumer demands in rural areas were the dominant rural non-farm activities in India. Given the rise in urbanisation over time, and non-farm diversification depending increasingly on the role of small towns as discussed earlier (Davis, 2014 for instance), analysis of non-farm trends must look at both rural and urban spaces.

As quoted in Jha (1997), Ishikawa's theory on 'paths of change' had argued about an inverted U shape of structural transformation; after a point, there would be introduction of new technological factors that would outweigh the impact of labour using factors and hence the labour absorption trend line in non-agricultural jobs would fall (see Jha, 1997). However, in the Indian case, Papola (1994) argued that given the dualistic nature of the labour market, most of the new employment in the restructured economy post reforms, could occur in the unorganised sectors, characterised by poor work conditions, low earnings and lack of any social security. According to Bhalla (2005), unorganised sector was one of the main sources of job creation both in the rural and urban sector in India.

Haggblade et al (2002) pointed out that in general, the significance of manufacturing in rural non-farm employment would decline with competition from urban producers, leading to services and construction as the major non-farm activities. Even in the case of India, although

manufacturing could not generate substantial non-farm employment, unorganised services remain the primary non-farm activity, in particular retail trade. In fact, Bhalla (2005) suggested that a large proportion of Own Account Manufacturing Enterprises (OAMEs) in rural areas are only run as a means of survival, despite low productivity as the self-employed workers running them are unable to find other productive jobs (see Bhalla, 2005). Further, Mukherjee (undated) argued that the productivity of Micro and Small Enterprises (MSEs), like the case of OAMEs, has also been low, and suggested that policies for development of MSMEs may be required. Consequently, self-employed status in unorganised manufacturing has been found to be declining and instead growing in services (particularly trade).

The neo-liberalization policy in India has thus been closely associated with this significant growth in unorganized sector for creation of jobs. Visaria and Basant (1994) had also stressed on the increased contribution of the tertiary sector in particular in employment. The National Commission for Enterprises in the Unorganised Sector (NCEUS, 2008) reported that 93 per cent of workers in India are unorganized. Since then, much has been studied and debated on India's huge unorganised and 'informal' sector.

The Economic Census for instance, covered different kinds of establishments both in rural and urban areas; while it has been seen that Own Account Enterprises (OAEs) inside households dominate in rural areas, the urban areas witness more of fixed structures out of households. However, Krishnaswamy and Shetty (2014) have argued that the Economic Census still captures only a part of the unorganised sector. At the same time, construction sector has also been underestimated. Though the Economic Census data and the NSS data are broadly indicative of the same trend, the absolute numbers have been found to be very different as documented by Himanshu (undated), Sen and Jha (2005). A comparison of sub-components is more meaningful if they are measured in terms of their share in non-agricultural employment rather than in terms of total employment. The following sections cover issues around employment in manufacturing and services.

Jobs in Secondary Sector

To begin with, a look at Hymer and Resnick's model (1969) may be useful; wherein rural non-farm sector in particular is regarded as a 'z-good sector' and is dominated by home-

manufacturing etc. (a counterpart of own-account enterprises in the Indian case). Fabella (1985) extended their model to incorporate an 'exportable producing, import-substituting z-sector producing non-tradables'. Hymer and Resnick's model was further restructured by Ranis and Stewart (1993), who divided the z-good sector into ZT, using traditional household and village products and processes, and on the other hand ZM covered the modern non-agricultural processes and products. It is expected that with agricultural and/or economic development, (traditional) z-activities would decline, as seen in the case of Thailand and Philippines (see Hymer and Resnick, 1969; Resnick, 1970; Singh, undated; Maiti, 2005).

However, as in the case of the East Asian miracles[13] as well as in the Indian case, traditional forms of production could still be existent to some extent (Papola, 1987; Nagaraj, 1987; Maiti, 2005). Rani and Pedro (undated) analysed NSSO data and argued that many of the own-account enterprises rely on family labour (also see Chandrashekhar, 2001); only 16 percent of unorganised manufacturing in 2004-05 was hired workers in industries including food processing, textiles, apparel, furniture, and non-metallic mineral products (such as ceramics, glass, clay, tiles etc.). Unorganised manufacturing also includes traditional artisans (the ZT sector in Hymer and Resnick's expanded model); interestingly, Dréze (1997) observed that there had been a gradual decline in rural artisans.

Maiti (2005) has argued in this context that rural crafts industries and small artisans may not suffer extremely due to competition from factories if a system of sub-contracting is in place (though some exploitation of artisans may still occur). For instance, if urban industries 'sub-contract' to rural units/ artisans, new manufacturing in rural areas may be stimulated while preserving the existing ones and hence avoiding the withering of traditional craft industry as in Hymer and Resnick's model. However, with higher agricultural productivity, the (rural) non-farm sector in general could be affected as theorised by Hymer and Resnick (1969); as Kundu and Chakraborty (2009) suggest, crop diversification and contract farming and activities such as processing, packaging and retailing could displace petty manufacturing and services because the very basis of rural diversification in many cases turns out to be availability of farm inputs.

[13]The linearity model suggesting that the East also follows the patterns of the West has not found to be true

An analysis of unorganized manufacturing at 2-digit industry level by Raj (undated) suggested that unorganized manufacturing could not sustain the growth momentum post the 1990s, and that it has been due to slow jobs growth and investment during the period. Adding to this, Mukherjee (undated) confirmed that Informal Manufacturing Sector (IMS) in India has not seen smooth or uniform growth, suggesting that it is neither a 'distress-driven sink' nor a 'dynamic economic alternate avenue', as instance of both are visible but also at the same time speculating that instead of the distress-driven segment, the dynamic segment would be more sustainable.

Mukhim (undated), studying clusters of informal sector units also suggested that industrial diversity and buyer-supplier linkages promote further economic activity in a region. Mukhim therefore stresses on the importance of infrastructure development, as public policy alone may not be enough to encourage relocation of informal firms, giving the argument that in some economic activities, rural small enterprises may also be at least as productive if not more as their urban larger counterparts, which have also been unable to significantly create more employment over time. The role of public policy and public investment are thus reiterated, especially given concerns about the premature 'deindustrialisation', low employment shares in manufacturing, and growing reliance on services (Chakraborty and Nagaraj, 2019; Rodrik, 2015).

Jobs in Tertiary sectors

Singh and Tripathi (1995) noted that there was a change in households' occupations engaged in agriculture towards trade, services and professions. The significant shift towards retail trade for modern consumer durables in particular is closer to urban areas (see Bhalla, 2005). There has however been the view on the 'dual' nature of services; on the one hand there is a low share of high remunerative jobs, while on the other, there is a high share of low income generating and mostly informal/ unorganised services. The increase in non-farm jobs in services (especially trade) could be due to increase in rural production thereby necessitating trade or, growth of a rural market for urban products. The growth of workers commuting between rural and urban areas to work in construction, wholesale and retail trade and other services is also indicative of such trends (Sharma and Chandrasekhar, 2014).

The tertiary/ services sector has been found to be heterogeneous; directly stemming from the argument on dual nature of service sector, educated professionals have been leading services

growth while at the same time services have also been acting as an employer of the last resort (see Nayyar, 2009). Nayyar argues that sub-sectors of services which required low levels of education were also among the low quality jobs and vice-versa, while the worrisome fact was that employment generation seemed to be higher in the low quality jobs with lower educational requirements. The findings from Nayyar's analysis reveal that trade, hotels and restaurants, health and education services were dominated by unorganised sector hardly requiring skills while communication, financial, real estate, business, were dominated by professional and technical workers (Nayyar, 2009). Interestingly, the contribution of Information and Communication Technology (ICT), although comparatively smaller, has been found to grow rapidly over time (Papola and Sahu, 2012). However, though most of the jobs in ICT are captured in the organised sector, there has been a growth in ICT in the unorganised sector too, as ICT is now used as an aid to other services such as health, education and so on, and is sometimes called the 'quaternary sector', being an elite service.

Analysing services' job structure at a more disaggregated level, Thimothy (undated) has also confirmed that trade, hotels, restaurant and transport were the major sectors, while petty services showed a significant share. Another major finding was that there seemed to be a bias towards urban males, while 'personal services' provided avenues for females in urban areas (for around 16 percent) in the form of manual labour/domestic worker in household and in petty services like hair dressing, washing, cleaning and waste disposal. The evidence from literature points towards a high share of petty services. It also points towards more jobs in services rather than manufacturing. A comparison between the two sectors would thus be more helpful in understanding the peculiar nature of India's workforce diversification.

Manufacturing versus Services

Basant and Kumar (1989) reported that the share of non-farm sector in total rural labourforce increased and the increase was visibly sharper in the tertiary sector as compared to the secondary sector. Moreover, it has been documented that manufacturing productivity has been lower than that of services (for instance, see Bhalla, 2005).Moreover, a decline in small manufacturing units (SMEs) as compared to larger units was noted by Unni and Rani (2005); these small units form a large proportion of unorganised manufacturing employment, especially for women. Despite

manufacturing and higher-end services being considered as drivers of economic growth as well as having poverty reducing impacts, Rani and Pedro (undated) have argued that these sectors have entry barriers and are open to educated/ skilled workers, leading to the boom in workforce in unorganised sectors, often self-employed.

Chandrashekhar (2001) had argued that the domination of trade and services over manufacturing activities was due to the lack of dynamism in manufacturing, most of which was own-account and small, especially in rural areas. This argument has also been supported by Mazumdar and Sarkar (2009), who claim that jobs were either concentrated in small or large units with 'missing middle', and this persistent dualism in manufacturing and the higher productivity of tertiary sector (owing to some extent to growing urbanisation as well) led to a significantly increased proportion of unorganised sector employment in construction, transport, storage, communication and financial services (see Sharma, undated).

Gender Issues

In India, it has been found that diversification of female workforce has been lower than that of males. In rural areas especially, this trend has been associated with what is called the 'feminisation of workforce in agriculture', male workers in rural areas have been more easily able to shift from farm to non-farm activities compared to female workers who still show some structural rigidity and remain in agriculture. Average female participation rates in non-farm are thus lower than males (see Radhakrishna, undated; Mitra, 2011; Chand and Srivastava; Pattnaik et al, 2018 on feminisation of agriculture and of agrarian crisis).

Moreover, women in both rural as well as urban areas have in many cases been found to be stuck in lower productive or lower end jobs. For instance, while manufacturing could be considered a major avenue of self-employment especially for rural women, recent years have been showing a greater share of female part-time workers (see Nivedita, 2008), with a significant concentration of women in cashew processing, bidi rolling, custom tailoring etc. Women have generally been found to be culturally less mobile; rural women particularly those less endowed with education/skills remain disadvantaged to participate in non-farm activities as compared to men (as earlier argued by Chadha, 1997), especially in the case of skill-intensive manufacturing jobs.

Even in the case of tertiary sector activities, women are often found to be in less productive jobs. Although the share of women is quite significant in community, social and personal services in both rural as well as urban areas as compared to males, the nature of jobs are often as teachers, maidservants, and beauticians etc, which are less productive, compared to other components (see Thimothy, undated for instance). Despite some of these jobs being regular salaried and not casual, the quality of such jobs is debatable. As seen from various NSSO rounds, jobs in transport, storage and communication (more associated with development), also account for a smaller share of females as compared to males in rural and urban areas.

The discourse on female workforce participation has been surrounded by several debates. Between 2004 and 2009, it was seen that female worker participation declined; and the trend continues with female participation in the labour market still on the declining portion of the "U-curve" hypothesis. A major argument given for this trend was the 'income effect hypothesis', that education and income effect were the major reasons for withdrawal of females from workforce (Rangarajan et al, 2014); with Abraham (2013) suggesting that the 'quest for social status' with rising incomes was associated with domestication and discouragement of female work participation. However, Hirway (2012) attributed the decline in female work participation to inadequate coverage of women in workforce especially those shifting to and from self-employment. On the other hand, Kannan and Raveendran (2012) rejected the possibility of the operation of income effect hypothesis, and argued that if that were the case, the decline for rural women should not have been higher. Gender issues therefore need to be looked at with respect to historical contexts and processes on the one hand, as well as political and socio-economic conditions.

Growing significance of Construction (link between secondary and tertiary sector)

Construction sector has turned out to be a major source of job creation in the Indian economy between 1983 and 2012. The construction sector had been recorded to be growing at a faster pace than manufacturing even in the 70s but its share then was lower. In the recent period, especially the last decade, it has grown fast and also has a remarkably significant share in rural non-farm labour market as also in the overall workforce.

According to OECD (undated) around 44 million jobs were created in services and construction while only marginally in manufacturing. It also reveals that informal employment was as high as 92.5 percent of total employment in 2012, with 86 percent of non-farm employment and 95 percent in construction. This has been backed by Papola (undated), who argues that construction, and service activities such as trade and transport had fluctuating trends and were recorded to have a high employment growth even between the period of 1994 to 2000 during which overall employment growth was found to have been the lowest. He says that construction, as well as transport and trade managed to maintain relatively high elasticities, and were even found to show an increase in them between 1994 and 2000 when the aggregate elasticity was found to have sharply declined. Taking a long-term view from 1961 to 2001, a distinct shift towards construction rather than manufacturing was noted (Sen and Jha, 2005; Tendulkar and Sundaram, 2001).

Earlier on, Park (1989) had observed that "the construction industry generates one of the highest multiplier effects through its extensive backward and forward linkages with other sectors of the economy." This was also noted by World Bank (1984). In fact, Mallick and Mahalik (2008) found that in India, growth rate was influenced to some extent by the construction sector by increases in employment, thereby increasing the aggregate output in the economy. It has become increasingly clear that the construction sector is becoming one of the largest employers of *unorganised* labour next to agriculture (see Laskar & Murty, 2004). Also, the share of construction in GDP increased from 6.1 percent in 2002–03 to 6.9 percent in 2006–07; it has continued to remain been a major sector thereafter. However, the rise in construction jobs is also linked to growing casualisation; construction sector largely consists of casual labour and fewer regular salaried jobs.

The National Commission on Labour (2002) had noted that construction labour comprises three segments, viz, 'Naka/Mandi', 'Institutional' and 'Intermediaries' segment, the first two being smaller in size. Naka/Mandi segment caters to individual households and small contractors needing casual labour for odd jobs. Since 2004-05 onwards, employment in construction sector has been rising more than in other sectors. Despite this, there has been informalisation and casualisation of workers (Palmal, undated).

It is even more significant to note that a significant proportion of women outside agriculture are also engaged in the construction sector (Shah, 2002), albeit in casual jobs. For instance, Kanbur and Jhabvala's study (2002) of Self-Employed Women's Association (SEWA) in Ahmedabad city had 13000 members in construction mostly working as unskilled casual labour of carrying cement, bricks etc. or in semi-skilled plaster or concrete mixing jobs. A study on the empowerment of women construction workers in Tamil Nadu by Barnabas et al (undated) also reveals that India's construction sector consisted of the largest number of unorganised labourers next only to the farm sector, of which women have a large share. However, it was found that they are not allowed to acquire special skills to become masons and progress further, thus remaining unskilled (see Barnabas et al, undated).

The role of public expenditure and policies has often been stressed in the emergence of construction as a major job creating sector. Part of the increase in non-farm activities could be attributed to construction activities under various government programmes (see Kundu, 2005). Papola and Sahu (2012) have observed that a large part of the increase in construction jobs may be in public programmes of infrastructure building under NREGA etc., and part of it must have been in building road connectivity which therefore must be reflected in the sharp increase in employment in transport from 6.7 per cent to over 9 per cent during 1993-94/2009-10 (see Papola and Sahu, 2012).

Detailed data available at the sectoral level from 68th round of NSSO suggest that building construction is a major source of job generation in the construction sector. Even though construction sector shows higher share for both males and females, females are at the lower end of the segment. Further, NSSO surveys on housing condition suggest that investment in house construction is largely through renovation, additions and repairs to existing buildings rather than on new construction. Labour Bureau EUS for 2013-14 suggest that construction (building construction in particular) has maintained its tempo of growth and accounts for higher share in total employment in 2013-14 vis-à-vis 2011-12 NSS round. Construction employment has been on the rise across the states and not confined to low income states. It therefore seems that NREGA could have played a role in increasing jobs in construction. Moreover, NSSO and Census reports show that overall quality of housing stock been improving. This may be a factor in increasing employment in construction.

The basic question therefore is, whether construction is acting as a residual sector absorbing surplus farm labour, and how much could be due to public works programmes such as NREGA and other schemes. There has been a boom in casualisation in non-agriculture, particularly more for females. In fact, there has been a rise from self-employment and regular jobs shifting towards casualisation. It could thus be argued that non-farm jobs have been generated through expansion of casual jobs mainly in construction.

2.5.6. A discussion on wages

In the case of agriculture, there have been questions whether changes in agricultural wages have been due to agricultural labour productivity or other factors. Rise in wages in 1980s was postulated to be due to demand for labour from non-agricultural sector (NCRL, 1991).Chadha (2008) argued that decline in rural poor in the post-reform period was despite the decline in farm jobs, and that non-farm jobs could have been the cause, due to their higher "earning content" as compared to the agricultural sector. Bhalla and Hazell (2003) had however noted that expansion of non-farm jobs in rural India also resulted in rise of agricultural productivity, which actually led to rise in real wages in agriculture[14], but farm wages were not as high as non-agricultural wages. According to Bhalla (2005), throughout the 80s, real wage rates in agriculture rose despite falling value of output of male farm workers in some regions, while in other regions wage rates rose faster than farm labour productivity. In fact, quoting Bhalla, 'What really mattered in all states was the workforce diversification in rural and urban areas combined rather than growing labour productivity in agriculture'(Bhalla, 2005).

Visiting the Boserup model for India, Mahajan and Ramaswami (2012) look at variations in male and female agricultural wages in India, which according to them throws up a paradox. They found that gender differentials were largest in South India which is otherwise favourable for women. Mahajan and Ramaswamy's study revealed that differences in female labour supply explained roughly 55 percent of differences in gender wage differential between North India and South India. Thimothy (undated) also found segregation of female workers in low-paying jobs and in particular a significant gender gap in service jobs earning, especially in education (where

[14]Also see Eswaran et al, 2008

women mostly work at the primary level), health and personal services; jobs which generally offer less barriers to entry.

Mitra (2011) argued that structural adjustment packages and stabilisation policies are the causes for prolonged agrarian stagnation, and resulted in greater increase in rural women's work participation as compared to rural males; and further suggests that "the impact has also been felt through overall rural wage depression affecting male wages adversely, resulting in a simultaneous decline in gender wage gap. The tendency has induced a feminisation of low productive activities by pushing more women into un/low skilled paid work". Das and Dutta (2007) also explored if pay gaps on the basis of caste were still visible in India's labour market, leading to occupational segregation and wage discrimination, using separate wage equations which were corrected for selection bias for different social groups in regular as well as casual wage employment. They suggested that caste remained to be a major determining factor in how individuals' remunerations were decided (see Das and Dutta, 2007).

Sundaram (2001), quoted in Sen and Jha (2005) has made an important point that in contradiction to the claims of critics, post-reform growth has drawn more workers out of agriculture (and other low productivity sectors) than earlier, and argues that it increased wage rates in these sectors and thus was positive with regard to poverty reduction. A similar point had also been raised by Unni (1996), who hypothesised that non-farm activities increase rural incomes in general and also lead to decline in inequality. In the case of the construction sector, Sarkar (2009) found increasing inequality of income with the bulk of income accrued at the lower quartile; but any wage gap among casual workers was attributed to differences in characteristics. In this context, when looking at wages, the importance of looking at regularity in payments and dignity of workers, even in non-farm sector was stressed by Jodhka (2002).

Chand et al (undated) argued that it was the NREGA which broke the long stagnation in real wage rates in rural India by causing reduction in availability of rural labour for other activities. However, they argue that steady rise in rural wages could also lead to cost-push inflation which could be offset only through agricultural research and development, by offering a substitute for labour in farm operations (see Chand et al, undated), leading back to the discussion on the role of public expenditure.

2.6. What this study will contribute

Although the literature offers a whole range of debates on the issue of diversification, the findings differ widely. This is to some extent due to the different approaches and datasets used. Macro-level studies using secondary sources of data are limited by the nature of information available. This study therefore uses multiple sources of secondary data as well as different approaches of looking at workforce diversification at the macro level; looking not just at the rural trends as in the literature, but also delving deeper into the trends in urban areas. However, since aggregates tend to mask the true picture, state and district level data are also analysed. To complete the picture and to arrive at a more conclusive addition to the debates, a socio-economic case study at the village and town level is presented, so as to relate grassroot findings with the overall broad scenario.

From the Indian debate in literature, it is becoming more and more evident that different kinds of push and pull factors might impact workforce diversification in tandem. Therefore, a deeper understanding of India's socio-economic and political (to the extent possible) as well as historical and spatial circumstances is warranted. This in itself is a herculean task and would require extensive analysis. This study is a humble contribution to these and many other important facets of workforce diversification in particular using different sources of temporal as well as spatial data and different approaches of looking at these issues. Each chapter begins with a summary of the data, approach and takeaways from the analysis.

Chapter 3: A Profile of Workforce Diversification Patterns and Trends in India

'.....There is nothing so degrading as the constant anxiety about one's means of livelihood.....'

W. Somerset Maugham

3.1. Setting the Background: Recapitulating the Literature

The previous chapter looked at some major debates and discussion in the global as well as Indian literature on workforce diversification. To sum up, there are several pathways and processes of structural transformation of employment, with different motivations driving different groups of segments of the workforce. In addition, the very structure of the economy is also an important aspect influencing the patterns of workforce diversification and therefore the demand side for jobs must be looked at in tandem with the supply side of creation of jobs to obtain a holistic picture of employment in an economy.

The Importance of Diversification

This chapter deals with the scenario of workforce diversification in India over the years, at the same time stressing on the need for a deeper understanding of the same to further focus on measures to ensure upward mobility of those in the labour market in terms of structural change of employment. This structural change is vital for any economy mainly due to the following reasons. First, rural areas cannot be sustained merely by agriculture for very long. Secondly, with structural change of the economy moving towards higher growth arising from increased manufacturing or tertiary services taking precedence over agriculture, opportunities and priorities are bound to change.

As discussed earlier, the review of literature leaves no doubt that the structural transformation of employment in India has been lagging much far behind the structural transformation of the economy, which itself has been more tilted towards the tertiary than the secondary sector. Since 1980s, such issues have come to the forefront especially with the increased focus on the growth of rural non-farm sector in particular. Though the importance of agriculture still remains a vital determinant of work participation, it is increasingly also becoming dependent on rural-urban linkages and the structural transformation of the rural economy towards more productive jobs, reducing urban dependence and migration and moving towards overall development.

At the same time, urban workforce dynamics has also seen peculiar trends, with a larger concentration in the sectors of construction and tertiary services as compared to the manufacturing sector. Moreover, the recent decade shows worrisome trends in terms of the quality and nature of work, with increase in contractualization, casualisation and informality of jobs. The patterns of workforce therefore need to be understood in terms of long term as well as short term trends, and in much deeper detail.

Outline of the Chapter

This chapter aims at examining the detailed trends and patterns of workforce diversification in India since the early 1980s, for both rural as well as urban areas. The trends have been studied using unit level data from the National Sample Surveys (Employment and Unemployment rounds) for the pre-reform period (1983 (38^{th} Round)), and the post-reform period (1993-94 (50^{th} Round), 2004-05 (61^{st} Round), and 2011-12 (68^{th} Round)). The extent, nature and pathways of diversification are then studied both at the individual level as well as the household level to understand the dynamics of the transition and supply of workers in the labour market in rural and urban areas separately.

3.2. Trends and Patterns from NSS

As theorized by Ranis and Stewart (1993), the dual growth pattern arising out of structural change of the economy (or economic diversification) consisting of a growing secondary sector has inter-linkages with the primary sector; and any sign of weak inter-linkages between sectors could act as an impediment to a smooth structural transformation of employment as well. This is one of the chief reasons for a wide literature surrounding rural non-farm promotion and development, essentially to strengthen these inter-linkages.

In the case of India economic diversification itself has been haphazard, with more reliance on the tertiary sector, and non-farm activities have only been picking up since the 1980s in rural areas. The stories in rural and urban areas differ and both show peculiarities. The kinds of workforce diversification that have generally been witnessed include proliferation of non-farm activities in rural areas, pluriactivity of jobs, and subsidiary work.

Patnaik (quoted in Jha, undated)[15] has established that the latter half of the decade of the 1990s in general saw an increase in per capita incomes which however was not reflected in the per capita earnings from agriculture, which in turn further exacerbated inequalities across states due to lower agricultural productivity especially for the agriculturally dependent states of Uttar Pradesh, Madhya Pradesh, Odisha and so on. He further goes on to suggest that the uneven development across states can be seen in terms of sectoral dimensions (farm versus non-farm growth), spatial dimensions, different household groups and their asset holdings, social status, gender and so on. Since 2000, there has been a spurt of growth in employment in construction, along with an increase in casual and informal work. The inter-state differentials over time have also not shown a converging trend. This study takes forward the analysis of these factors in addition to others in terms of employment and workforce diversification. Understanding workforce structure, its transition and pathways thereof will help in throwing further light on the nature, correlates, drivers and outcomes of these dimensions with respect to employment.

3.2.1 Trends in Workforce since the early 1980s

This section begins by looking at the overall trends in aggregate workforce participation in India in the pre and post reform periods. Table 3.2.1 shows the growth in employment as well as workforce (in millions) for the ***pre-reform period (1983)*** and ***post-reform period (1993-94, 2004-05, and 2011-12)***.[16] In addition, it shows employment growth for agricultural and non-agricultural sectors at the aggregate and for rural areas.

The analysis breaks employment into the following categories:

UPSS: Usual Principal and Subsidiary Status= Usual Principal Status and Subsidiary Status Only

Usual Principal Status can be further broken down into two categories:

i. Principal Status activity only (without any subsidiary activity alongside)- Only PS
ii. Principal Status activity along with some subsidiary activity as well- PS with SS, essentially to supplement income[17].

Subsidiary Status Only (Only SS) includes workers with some subsidiary activity but not employed in principal status.

[15] Patnaik (undated), titled "Crisis in the Countryside"

[16] The first round from each decade since the 1980s from the NSS-EUS is analysed, keeping in mind the need to look at long-term trends.

[17] With reference period of the survey being a year, a person can engage in both principal and subsidiary activities, simultaneously or at different time points within the year

Each of these categories signifies a different set of the employment structure; Only PS are those who have a main activity, PS with SS shows diversification of main workers who have a principal activity but also have some subsidiary activity for supplementary income (more vulnerable). These two add up to form the total Usual Principal Status category. The UPSS all category also includes Only SS, who are the most vulnerable group, as they have no principal activity and are the most vulnerable. Looking at such trends for UPSS all would tend to mask the story of workforce diversification at the disaggregated level.

Workforce trends over time

Table 3.1: Total Workforce in millions across NSS rounds

TOTAL	Year	AGR	MIN	MGF	UTL	CNS	THR	TSC	THR	CSP	TOT
	1983	207.5	1.8	32.2	0.9	7.1	19.0	7.4	2.0	24.7	302.7
	1993-94	242.3	2.7	39.0	1.4	11.7	27.7	10.4	3.5	35.5	374.2
	2004-05	268.6	2.6	53.9	1.2	25.6	47.0	18.4	6.3	35.6	459.1
UPSS	**2011-12**	231.9	2.6	59.8	2.5	50.3	52.0	22.9	11.0	41.5	474.2
	1983	126.8	1.3	24.5	0.8	5.0	15.2	6.4	1.8	20.2	202.0
	1993-94	136.6	1.9	29.6	1.2	8.1	21.7	8.7	3.1	28.3	239.1
	2004-05	160.5	1.9	40.8	1.1	17.7	38.7	15.6	5.5	29.3	311.2
PS Only	**2011-12**	159.9	2.2	49.1	2.3	35.1	45.8	20.7	10.0	36.7	361.7
	1983	52.0	0.4	5.1	0.1	1.9	2.9	0.9	0.2	3.7	67.3
	1993-94	72.1	0.8	6.3	0.2	3.4	4.7	1.6	0.3	5.6	95.1
	2004-05	72.3	0.7	8.3	0.2	7.4	6.8	2.6	0.6	4.7	103.7
PS with SS	**2011-12**	44.7	0.3	5.6	0.1	11.5	4.8	2.1	0.8	3.3	73.2
	1983	28.7	0.0	2.6	0.0	0.1	1.0	0.1	0.0	0.8	33.4
	1993-94	33.5	0.1	3.1	0.0	0.2	1.3	0.1	0.1	1.6	40.0
	2004-05	35.7	0.0	4.7	0.0	0.5	1.4	0.2	0.1	1.6	44.3
Only SS	**2011-12**	27.3	0.0	5.0	0.0	3.7	1.4	0.1	0.2	1.5	39.3

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using various NSS rounds

A cursory glance at Table 3.1 shows that the period of 2004-05 to 2011-12 has been the period of least addition in the workforce, while the time period 1993-94 to 2004-05 was a period of high addition in the workforce. Workforce in India was 474 million in 2011-12, but it could have been more, had the employment growth in the previous time period been sustained. The other feature was that 2011-12 was the first time that the agricultural workforce declined in absolute terms in India[18]. The other notable feature was that the workforce in construction sector had crossed the

[18] The NSS estimates were applied to Census population for estimating workforce in absolute numbers in millions. A major point to note here is that minor rounding off of percentage ratios and Census populations used lead to

50 million mark in 2011-12. Also, in case of workers undertaking both principal and subsidiary activity, workforce decreased from over 100 million in 2004-05 to below 75 million in 2011-12. For those with only subsidiary activity there was a marginal decline of around 5 million, and it fell back at the 1993-94 level. Above all, workforce with only principal activity and without any subsidiary activity increased by more than 50 million, compensating for decline in other workforce categories.

Table 3.2: Workforce in Millions across NSS Rounds- Rural

RURAL	Year	AGR	MIN	MGF	UTL	CNS	THR	TSC	THR	CSP	TOT
UPSS	1983	199.0	1.2	16.5	0.4	4.3	8.5	2.7	0.5	11.5	244.5
	1993-94	232.8	1.8	20.8	0.6	6.9	12.7	4.3	0.9	16.6	297.4
	2004-05	259.7	1.8	28.9	0.6	17.4	22.0	8.9	1.7	16.5	357.4
	2011-12	223.5	1.6	30.1	0.8	38.5	22.6	10.4	2.8	18.3	348.7
Only PS	1983	121.1	0.7	10.6	0.3	2.5	5.6	1.9	0.4	7.9	151.0
	1993-94	130.5	1.0	13.3	0.5	3.6	8.0	2.9	0.7	11.1	171.5
	2004-05	154.4	1.2	18.7	0.4	10.3	15.6	6.6	1.2	11.9	220.4
	2011-12	153.2	1.3	21.8	0.7	24.1	17.9	8.6	2.2	14.9	244.7
PS with SS	1983	50.9	0.4	4.3	0.1	1.7	2.3	0.7	0.1	3.1	63.7
	1993-94	70.6	0.7	5.5	0.1	3.1	4.0	1.3	0.2	4.8	90.3
	2004-05	71.1	0.6	7.3	0.1	6.7	5.6	2.2	0.4	3.9	98.0
	2011-12	44.0	0.3	5.0	0.1	11.0	4.0	1.7	0.5	2.8	69.2
Only SS	1983	27.0	0.0	1.7	0.0	0.1	0.5	0.0	0.0	0.4	29.8
	1993-94	31.7	0.1	2.1	0.0	0.2	0.8	0.1	0.0	0.7	35.6
	2004-05	34.2	0.0	2.8	0.0	0.4	0.8	0.1	0.0	0.7	39.0
	2011-12	26.3	0.0	3.4	0.0	3.5	0.7	0.1	0.1	0.6	34.7

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using various NSS rounds

Table 3.2 presents rural workforce in millions projected at census population for different NSS rounds. There was an overall decline of nearly 10 million in the rural workforce in 2011-12 as compared to 2004-05, on account of the large decline of over 35 million in rural workforce engaged in agriculture. Rural workforce with only principal activity increased, while rural workforce including those who had a subsidiary activity along with their principal activity, declined in the number of workforce. It is also seen that overall workforce with only subsidiary activity was around 40 million, among which rural was nearly 35 million. Thus it is in the rural areas that workforce mainly seems to take up subsidiary activities, but that too has declined in

significant variations in estimation of absolute numbers. Therefore the trend is more important in the context of this study, and absolute numbers are an indication of the movements. A discussion on such debates is also given in Chapter 6.

rural areas after initial increase during the 1993-94 to 2004-05 phase, and rural areas make up for most of the decline in the 'only subsidiary' workforce. These workers are often women engaged in household chores and domestic duties and enter workforce (mainly in agriculture or self-employed activities of the household) to support the household income when the need arises.

Table 3.3: Workforce in Millions across NSS Rounds Urban

URBAN	Year	AGR	MIN	MGF	UTL	CNS	THR	TSC	THR	CSP	TOT
UPSS	1983	8.5	0.6	15.7	0.5	2.7	10.6	4.8	1.6	13.2	58.2
	1993-94	9.5	0.9	18.2	0.8	4.9	15.0	6.1	2.6	18.9	76.8
	2004-05	8.9	0.8	25.0	0.7	8.2	25.0	9.5	4.6	19.1	101.7
	2011-12	8.4	0.9	29.7	1.6	11.7	29.4	12.5	8.2	23.2	125.5
Only PS	1983	5.7	0.6	14.0	0.5	2.5	9.6	4.5	1.5	12.2	51.1
	1993-94	6.2	0.8	16.3	0.7	4.4	13.7	5.8	2.4	17.2	67.6
	2004-05	6.1	0.7	22.1	0.6	7.4	23.2	9.0	4.3	17.4	90.7
	2011-12	6.6	0.9	27.3	1.6	11.0	27.9	12.1	7.8	21.8	117.0
PS with SS	1983	1.2	0.0	0.8	0.0	0.2	0.5	0.2	0.1	0.6	3.6
	1993-94	1.5	0.1	0.8	0.0	0.4	0.8	0.3	0.1	0.8	4.9
	2004-05	1.3	0.0	1.0	0.0	0.7	1.2	0.4	0.2	0.8	5.7
	2011-12	0.8	0.0	0.7	0.0	0.6	0.8	0.4	0.3	0.5	4.0
Only SS	1983	1.7	0.0	0.9	0.0	0.1	0.4	0.1	0.0	0.4	3.6
	1993-94	1.8	0.0	1.0	0.0	0.1	0.5	0.0	0.0	0.9	4.4
	2004-05	1.5	0.0	1.9	0.0	0.1	0.6	0.1	0.1	0.9	5.3
	2011-12	1.0	0.0	1.7	0.0	0.1	0.6	0.0	0.1	0.8	4.5

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using various NSS rounds

In urban areas (Table 3.3), workforce increased to over 100 million in 2004-05, and in 2011-12 it was over 125 million. Overall, urban workforce comprised largely of workforce with only principal status, which was 117 million out of 125 million in 2012. This leaves out less than 10 million workforce of urban areas with only subsidiary status and workforce with principal activity along with subsidiary activity. There was also marginal decline in the number of workforce of the subsidiary sector employment and workforce with principal status along with subsidiary status.

A detailed Analysis of Employment across Workforce Groups

In the case of rural male workforce (Table 3.4), there has been marginal decline in the workforce, but it is still greater than the 2004-05 level. While in manufacturing sector, workforce was crawling towards 20 million workers, it remains far below the potential level. The other aspect here is that there were just around 5 million workers with only subsidiary activity in 1983,

while it marginally came down to below 4 million. Also, most of the subsidiary activity was concentrated in agriculture, with just around 0.3 million in construction.

Table 3.4: Rural Male: Employment in Millions

RM	Year	AGR	MIN	MGF	UTL	CNS	THR	TSC	THR	CSP	TOT
	1983	114.18	0.87	10.5	0.37	3.55	6.49	2.59	0.44	8.79	147.78
	1993-94	136.61	1.39	13.08	0.56	5.97	10.31	4.14	0.8	12.8	185.65
	2004-05	146.97	1.44	17.69	0.54	15.36	18.43	8.61	1.52	11.37	221.93
UPS	**2011-12**	141.29	1.31	19.57	0.74	31.22	19.17	10.21	2.48	12.84	238.84
	1983	4.58	0.01	0.22	0	0.05	0.19	0.02	0.01	0.14	5.23
	1993-94	4.32	0.01	0.2	0	0.05	0.23	0.06	0.01	0.16	5.03
	2004-05	3.84	0.01	0.28	0	0.14	0.33	0.05	0.02	0.19	4.85
Only SS	**2011-12**	2.7	0	0.15	0	0.34	0.3	0.05	0.05	0.16	3.74
	1983	118.76	0.88	10.72	0.37	3.6	6.68	2.61	0.45	8.94	153.01
	1993-94	140.93	1.4	13.27	0.56	6.02	10.54	4.2	0.81	12.96	190.68
	2004-05	150.81	1.45	17.97	0.54	15.51	18.75	8.66	1.54	11.56	226.79
UPSS	**2011-12**	143.99	1.31	19.72	0.74	31.55	19.47	10.26	2.53	13	242.58

Table 3.5: Rural Female: Employment in Millions

RF	Year	AGR	MIN	MGF	UTL	CNS	THR	TSC	THR	CSP	TOT
	1983	57.76	0.28	4.37	0.01	0.67	1.46	0.04	0.02	2.28	66.87
	1993-94	64.46	0.37	5.68	0.03	0.73	1.66	0.05	0.07	3.07	76.12
	2004-05	78.54	0.37	8.38	0.01	1.67	2.75	0.18	0.1	4.46	96.47
UPS	**2011-12**	55.92	0.28	7.17	0.07	3.81	2.69	0.13	0.19	4.82	75.08
	1983	22.46	0.02	1.46	0	0.04	0.33	0.01	0	0.3	24.61
	1993-94	27.42	0.05	1.88	0	0.1	0.54	0.01	0	0.55	30.55
	2004-05	30.32	0.01	2.53	0	0.23	0.51	0.03	0.01	0.5	34.15
Only SS	**2011-12**	23.58	0.03	3.22	0	3.18	0.44	0.04	0.04	0.48	31
	1983	80.21	0.3	5.83	0.01	0.7	1.79	0.05	0.03	2.58	91.48
	1993-94	91.87	0.41	7.56	0.04	0.83	2.2	0.06	0.07	3.62	106.67
	2004-05	108.86	0.38	10.91	0.01	1.9	3.26	0.21	0.12	4.96	130.62
UPSS	**2011-12**	79.5	0.31	10.39	0.07	6.99	3.13	0.17	0.22	5.3	106.09

UPS= Usual Principal Status, UPSS= Usual Principal and Subsidiary Status

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using various NSS rounds

There was significant decline in the rural female workforce (Table 3.5); in 2011-12 it declined to around 75 million from 96 million in 2004-05, and fell at the earlier 1993-94 level of 76 million. There was decline in manufacturing sector workforce as well for rural females. In case of rural female subsidiary workforce, there was decline in 7 million of the workforce in agriculture sector, but there was also massive three million increase in the construction sector (especially following the implementation of the NREGA). Thus the overall decline in the rural female subsidiary activity was of a tune of just 3 million, but it is to be seen along with the fact that there was just over 3 million rural male workforce in subsidiary activity.

Table 3.6: Urban Male: Employment in Millions

UM	Year	AGR	MIN	MGF	UTL	CNS	THR	TSC	THR	CSP	TOT
	1983	4.37	0.53	12.16	0.51	2.31	9.14	4.56	1.45	9.82	44.84
	1993-94	5.21	0.78	14.15	0.73	4.18	13.09	5.88	2.28	13.38	59.69
	2004-05	4.71	0.72	18.5	0.63	7.27	22.02	9	3.99	11.6	78.44
UPS	**2011-12**	5.53	0.86	22.33	1.36	10.65	25.93	11.76	7.03	14.29	99.75
	1983	0.36	0	0.21	0	0.03	0.25	0.04	0.02	0.18	1.1
	1993-94	0.24	0.01	0.12	0.01	0.03	0.23	0.02	0.02	0.17	0.86
	2004-05	0.18	0	0.23	0.01	0.07	0.27	0.09	0.05	0.23	1.12
Only SS	**2011-12**	0.15	0.01	0.18	0.02	0.08	0.24	0.04	0.04	0.15	0.89
	1983	4.74	0.53	12.37	0.51	2.34	9.39	4.6	1.46	10	45.94
	1993-94	5.46	0.79	14.27	0.74	4.21	13.32	5.9	2.31	13.55	60.55
	2004-05	4.89	0.73	18.73	0.63	7.34	22.29	9.09	4.05	11.82	79.56
UPSS	**2011-12**	5.68	0.86	22.51	1.38	10.72	26.16	11.8	7.08	14.44	100.64

UPS= Usual Principal Status, UPSS= Usual Principal and Subsidiary Status

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using various NSS rounds

In urban male workforce (Table 3.6), overall workforce was just over 100 million in 2011-12, but there were less than one million workforce in the subsidiary activity. Thus it is seen that there is significant lack of workforce those that undertake only subsidiary work, moreover such (vulnerable status) work in largely concentrated in THR sector. Also over one-fourth of urban males worked in the THR sector, while just over 10 million were in construction sector. There were over 20 million urban males in the manufacturing sector, while in case of rural male too, the workforce was just under 20 million. In TSC sector as well, around 11 million urban male workers were seen, just more than a million as compared to construction sector.

Table 3.7: Urban Female: Employment in Millions

UF		0	1	2	4	5	6	7	8	9	Total
	1983	2.5	0.08	2.56	0.02	0.37	0.97	0.17	0.1	3.01	9.79
	1993	2.48	0.09	3.02	0.04	0.63	1.37	0.2	0.29	4.65	12.76
	2004	2.65	0.04	4.56	0.04	0.8	2.37	0.42	0.52	6.57	17.98
UPS	2012	1.85	0.07	5.66	0.24	0.92	2.78	0.67	1.06	8.02	21.27
	1983	1.31	0	0.73	0	0.02	0.19	0.01	0	0.21	2.48
	1993	1.55	0.01	0.91	0	0.03	0.27	0.01	0.02	0.7	3.51
	2004	1.36	0	1.69	0	0.03	0.33	0.02	0.05	0.66	4.16
Only SS	2012	0.86	0	1.49	0.02	0.06	0.41	0.01	0.06	0.7	3.62
	1983	3.81	0.08	3.29	0.02	0.4	1.17	0.19	0.1	3.21	12.27
	1993	4.03	0.1	3.93	0.05	0.66	1.64	0.21	0.31	5.35	16.27
	2004	4.01	0.04	6.25	0.04	0.83	2.7	0.44	0.57	7.23	22.13
UPSS	2012	2.72	0.07	7.14	0.26	0.98	3.19	0.68	1.12	8.72	24.89

UPS= Usual Principal Status, UPSS= Usual Principal and Subsidiary Status

Source: Author's estimations using various NSS rounds

There was just around 25 million total urban female workforce (Table 3.7) in 2011-12, which is three times less than the rural female workforce engaged in agriculture sector. Also, as compared to urban male workers engaged in subsidiary capacity which was less than one million, for urban females it was 3.6 million in 2011-12. There was also around 1.5 million urban female workforce engaged in manufacturing sector in subsidiary activity. Interestingly, while there were more than 8 million urban female workers in CSP, more than 7 million in manufacturing sector in 2011-12, there were just 0.26 million urban female workers in the construction sector, which remained a male dominated sector of casual work as is discussed in the following sections.

Employment Growth

In Table 3.8 below, growth of overall employment has been presented. Overall there seems to be a definite slowdown in the employment growth, from 2.4 percent in the period 1983 to 1993-94, to 2.1 percent in the period 1993-94 to 2004-05, but it plunged to just 0.5 percent during 2004-05 to 2011-12. The highest slowdown in employment was in the category of workforce with principal activity along with some subsidiary activity from 0.8 percent in 1993-94 to 2004-05 to -4.2 percent in 2004-05 to 2011-12. There was also a negative employment growth in case of workforce with only subsidiary status. In 2004-05 to 2011-12, there seemed to be the highest overall annual employment growth rate in case of construction sector and utilities that was around 14 percent. Also, in case of workers with only subsidiary activity there was almost 50 percent growth of employment in the construction sector, but decline in most of other sectors along with overall decline in subsidiary employment.

Table 3.8: Annual Growth Rate of Employment -Total [Rural and Urban Combined]

Total	Year	AGR	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP	TOT
UPSS	1983-94	1.7	5.1	2.1	5.3	6.6	4.6	3.9	7.1	4.4	2.4
	1993-05	1.0	-0.3	3.5	-1.0	10.7	6.3	7.0	7.3	0.0	2.1
	2005-12	-2.0	-0.2	1.6	14.2	13.8	1.5	3.5	10.6	2.4	0.5
PS Only	1983-94	0.8	4.1	2.1	5.0	6.2	4.3	3.5	6.9	4.0	1.8
	1993-05	1.6	0.2	3.4	-1.1	10.8	7.1	7.3	7.1	0.3	2.7
	2005-12	-0.1	2.4	2.9	16.7	14.1	2.6	4.6	11.6	3.6	2.3
PS with SS	1983-94	3.9	7.8	2.5	6.6	7.9	6.6	7.3	9.2	5.1	4.1
	1993-05	0.0	-1.1	2.9	0.1	10.6	4.0	5.4	7.9	-1.5	0.8
	2005-12	-5.4	-7.6	-4.6	-4.1	7.8	-4.3	-2.8	3.1	-4.3	-4.2
Only SS	1983-94	1.7	9.2	1.9	19.6	5.7	3.2	1.7	6.9	9.1	2.0
	1993-05	0.6	-5.0	4.7	-4.5	10.3	1.2	7.5	12.9	0.0	1.0
	2005-12	-3.4	1.7	0.9	48.9	97.3	-0.5	-3.7	5.7	-0.9	-1.6

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services; Source: Various NSS rounds.

There was continuous decline in the annual employment growth rate in rural areas (Table 3.9), and also the decline in rural areas was greater than overall employment decline. The period 2004-05 to 2011-12 was the beginning of an era of 'job-loss' growth, as there was negative employment growth, while in the preceding period there was a decline in employment growth, but not a negative employment growth. Also in manufacturing sector, there was just 0.6 percent annual overall employment increase during 2004-05 to 2011-12, while in agriculture the annual decline was 2 percent. In 2004-05 to 2011-12, there was decrease in employment of workforce with principal activity along with some subsidiary activity, (greater than -4 percent). In the construction sector increase in the annual employment growth was greater than 100 percent in workforce with only subsidiary activity.

Table 3.9: Annual Growth of Employment-Rural

Rural	Year	AGR	MIN	MGF	UTL	CNS	THR	TSC	THR	CSP	TOT
UPSS	1983-94	1.7	5.4	2.6	5.8	5.9	5.0	6.1	8.4	4.4	2.2
	1993-05	1.0	0.1	3.5	-0.7	14.0	6.6	9.8	8.1	0.0	1.8
	2005-12	-2.0	-1.6	0.6	6.8	17.3	0.4	2.5	9.5	1.5	-0.3
PS Only	1983-94	0.8	4.1	2.6	5.6	4.5	4.3	5.1	8.7	4.0	1.4
	1993-05	1.7	1.2	3.7	-0.8	16.6	8.6	12.0	7.2	0.7	2.6
	2005-12	-0.1	1.8	2.3	9.9	19.1	2.1	4.3	11.8	3.5	1.6
PS with SS	1983-94	3.9	7.5	2.7	6.5	7.9	6.9	8.1	8.1	5.2	4.2
	1993-05	0.1	-1.0	3.1	-0.2	10.9	3.7	5.7	10.4	-1.7	0.8
	2005-12	-5.4	-8.1	-4.6	-3.7	8.9	-4.1	-2.9	1.8	-4.1	-4.2
Only SS	1983-94	1.7	9.1	2.4	16.5	7.7	4.9	13.2	1.3	6.0	1.9
	1993-05	0.7	-4.9	3.2	-6.4	13.0	0.8	1.4	13.9	-0.2	0.9
	2005-12	-3.3	1.2	2.9	28.7	121.7	-1.7	2.1	24.0	-1.1	-1.6

Table 3.10: Annual Growth of Employment-Urban

Urban	Year	AGR	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP	TOT
UPSS	1983-94	1.1	4.5	1.6	4.8	7.8	4.2	2.8	6.7	4.3	3.2
	1993-05	-0.6	-1.2	3.4	-1.3	6.1	6.1	5.1	7.0	0.1	2.9
	2005-12	-0.8	3.1	2.7	20.2	6.2	2.5	4.4	11.1	3.1	3.3
PS Only	1983-94	0.8	4.0	1.7	4.6	8.0	4.3	2.8	6.5	4.0	3.2
	1993-05	-0.1	-1.1	3.2	-1.4	6.0	6.3	5.1	7.0	0.1	3.1
	2005-12	1.2	3.3	3.4	21.3	7.1	2.9	4.9	11.6	3.6	4.1
PS with SS	1983-94	3.0	12.7	1.1	7.5	7.2	5.0	4.1	11.0	4.3	3.7
	1993-05	-1.4	-2.5	1.4	1.1	8.3	5.3	4.2	4.4	-0.6	1.5
	2005-12	-5.7	-1.1	-4.6	-5.4	-2.9	-5.3	-2.2	5.7	-5.1	-4.3
Only SS	1983-94	0.8	9.6	1.0	21.2	2.5	1.4	-4.0	9.8	12.8	2.2
	1993-05	-1.3	-5.4	7.8	-3.7	4.2	1.8	19.2	12.7	0.2	1.9
	2005-12	-4.9	3.5	-1.9	53.3	5.4	1.1	-7.9	0.0	-0.6	-2.1

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using various NSS rounds

In the urban areas (Table 3.10) there was moderate increase in overall employment growth, in most of the sectors during the last period, except for utilities and FRB sector, where increase was more than 20 percent and 10 percent respectively. For workforce with subsidiary activity and workforce with both principal and subsidiary activity there was negative employment growth during the last phase for most of the sectors. Unlike rural areas, employment growth in construction sector has been far moderate, and increase in construction sector subsidiary workers was highest among other sectors but with respect to rural areas it was just half (although still around 50 percent).

It is evident that employment growth shows significant variations from round to round. It is necessary to note some important points here while understanding these trends. For instance, employment growth in agriculture slackened between the 38th round and the 43rd round of the NSS (i.e. between 1983 and 1987-88), essentially the impact of a severe drought during this period. It is clearly visible that immediately succeeding this period, higher productivity of agriculture also resulted in higher growth of employment in agriculture. However, Pattnaik's argument discussed earlier comes into play in the following period.

When it came to the employment growth in non-agricultural sectors, it was without doubt attributable to some extent to the growth in construction activities spurred on by government initiatives for public works and anti-poverty drives to face the challenges created by the drought (for instance, see Kundu, 2005). As a result, there was an increase in share of secondary sector in non-agricultural employment in the latter half of 1980s. Meanwhile, the tertiary sector remained a constant source of employment (Visaria and Basant, 1994), a trend witnessed even through the 2000s. Structural change in employment must therefore be studied in this light.

In Table 3.11, annual employment growth is presented for different sectors for rural male workforce in India since 1983. Annual employment growth rate for overall workforce (PS and SS combined) has declined from 2.5 per cent in the period 1983 to 1993-94 to just one percent in the period 2004-05 to 2011-12. Workforce in agriculture annually declined by -0.6 per cent in the period 2004-05 to 2011-12, so was the case in mining sector where annual employment growth was -1.4 percent. It was only in the construction sector even during the decade immediately post-reform, where employment growth was in double-digits. There was slight

increase of overall annual employment growth in construction sector from 14.3 per cent in the period 1993-94 to 2004-05 to 14.8 per cent in the period 2004-05 to 2011-12. For the workforce having only subsidiary work, employment decreased significantly at annual rate of minus 3.3 per cent in the period 2004-05 to 2011-12. Still there was increase in subsidiary employment in construction sector by 20 per cent annually during the period 2004-05- to 2011-12.

Table 3.11: Rural Male Annual Employment Growth

RM	Year	AGR	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP	TOT
UPS	1983-94	2.0	6.0	2.5	5.1	6.8	5.9	6.0	8.2	4.6	2.6
	1994-05	0.7	0.3	3.2	-0.3	14.3	7.2	9.8	8.2	-1.0	1.8
	2005-12	-0.6	-1.3	1.5	5.3	14.8	0.6	2.7	9.0	1.8	1.1
Only SS	1983-94	-0.6	0.0	-0.9		0.0	2.1	20.0	0.0	1.4	-0.4
	1994-05	-1.0	0.0	3.6		16.4	4.0	-1.5	9.1	1.7	-0.3
	2005-12	-4.2	-14.3	-6.6		20.4	-1.3	0.0	21.4	-2.3	-3.3
UPSS	1983-94	1.9	5.9	2.4	5.1	6.7	5.8	6.1	8.0	4.5	2.5
	1994-05	0.6	0.3	3.2	-0.3	14.3	7.1	9.7	8.2	-1.0	1.7
	2005-12	-0.6	-1.4	1.4	5.3	14.8	0.5	2.6	9.2	1.8	1.0

Table 3.12: Rural Female Annual Employment Growth

RF	Year	AGR	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP	TOT
UPS	1983-94	1.2	3.2	3.0	20.0	0.9	1.4	2.5	25.0	3.5	1.4
	1994-05	2.0	0.0	4.3	-6.1	11.7	6.0	23.6	3.9	4.1	2.4
	2005-12	-4.1	-3.5	-2.1	85.7	18.3	-0.3	-4.0	12.9	1.2	-3.2
Only SS	1983-94	2.2	15.0	2.9		15.0	6.4	0.0		8.3	2.4
	1994-05	1.0	-7.3	3.1		11.8	-0.5	18.2		-0.8	1.1
	2005-12	-3.2	28.6	3.9		183.2	-2.0	4.8	42.9	-0.6	-1.3
UPSS	1983-94	1.5	3.7	3.0	30.0	1.9	2.3	2.0	13.3	4.0	1.7
	1994-05	1.7	-0.7	4.0	-6.8	11.7	4.4	22.7	6.5	3.4	2.0
	2005-12	-3.9	-2.6	-0.7	85.7	38.3	-0.6	-2.7	11.9	1.0	-2.7

UPS= Usual Principal Status, UPSS= Usual Principal and Subsidiary Status

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using various NSS rounds

In case of rural female workforce (Table 3.12) there was overall decline (PS and SS combined) by -2.7 percent annually during the period 2004-05 to 2011-12. Higher decline was seen in rural female principal category work force, which was -3.2 percent annually during the period 2004-05 to 2011-12. Although rural female workforce with only subsidiary work constitutes only a fraction of total rural female workforce, still there was decline of -1.3 percent annually during 2004-05 to 2011-12. It is interesting to note that subsidiary rural female workforce in agriculture declined (-3.2 per cent annually) but rural female workforce in construction sector nearly doubled each year on an average during 2004-05 to 2011-12. However, annual employment

growth for rural female workforce in construction sector increased by nearly 40 per cent annually during 2004-05 to 2011-12, corresponding increase during 1993-94 to 2004-05 was just 11per cent, while during the period 1983 to 1993-94 it was less than 2 per cent annually.

In case of urban males (Table 3.13), there was an increase in the employment growth rate in the last period in 2004-05 to 2011-12 of nearly 4 percent up from around 3 percent in 1993-94 to 2004-05. One of the highest employment growth rates for urban male workforce was in utilities sector (17 percent). The second highest employment growth was in FRB sector with over 10 percent. Apart from utilities sector and FRB sector, other sectors have just moderate employment growth. In case of urban male subsidiary workforce, only in case of utilities and construction sector there was negative employment growth in all of the sectors.

Table 3.13: Urban Male Annual Employment Growth

UM	Year	AGR	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP	TOT
UPS	1983-94	1.9	4.7	1.6	4.3	8.1	4.3	2.9	5.7	3.6	3.3
	1994-05	-0.9	-0.7	2.8	-1.2	6.7	6.2	4.8	6.8	-1.2	2.9
	2005-12	2.5	2.8	3.0	16.6	6.6	2.5	4.4	10.9	3.3	3.9
Only SS	1983-94	-3.3		-4.3		0.0	-0.8	-5.0	0.0	-0.6	-2.2
	1994-05	-2.3	-9.1	8.3	0.0	12.1	1.6	31.8	13.6	3.2	2.7
	2005-12	-2.4		-3.1	14.3	2.0	-1.6	-7.9	-2.9	-5.0	-2.9
UPSS	1983-94	1.5	4.9	1.5	4.5	8.0	4.2	2.8	5.8	3.6	3.2
	1994-05	-0.9	-0.7	2.8	-1.4	6.8	6.1	4.9	6.8	-1.2	2.9
	2005-12	2.3	2.5	2.9	17.0	6.6	2.5	4.3	10.7	3.2	3.8

Table 3.14: Urban Female: Annual Employment Growth

UF	Year	AGR	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP	TOT
UPS	1983-94	-0.1	1.3	1.8	10.0	7.0	4.1	1.8	19.0	5.4	3.0
	1994-05	0.6	-5.1	4.6	0.0	2.5	6.6	10.0	7.2	3.8	3.7
	2005-12	-4.3	10.7	3.4	71.4	2.1	2.5	8.5	14.8	3.2	2.6
Only SS	1983-94	1.8		2.5		5.0	4.2	0.0		23.3	4.2
	1994-05	-1.1	-9.1	7.8		0.0	2.0	9.1	13.6	-0.5	1.7
	2005-12	-5.3		-1.7		14.3	3.5	-7.1	2.9	0.9	-1.9
UPSS	1983-94	0.1	0.2	0.2	1.4	0.6	0.4	0.1	1.9	0.6	0.3
	1994-05	0.0	-5.5	5.4	-1.8	2.3	5.9	10.0	7.6	3.2	3.3
	2005-12	-4.6	10.7	2.0	78.6	2.6	2.6	7.8	13.8	2.9	1.8

UPS= Usual Principal Status, UPSS= Usual Principal and Subsidiary Status

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using various NSS rounds

In case of urban female workforce (Table 3.14), there was only marginal increase of employment of just around 0.3 percent annually during 1983 to 1993-94, while it significantly increased during the period 1994-95 to 2004-05 at 3.3 percent, but during 2004-05 to 2011-12 it again

came down to just 1.8 percent. Also, urban female workforce in utilities sector increased by over 75 percent annually during 2004-05 to 2011-12. Urban female workforce in mining sector and Finance Real Estate and Mining sector increased by over 10 percent annually during 2004-05 to 2011-12.

Share of Employment across Industries

While analysing employment structure, the major definition used is that of the UPSS criterion, which includes the principal status work as well as subsidiary status of workers not usually employed in the principal status. By the UPSS definition, the trends in workforce shares across major sectors are given below.

Table 3.15: Share of Employment across Industries UPSS and UPS

UPSS	1983	1993-94	2004-05	2011-12	UPS	1983	1993-94	2004-05	2011-12
Agri	68.6	64.8	58.5	48.9	**Agri**	66.4	62.5	56.1	47.0
Min	0.6	0.7	0.6	0.5	**Min**	0.7	0.8	0.6	0.6
Mfg	10.6	10.4	11.7	12.6	**Mfg**	11.0	10.8	11.8	12.6
Util	0.3	0.4	0.3	0.5	**Util**	0.3	0.4	0.3	0.6
Cons	2.3	3.1	5.6	10.6	**Cons**	2.6	3.4	6.1	10.7
THR	6.3	7.4	10.2	11.0	**THR**	6.7	7.9	11.0	11.6
TSC	2.5	2.8	4.0	4.8	**TSC**	2.7	3.1	4.4	5.2
FBR	0.7	0.9	1.4	2.3	**FBR**	0.8	1.0	1.5	2.5
CSP	8.2	9.5	7.8	8.7	**CSP**	8.9	10.1	8.2	9.2
Total	**100.0**	**100.0**	**100.0**	**100.0**	**Total**	**100.0**	**100.0**	**100.0**	**100.0**

UPS= Usual Principal Status, UPSS= Usual Principal and Subsidiary Status

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using various NSS rounds

In 2011-12, total workforce (UPSS) engaged in agriculture decreased below 50 percent. Even though nearly 50 percent of the workforce in India was working in agriculture during 2011-12, it has come down significantly as compared to nearly 69 percent in 1983, and 65 percent in 1993-94. The decline in agriculture has been commensurate with the near doubling of percentage share of workforce engaged in construction sector. There has been marginal increase in the percentage of the workforce (UPSS) engaged in manufacturing sector, despite such a steep fall in the persons engaged in agriculture, which shows that persons moving out from agriculture are moving directly to the services sector. Similar trend is seen in case of principal workers (UPS); 47 percent of the workers in 2011-12 were in agriculture sector, while 12 percent were in manufacturing sector, followed by just over 10 percent in the construction sector.

Table 3.16: Share of Workers Only Subsidiary

Only SS	1983	1993-94	2004-05	2011-12
Agri	85.9	83.9	80.6	69.5
Min	0.1	0.2	0.1	0.1
Mfg	7.8	7.8	10.7	12.8
Util	0.0	0.0	0.0	0.1
Cons	0.4	0.6	1.1	9.3
THR	2.9	3.2	3.3	3.5
TSC	0.3	0.3	0.4	0.4
FBR	0.1	0.1	0.3	0.5
CSP	2.5	4.0	3.6	3.8
Total	**100.0**	**100.0**	**100.0**	**100.0**

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using various NSS rounds

In case of workers with only subsidiary employment (Table 3.16), nearly 70 percent of them were still engaged in the agriculture sector in 2011-12. Apart from agriculture, 12 percent of the subsidiary sector workers were working in manufacturing industry, and nearly 10 percent in the construction sector. Percentage of subsidiary workers engaged in Trade, Hotels and Restaurants; and Community, Social and Personal Services was less than 4 percent each.

Share of various categories of workers within each industry

Table 3.16 provides a breakup of the so as to give an overview of the workforce engaged in each of the sectors in rural areas, across different workforce groups, viz workforce that has only principal work without any subsidiary work, workers that have both principal and subsidiary work, and finally those workers who have only subsidiary work without any principal work.

Table 3.16: Composition of Rural Employment (%) between 1983 and 2011-12

Composition of Rural Employment (%)					Composition of Rural Employment (%)				
1983	**UPSS**	**Only PS**	**PS with SS**	**Only SS**	**2011-12**	**UPSS**	**Only PS**	**PS with SS**	**Only SS**
Agri	100	61	26	14	**Agri**	100	69	20	12
Min	100	63	35	2	**Min**	100	81	17	2
Mfg	100	64	26	10	**Mfg**	100	72	17	11
Util	100	79	21	1	**Util**	100	88	11	1
Cons	100	58	40	2	**Cons**	100	62	28	9
THR	100	66	28	6	**THR**	100	79	18	3
TSC	100	71	28	1	**TSC**	100	83	16	1
FBR	100	75	23	2	**FBR**	100	79	17	3
CSP	100	69	27	4	**CSP**	100	81	15	3
Total	**100**	**62**	**26**	**12**	**Total**	**100**	**70**	**20**	**10**

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

In rural areas it is seen that overall 62 percent of the workforce in India had only principal work, and another 26 percent had subsidiary work along with principal work, while only 12 percent had just subsidiary work in 1983. While in 2011-12, percentage of workforce with only principal work increased to 70 percent, there was decline in the percentage of workforce that had subsidiary work along with principal work to 20 percent. The highest decline is seen in the construction sector, where 40 percent of the construction sector workers had a subsidiary activity which decreased to 28 percent in 2011-12.

In urban areas (Table 3.17), there were very few workers that had only subsidiary activity, or subsidiary work along with principal work. This has not been a new phenomenon; in 1983, just 6 percent of the urban workers had only subsidiary work which declined to 4 percent in 2012. Also, workers with subsidiary employment along with principal sector employment was just 6 percent in 1983, which declined to just 3 percent in 2012.

Table 3.17: Composition of Urban Employment (%) between 1983 and 2011-12

Composition of Urban Employment (%)					Composition of Urban Employment (%)				
1983	**UPSS**	**Only PS**	**PS with SS**	**Only SS**	**2011-12**	**UPSS**	**Only PS**	**PS with SS**	**Only SS**
Agri	100	67	14	20	**Agri**	100	79	9	12
Min	100	94	5	1	**Min**	100	95	5	1
Mfg	100	89	5	6	**Mfg**	100	92	2	6
Util	100	96	3	1	**Util**	100	97	1	2
Cons	100	90	8	2	**Cons**	100	94	5	1
THR	100	91	5	4	**THR**	100	95	3	2
TSC	100	94	4	1	**TSC**	100	97	3	0
FBR	100	94	4	1	**FBR**	100	95	4	1
CSP	100	93	4	3	**CSP**	100	94	2	4
Total	**100**	**88**	**6**	**6**	**Total**	**100**	**93**	**3**	**4**

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using various NSS rounds

3.2.2 Composition of Workforce Diversification

It was observed that between the 1960s and the early 1990s, rural India witnessed workforce diversification which was '***deepening***' rather than '***widening***'. In essence, there seemed to be changes within the employment composition of non-agriculture rather than a significant increase

in such activities itself; there was no doubt an increase in rural non-farm activities, but the deepening appeared more prominent than the widening (for instance, Bhalla, 2005)[19].

The concept of diversification, as discussed earlier, is applicable and apparent at different levels of an economy. At the macro level, diversification is seen in the form of transfer or shift of labour force away from agriculture towards the secondary and tertiary sectors with the structural change of the economy. This is also known as '***vertical diversification***', which essentially results in expansion of different non-farm activities and lesser dependence on farm activities. At the same time, diversification at the micro level also entails '***horizontal diversification***', with transfer of labour to other activities within the same sector. For instance, within agriculture, there might be crop diversification, allied agricultural activities, mixed farming and so on and so forth. Therefore, diversification (economic as well as for the workforce) would ideally be a combination of both horizontal (within a sector) as well as vertical (expansion of other sectors).

Therefore, when it comes to the study of workforce diversification trends and patterns, detailed and structured analysis is required. With this in mind, this section looks at the components of workforce diversification by industrial sectors and nature of work at the aggregate as well as for rural and urban areas to determine which component and which industrial sector has (if at all) contributed towards a change in the composition of workforce employed in different areas (rural and urban). This will also to a certain extent throw light on the deepening and widening of the workforce in the post-reform period. Further ahead, detailed analysis at the sectoral level is also shown to visualise the horizontal and vertical diversification in terms of workforce. Before this, a brief analysis of the structural gap is shown in the following section.

The Structural Gap Quantified: Employment versus GDP Shares

The comparative shares of employment in major industrial sectors and their respective shares in GDP are given below in Table 3.17 for the period since 1980s. It is clear that the share of agriculture in employment fell from 69 per cent in 1983 to around 49 per cent in 2011-12. However, its contribution to total GDP which was 35 per cent in 1983 fell to 28 per cent in 1993-94 to 19 per cent in 2004-05 and was 14 just 14 per cent in 2011-12 but still employed just below

[19]Bhalla, Sheila (2005) 'Rural Work Force Diversification and Performance of Unorganized Sector Enterprises', in Rohini Nayyar and A.N. Sharma

50 per cent of the workforce. Meanwhile, manufacturing sector accounted for 15 per cent of total GDP in 1983, which has remained almost stable and was recorded at roughly 16 per cent in 2011-12, while its share in employment has also remained more or less stable at around 12.5 per cent. Construction, which has been emerging as a major sector for employment, has been contributing roughly 7.5 per cent to total GDP but employment in construction grew from 2 per cent in 1983 to almost 11 per cent in 2011-12. Services (majorly THR and CSP) in 2011-12 were found to employ under one-fourth of the workforce while accounting for over 60 per cent of GDP.

Table 3.17: Employment and GDP Shares across Sectors-Total

	EMP	GDP	EMP	GDP	EMP	GDP	EMP	GDP
Sectors	1983	1983	1993-94	1993-94	2004-05	2004-05	2011-12	2011-12
AGR	69	35	65	28	58	19	49	14
MIN	1	3	1	3	1	3	1	2
MGF	11	15	10	15	12	15	13	16
UTL	0	2	0	2	0	2	1	2
CNS	2	7	3	7	6	8	11	8
THR	6	12	7	13	10	16	11	16
TSC	2	5	3	5	4	8	5	11
FBR	1	9	1	13	1	15	2	18
CSP	8	12	9	13	8	14	9	13
TOT	100	100	100	100	100	100	100	100

*EMP=Employment share

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using various NSS rounds

Likewise, in rural and urban areas (Table 3.18), the shares of employment as well as GDP over the years are compared below. The share of agriculture in employment in rural areas fell from 81 per cent in 1983 to 64 per cent in 2011-12, and its share in GDP has come down from 61 per cent in 1983 to 39 per cent in 2011-12. A major increase in employment is visible in the construction sector in employment from 2 per cent in 1983 to 11 per cent in 2011-12. In the urban areas meanwhile, share of agriculture in employment as well as GDP is low. Interestingly, the share of manufacturing in employment been generally stagnant around 25 to 26 per cent, while its share in GDP has been constantly falling from 28 per cent in 1983 to 15 per cent in 2011-12. The share of services overall has been contributing to employment and GDP in urban areas.

Table 3.18: Employment and GDP Shares across Sectors-Rural and Urban

EMP GDP Share across sectors-Rural									EMP GDP Share across Sectors-Urban								
	1983		1993-94		2004--05		2011--12			1983		1993-94		2004--05		2011--12	
	EMP	GDP	EMP	GDP	EMP	GDP	EMP	GDP		EMP	GDP	EMP	GDP	EMP	GDP	EMP	GDP
AGR	81	61	78	56	73	38	64	39	AGR	15	5	12	4	9	2	7	2
MIN	0	1	1	2	1	4	0	4	MIN	1	2	1	1	1	2	1	3
MGF	7	11	7	8	8	12	9	17	MGF	27	28	24	22	25	15	24	15
UTL	0	1	0	1	0	1	0	1	UTL	1	1	1	2	1	1	1	2
CNS	2	4	2	5	5	8	11	10	CNS	5	7	6	6	8	9	9	10
THR	3	11	4	9	6	15	6	7	THR	18	23	19	23	25	20	23	16
TSC	1	1	1	4	2	6	3	4	TSC	8	6	8	9	9	11	10	8
FBR	0	5	0	6	0	8	1	12	FBR	3	12	3	15	5	16	7	20
CSP	5	8	6	9	5	8	5	7	CSP	23	16	25	15	19	20	18	18
TOT	100	100	100	100	100	100	100	100	TOT	100	100	100	100	100	100	100	100

*EMP=Employment share

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using various NSS rounds

When these trends are analysed within non-agriculture (Table 3.19), it is disturbing that even within non-agriculture, the share of manufacturing in GDP as well as employment has been declining overall. In terms of employment, manufacturing share fell from 34 per cent in 1983 to 25 per cent in 2011-12, while in GDP its share fell from 23 per cent to 19 per cent. Meanwhile, though the contribution to GDP from construction has remained more or less stagnant, its share in employment has increased from 7 per cent in 1983 to 21 per cent in 2011-12. The share of CSP in employment fell from 26 to 17 per cent between 1983 and 2011-12.

Table 3.19: Employment and GDP Shares across Sectors- NON-AGRICULTURE Total

	EMP	GDP	EMP	GDP	EMP	GDP	EMP	GDP
Total	1983	1983	1993-94	1993-94	2004-05	2004-05	2011-12	2011-12
MIN	2	4	2	5	1	4	1	2
MGF	34	23	30	20	28	19	25	19
UTL	1	2	1	3	1	3	1	2
CNS	7	10	9	9	13	10	21	9
THR	20	18	21	18	25	20	21	19
TSC	8	8	8	8	10	10	9	12
FBR	2	14	3	18	3	18	5	21
CSP	26	19	27	19	19	17	17	15
TOT	100	100	100	100	100	100	100	100

Table 3.20: Employment and GDP Shares across Sectors- NON-AGRICULTURE Rural & Urban

	EMP GDP Share across Sectors- NON AGRICULTURE Rural									EMP GDP Share across Sectors- NON AGRICULTURE Urban							
	1983		1993-94		2004--05		2011--12			1983		1993-94		2004--05		2011--12	
	EMP	GDP	EMP	GDP	EMP	GDP	EMP	GDP		EMP	GDP	EMP	GDP	EMP	GDP	EMP	GDP
MIN	3	4	3	6	2	6	1	6	MIN	1	2	1	2	1	2	1	3
MGF	36	29	32	19	30	19	24	28	MGF	32	30	27	23	27	15	25	15
UTL	1	2	1	2	1	1	1	2	UTL	1	1	1	2	1	1	1	2
CNS	9	11	11	10	18	13	31	16	CNS	6	7	7	7	9	9	10	11
THR	19	28	20	20	23	24	18	11	THR	21	24	22	24	27	20	25	16
TSC	6	3	7	9	9	9	8	6	TSC	10	6	9	9	10	11	11	9
FBR	1	13	1	13	2	14	2	20	FBR	3	13	4	16	5	17	7	21
CSP	25	20	26	21	17	13	15	11	CSP	27	17	28	16	21	20	20	18
TOT	100	100	100	100	100	100	100	100	TOT	100	100	100	100	100	100	100	100

Additionally, in rural and urban areas (Table 3.20), share of manufacturing and CSP in GDP and employment have been falling, urban areas saw some increase in shares of FBR (with higher share in GDP from 13 to 21 per cent between 1983 and 2011-12), while rural areas saw an increase in employment in construction (with lower increase in share of GDP while employment share rose from 9 per cent to 31 per cent between 1983 and 2011-12). Therefore, it gives an impression that the 'deindustrialization' in manufacturing sector in general has shifted to construction in rural areas and services in urban areas.

The composition of workforce still remains majorly rural. However, the pace of growth of the urban workforce has been increasing as a result of increasing urbanisation. Moreover, despite the declining share of employment in agriculture, it continued to account for almost half of the workforce in general and over two-thirds in total areas in 2011-12. The structure of workforce in rural and urban areas is also inherently different and needs to be studied accordingly. Urban workforce is more dependent on service activities and very little on agriculture. Services have also contributed to a significant share of the rural non-farm sector. However, the 2000s have witnessed a spurt in the growth of construction sector jobs which has led to the tertiary sector employment being dominated by secondary sector employment. Nevertheless, despite the growth witnessed in construction jobs between 2004-05 and 2011-12, its share in urban workforce was found to be lower than its share in rural workforce. Employment growth in manufacturing sector mean while slackened in both rural and urban areas.

Therefore, the study begins with an overview of aggregate workforce diversification and its ***components*** in terms of whether the growth in employment has come from principal or subsidiary nature of work. In addition, it also analyses in detail the workforce diversification trends ***within rural and urban areas as a share of the total aggregate***. The following tables (Table 3.21 and 3.22) show rural employment (and GDP) as a share of total employment (as GDP) as well as urban employment (and GDP) as a share of total employment (as GDP). The rural areas account for up to 96 per cent of total agriculture, and 94 per cent or total (agricultural) GDP, construction in rural areas account for 77 per cent of total construction employment (urban accounts for 23 per cent), and 47 per cent of (construction) GDP in 2011-12. In urban areas, FBR accounts for 75 per cent of total FBR employment and 65 per cent of FBR GDP.

Table 3.20: Rural Employment as Percentage of Total Employment & Rural GDP as Percentage of Total GDP

Rural Emp	1983	1993-94	2004-05	2011-12
AGR	96	96	97	96
MIN	66	67	70	63
MGF	51	53	54	50
UTL	41	43	45	33
CNS	61	58	68	77
THR	44	46	47	44
TSC	36	41	48	46
THR	23	25	26	25
CSP	47	47	46	44
TOT	81	79	78	74

Rural GDP	1983	1993-94	2004-05	2011-12
AGR	94	94	94	94
MIN	51	66	66	53
MGF	35	30	43	51
UTL	40	38	33	33
CNS	47	45	45	47
THR	39	31	41	28
TSC	23	35	33	29
FRB	35	31	32	35
CSP	39	41	28	26
TOT	57	54	48	48

Table 3.21: Urban Employment as Percentage of Total Employment & Urban GDP as Percentage of Total GDP

Emp Urban	1983	1993-94	2004-05	2011-12
AGR	4	4	3	4
MIN	34	33	30	37
MGF	49	47	46	50
UTL	59	57	55	67
CNS	39	42	32	23
THR	56	54	53	56
TSC	64	59	52	54
FBR	77	75	74	75
CSP	53	53	54	56
TOT	19	21	22	26

Urban GDP	1983	1993-94	2004-05	2011-12
AGR	6	6	6	6
MIN	49	34	34	47
MGF	65	70	57	49
UTL	60	62	67	67
CNS	53	55	55	53
THR	61	69	59	72
TSC	77	65	67	71
FRB	65	69	68	65
CSP	61	59	72	74
TOT	43	46	52	52

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using various NSS rounds

The following tables (3.22, 3.23 and 3.24) show employment elasticity across sectors for various disaggregated natures of employment. Employment elasticity has been calculated using sectoral net value added, while fro rural areas this exercise has been done using rural sectoral net value added ad similarly for urban areas using urban sectoral net value added. For all forms of employment, employment elasticity of agriculture became negative between 2004-05 and 2011-12. Meanwhile, for the UPSS all category and the Only PS category, employment elasticity in manufacturing declined between 2004-05 and 2011-12, as also for those Only SS category (a much larger decline) and became negative for the PS with SS category. Construction on the other hand has shown high employment elasticity (very high for the Only SS category), showing an increase in vulnerable and precarity of jobs. Meanwhile employment elasticity of services also seems to have started showing declining trends on an average.

Table 3.22: Employment Elasticity-Total

		AGR	MIN	MGF	UTL	CNS	THR	TSC	THR	CSP	TOT
UPSS	1983-93	0.22	0.47	0.18	0.30	0.86	0.46	0.35	0.41	0.41	0.21
	1994-05	0.42	-0.02	0.39	-0.11	0.97	0.49	0.40	0.72	0.02	0.27
	2005-12	-0.42	-0.07	0.12	1.63	1.18	0.13	0.20	0.64	0.26	0.04
Only PS	1983-93	-0.04	0.35	0.17	0.29	0.79	0.43	0.30	0.40	0.37	0.13
	1994-05	0.64	0.06	0.39	-0.13	0.98	0.55	0.42	0.70	0.06	0.35
	2005-12	-0.02	0.53	0.22	1.92	1.20	0.23	0.26	0.70	0.40	0.21
PS with SS	1983-93	0.86	0.78	0.23	0.40	1.04	0.72	0.73	0.55	0.50	0.47
	1994-05	0.08	-0.15	0.33	0.03	0.96	0.32	0.31	0.78	-0.15	0.12
	2005-12	-1.15	-1.76	-0.37	-0.48	0.67	-0.39	-0.16	0.18	-0.49	-0.39
Only SS	1983-93	0.22	0.94	0.14	1.31	0.72	0.30	0.09	0.40	0.98	0.15
	1994-05	0.28	-0.76	0.53	-0.58	0.94	0.11	0.43	1.26	0.02	0.14
	2005-12	-0.71	0.37	0.07	5.63	8.34	-0.05	-0.22	0.34	-0.10	-0.15

Table 3.23: Employment Elasticity-Rural

		AGR	MIN	MGF	UTL	CNS	THR	TSC	THR	CSP	TOT
UPSS	1983-93	0.02	0.06	0.07	0.10	0.13	0.15	0.04	0.16	0.08	0.03
	1994-05	0.11	0.01	0.11	-0.03	0.33	0.16	0.30	0.25	0.01	0.10
	2005-12	-0.08	-0.07	0.01	0.12	0.49	0.11	0.22	0.23	0.09	-0.02
Only PS	1983-93	0.00	0.05	0.07	0.10	0.09	0.12	0.03	0.17	0.07	0.01
	1994-05	0.17	0.04	0.12	-0.04	0.40	0.21	0.36	0.22	0.05	0.14
	2005-12	-0.01	0.07	0.05	0.18	0.54	0.65	0.39	0.29	0.21	0.06
PS with SS	1983-93	0.09	0.10	0.08	0.11	0.18	0.22	0.06	0.16	0.09	0.09
	1994-05	0.02	-0.02	0.10	0.00	0.26	0.09	0.17	0.32	-0.09	0.05
	2005-12	-0.22	-0.35	-0.11	-0.07	0.25	-1.29	-0.27	0.04	-0.25	-0.17
Only SS	1983-93	0.03	0.12	0.06	0.32	0.18	0.14	0.09	0.01	0.11	0.03
	1994-05	0.08	-0.14	0.10	-0.44	0.31	0.02	0.05	0.43	0.00	0.05
	2005-12	-0.13	0.05	0.07	0.52	3.47	-0.54	0.18	0.59	-0.07	-0.07

Table 3.24: Employment Elasticity-Urban

		AGR	MIN	MGF	UTL	CNS	THR	TSC	THR	CSP	TOT
UPSS	1983-93	0.01	0.11	0.02	0.07	0.17	0.08	0.03	0.10	0.08	0.05
	1994-05	-0.03	-0.03	0.23	-0.06	0.15	0.26	0.15	0.23	0.01	0.11
	2005-12	-0.04	0.06	0.11	0.36	0.19	0.14	0.27	0.32	0.14	0.13
Only PS	1983-93	0.00	0.10	0.02	0.07	0.17	0.08	0.03	0.10	0.08	0.05
	1994-05	0.00	-0.03	0.22	-0.06	0.15	0.27	0.14	0.23	0.01	0.12
	2005-12	0.06	0.07	0.13	0.38	0.22	0.17	0.30	0.34	0.17	0.17
PS with SS	1983-93	0.06	0.36	0.01	0.12	0.15	0.09	0.05	0.18	0.08	0.06
	1994-05	-0.12	-0.07	0.10	0.07	0.20	0.23	0.12	0.15	-0.01	0.06
	2005-12	-0.26	-0.02	-0.18	-0.10	-0.09	-0.31	-0.14	0.17	-0.24	-0.17
Only SS	1983-93	0.00	0.09	0.00	0.14	0.01	0.00	-0.03	0.06	0.11	0.01
	1994-05	-0.04	-0.07	0.22	-0.08	0.05	0.04	0.26	0.19	0.00	0.03
	2005-12	-0.11	0.04	-0.04	0.55	0.09	0.03	-0.23	0.00	-0.02	-0.04

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using various NSS rounds

A similar case is also seen for rural and urban areas, with increasing and high employment elasticity in general for construction sector especially in the Only SS category, and declining manufacturing and service sector employment elasticity. For many sector there has been a significant threat of declining employment elasticity. There has been negative employment elasticity for worker with only subsidiary activity and those workers that have subsidiary activity

along with principal activity. Rural employment elasticity as seen has trend negative overall, given the negative employment elasticity in agriculture, but without any strong positive employment elasticity in rural non agricultural sector, this would only result in the jobless growth situation. Even though urban areas has a high employment elasticity it in itself cannot tackle the job loss in the agricultural sector, and given the limited absorption capacity in the formal and organized sector in the urban areas, it would only lead to mass informalization labour in the urban areas fuelled by agrarian distress and migration. This is a in fact is a what has been happening as shown in the data below and this has as of today resulted in economic as well as labour market crisis.

INDIVIDUAL LEVEL ANALYSIS

Given the overall trends in workforce, its shares and growth over time, as well as components and structural gaps, this section looks at individual level analysis in detail.

Diversification through supplementary activity

The patterns of the workforce diversification where those with a principal category activity also diversify into a subsidiary activity (generally to supplement income) have been compared for rural and urban areas between 1983 and 2011-12, almost a gap of 3 decades to see the changes is trends of choosing supplementary activities. The major sectors are agriculture, industry, construction and services. The diagonals show that the subsidiary activity was also performed in the same sector as the principal activity.

In rural areas (Table 3.25), among those whose principal activity was in agriculture, the major subsidiary activity in 1983 was also agriculture (upto 85 per cent), a trend which shifted to construction as another major subsidiary activity (upto 46 per cent) in 2011-12, where those working in agriculture also work in construction to supplement income. This has often been attributed to the NREGA in rural areas boosting construction activities and employment therein (in subsidiary form for less than 3 months). For those working in industry, construction or services as the principal activity in rural areas in 1983, the main source of subsidiary employment was agriculture (over 85 per cent), and although the percentage has slightly declined, the trends in 2011-12 remain much the same; for industrial, construction and service

sector workers in rural areas, agriculture remains the major source of subsidiary activity while it is for the workers mainly engaged in agriculture that the subsidiary activity has been shifting more towards construction activities.

Table 3.25: Diversification through supplementary activity- Rural

Rural 1983	NIC SS					Rural 1993	NIC SS				
NIC PS	AGRI	IND	CONS	SER	Total	NIC PS	AGRI	IND	CONS	SER	Total
AGRI	84.9	5.0	3.6	6.5	100	AGRI	85.6	4.6	3.0	6.6	100
IND	89.5	4.4	0.9	5.3	100	IND	91.6	3.3	1.0	4.0	100
CONS	93.8	2.5	0.6	3.1	100	CONS	93.4	2.6	1.1	2.8	100
SER	88.6	3.9	0.6	6.9	100	SER	91.1	2.3	0.6	5.8	100
Rural 2004	NIC SS					Rural 2012	NIC SS				
NIC PS	AGRI	IND	CONS	SER	Total	NIC PS	AGRI	IND	CONS	SER	Total
AGRI	80.1	5.3	7.2	7.5	100	AGRI	41.7	5.5	45.6	7.3	100
IND	89.5	3.6	2.3	4.6	100	IND	76.6	2.9	15.9	4.5	100
CONS	93.2	2.9	1.4	2.6	100	CONS	80.7	2.4	14.2	2.7	100
SER	88	2.8	1.7	7.4	100	SER	80.1	3.1	9.9	7.0	100

Table 3.26: Diversification through supplementary activity- Urban

Urban 1983	NIC SS					Urban 1993	NIC SS				
NIC PS	AGRI	IND	CONS	SER	Total	NIC PS	AGRI	IND	CONS	SER	Total
AGRI	68.8	9.5	6.8	14.9	100	AGRI	71.7	7.0	6.0	15.3	100
IND	53.4	17.7	2.7	26.1	100	IND	53.9	15.1	5.0	26.1	100
CONS	63.7	12.1	9.3	15	100	CONS	64.9	5.7	6.5	22.9	100
SER	53.2	13.2	3.4	30.3	100	SER	53.6	9.3	3.6	33.5	100
Urban 2004	NIC SS					Urban 2012	NIC SS				
NIC PS	AGRI	IND	CONS	SER	Total	NIC PS	AGRI	IND	CONS	SER	Total
AGRI	65.4	6.8	10.6	17.2	100	AGRI	44.8	13.1	25	17.1	100
IND	44.1	15.8	8.7	31.4	100	IND	37	21.7	9.3	32	100
CONS	57.9	9.4	7.7	25.1	100	CONS	58.1	12	5.4	24.6	100
SER	37.8	11.9	7.3	43.1	100	SER	28.9	12.2	9.8	49.1	100

*AGRI= agriculture &allied, IND= mining, manufacturing & utilities, CONS= construction, SER=THR, TSC, FBR & CSP
Source: Author's estimations using various NSS rounds

In urban areas meanwhile (Table 3.26), 30 per cent of those with services as the principal activity also turned to the service sector for a supplementary activity in 1983, which rose to 49 per cent in 2011-12. The services sector in urban areas has been growing as a dominant source of employment (in main as well as subsidiary activities), instead of growth in manufacturing jobs, a fact which is discussed in detail throughout the following chapters. Meanwhile, those with construction as their main activity in urban areas reported to having a supplementary role in agriculture, which accounts for a huge migrant population from rural areas working as casual labour in urban areas .Industrial sector meanwhile has not been a major source of principal or subsidiary activity, with just under one-fifth of industrial workers also having subsidiary activity in the same sector, and turning increasingly instead to service sector. The 'deindustrialization' in

terms of jobs is well visible in the form of increasing dependence on construction in rural areas and migration to urban areas as well as increased focus on services (informal) and construction in urban areas.

Status of Work

In addition to the sector of work, the nature or status of work in that particular sector is also equally important, especially under the growing concern of increasing casualisation in work. Casualisation in work has been mostly noted for those shifting from agriculture to non-agricultural activities during slack seasons, generally counter-cyclical to the demands of the agricultural calendar (Basant and Kumar, 1989). A shift from cultivators to agricultural labourers also highlighted the casualisation in work. On a similar note, Jatav and Sen (2013) have argued that self-employed status generally indicates cultivators (a more privileged position) while agricultural workers are primarily casual workers. The disturbing fact is the increasing casualisation in non-agricultural jobs along with a decline in regular as well as self-employed status work. Jatav and Sen attribute this increase in casual status in non-agriculture in part to NREGA (ibid).

Increasing casualisation of work is a much discussed issue in the literature as well (Mukhopadhyay 1992, Vaidyanathan 1986). On an average, regular wage/ salaried jobs account for little over one-sixth of total jobs. This is a dismal scenario, but given the large informal sector in the economy, is also to be expected. What is surprising is that self-employed work, which had been dominant over the years has been showing gradual decline (with sharp fluctuations at some points of time). Although self-employed jobs in agriculture are sometimes considered better (depicting cultivation on own land), self-employment status in non-agriculture may not always mean a positive change, and its sustainability is also under question. Temporary increases in the same could imply distress and/ or risk mitigation rather then enterprise.

While discussing about the nature and quality of jobs especially in the rural non-farm segment, the major factors that come to mind are casualisation in non-farm work, poverty and unemployment among non-farm households relative to agricultural households, education backgrounds and so on. Worsening of these would imply a deteriorating quality in non-farm work. The casualisation of work has been a major topic for discussion, since it has been

increasing over time. This trend had begun in the pre-reforms period itself, only to be exacerbated in the post-reforms period. As claimed by Basant and Kumar (1989) and Basant (1998), the pre-reforms period saw a gradual rise in casual farm as well as non-farm workers, which only quickened pace later. Interestingly, with increasing casualisation the share of self-employed status in agriculture was found to be declining, while it rose in the non-farm segment along with casual work. Casualisation in non-agriculture picked up pace post the reforms.

The following tables provide some insights into the trends in nature and status of work across sectors over time for different sections of the workforce. The findings are more or less intuitive and conform to the discussions in the literature. From Table 3.27, it is clearly evident that in 1983, in rural areas, those who were in a self-employed status were mostly in agriculture and this trend has slowly increased in 2011-12 for services. Regular wage work in 1983 meanwhile was dominated by agriculture and services in rural areas, which moved towards industry and more towards service sector jobs in 2011-12. Casual work, which was rampant in agriculture in 1983 in the form of agricultural labour, also moved and started shifting towards the construction sector in 2011-12. The trends in urban areas meanwhile on an average show that between 1983 and 2011-12, the general trends in self-employed status of work have remained in the service sector, while the trend in regular salaried jobs has been tilted towards service sectors in general. Casual status of work in urban areas rose in the construction sector.

Table 3.27: Distribution of workers across usual status & industries: Rural &Urban, 1983 & 2011-12

Rural 1983	**NIC PS**					**Rural 2012**	**NIC PS**				
Status PS	**AGRI**	**IND**	**CONS**	**SER**	**Tot**	**Status PS**	**AGRI**	**IND**	**CONS**	**SER**	
SES	82.99	7.35	0.49	9.16	**100**	**SES**	73.28	8.19	1.85	16.68	**100**
RES	32.64	17.3	1.96	48.1	**100**	**RES**	5.34	26.37	2.67	65.62	**100**
CES	86.4	5.87	4.52	3.21	**100**	**CES**	62.41	6.44	27.14	4.02	**100**
Total	**80.06**	**7.66**	**1.97**	**10.3**	**100**	**Total**	**62.85**	**9.29**	**11.16**	**16.74**	**100**
Urban 1983	**NIC PS**					**Urban 2012**	**NIC PS**				
Status PS	**AGRI**	**IND**	**CONS**	**SER**		**Status PS**	**AGRI**	**IND**	**CONS**	**SER**	
SES	18.4	24.13	3.03	54.44	**100**	**SES**	9.54	22.86	4.3	63.3	**100**
RES	1.46	32.25	1.5	64.79	**100**	**RES**	0.63	28.72	2.75	67.91	**100**
CES	25.64	32.27	17.05	25.04	**100**	**CES**	13.1	21.17	44.48	21.26	**100**
Total	**12.57**	**29.02**	**4.92**	**53.48**	**100**	**Total**	**6.1**	**25.22**	**9.56**	**59.12**	**100**

*SES= Self-Employed Status, RES= Regular employed status, CES= Casual employed status

**AGRI= agriculture &allied, IND= mining, manufacturing & utilities, CONS= construction, SER=THR, TSC, FBR & CSP

Source: Author's estimations using various NSS rounds

Table 3.28: Percentage Distribution of Workers by their Usual Status across industrial sectors: Total

Total		AGRI	MIN	MFG	UTL	CNS	THR	TSC	FBR	CSP	TOT
SES	1983	73	0	10	0	1	10	2	1	4	100
	1993-94	69	0	9	0	1	12	2	1	6	100
	2004-05	63	0	11	0	2	15	3	1	4	100
	2011-12	59	0	11	0	2	17	4	2	4	100
RES	1983	15	2	22	2	2	6	9	3	39	100
	1993-94	7	2	24	2	2	8	10	5	41	100
	2004-05	4	1	24	2	2	13	11	6	37	100
	2011-12	2	1	25	3	3	13	10	8	35	100
CES	1983	80	1	8	0	6	1	2	0	3	100
	1993-94	78	1	7	0	8	1	2	0	3	100
	2004-05	70	1	7	0	16	2	2	0	2	100
	2011-12	56	1	7	0	30	2	2	0	2	100

*SES= Self-Employed Status, RES= Regular employed status, CES= Casual employed status

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using various NSS rounds

As Table 3.28 shows, in case of self-employment category, it is seen that as workforce engaged in agriculture declined from 73 percent in 1983 to 59 percent in 2011-12, there was an increase in share of employment in Trade Hotels and Restaurants sector from 10 percent in 1983 to 17 percent in 2011-12. In case of Regular wage and salaried workers, Community, social and personal services had the highest share of employment at 37 percent in 2011-12, down from 39 percent in 1983; while in case of utilities, share of employment was 25 percent in 2011-12. There was also a persistent rise in employment of regular wage and salaried class in Trade, Hotels and Restaurants from 6 percent in 1983 to 13 percent in 2011-12. Casual employment was mostly concentrated in agriculture and construction sector, and in 2011-12, 30 percent of casual workers were engaged in construction sector, up from 6 percent in 1983.

Table 3.29: Percentage Distribution of Workers by Usual Status across industrial sectors: Rural Males

Rural Male		AGRI	MIN	MFG	UTL	CNS	THR	TSC	FBR	CSP	TOT
SES	1983	81	0	7	0	1	6	1	0	3	100
	1993-94	78	0	6	0	1	9	1	0	4	100
	2004-05	73	0	7	0	2	12	3	1	3	100
	2011-12	71	0	7	0	2	12	3	1	4	100
RES	1983	33	2	13	2	2	4	7	2	35	100
	1993-94	16	2	18	2	2	5	11	3	41	100
	2004-05	10	1	21	2	2	12	15	3	33	100
	2011-12	5	1	26	2	3	11	16	5	32	100
CES	1983	84	1	5	0	6	1	1	0	2	100
	1993-94	81	1	6	0	8	1	2	0	2	100
	2004-05	71	1	6	0	17	2	3	0	1	100
	2011-12	56	1	6	0	32	2	2	0	1	100

Source: Author's estimations using various NSS rounds

In case of rural male workforce (Table 3.29), 81 percent of workforce was self-employed in agriculture in 1983, which came down to 71 percent in 2011-12. In case of regular wage and salaried workforce, one-third of the rural male workforce was engaged in agriculture, which came down to 5 percent in 2011-12. Also over 26 percent of regular wage and salaried class was in utilities sector in 2011-12, while another 32 percent was in Community, social and personal services, followed by 16 percent in Transport, storage and communications. Again in case of casual employment the distribution of workforce is mainly in agriculture and construction sector, with one-third of casual employment in construction sector.

Table 3.30:Percentage Distribution of Workers by Usual Status across industrial sectors: Rural Females

Rural Female		AGRI	MIN	MFG	UTL	CNS	THR	TSC	FBR	CSP	TOT
SES	1983	87	0	7	0	0	4	0	0	2	100
	1993-94	84	0	9	0	0	4	0	0	3	100
	2004-05	82	0	11	0	0	5	0	0	2	100
	2011-12	80	0	13	0	0	6	0	0	2	100
RES	1983	32	2	18	1	1	0	0	0	46	100
	1993-94	17	1	22	1	0	1	1	2	55	100
	2004-05	11	1	18	0	0	3	2	2	64	100
	2011-12	8	0	15	1	0	6	1	2	66	100
CES	1983	91	1	5	0	2	0	0	0	2	100
	1993-94	91	1	5	0	2	0	0	0	1	100
	2004-05	90	1	4	4	0	0	0	0	1	100
	2011-12	80	1	4	0	13	0	0	0	1	100

*SES= Self-Employed Status, RES= Regular employed status, CES= Casual employed status

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using various NSS rounds

In Table 3.30, it is seen that 80 percent of self-employed rural female workforce is still in agriculture, but there has been marginal increase in the share of self-employed rural female workforce in utilities sector from 7 percent to 13 percent. In case of regular wage and salaried class 32 percent was in agriculture in 1983, which came down to just 8 percent in 2011-12, while 66 percent was in Community, Social and Personal services. When it comes to casual laborers from 1983 to 2004-05, 90 percent was in agriculture but in 2011-12, it fell to 80 percent in agriculture with 13 percent in construction sector.

Table 3.31: Percentage Distribution of Workers by Usual Status across industrial sectors: Urban Males

Urban Male		AGRI	MIN	MFG	UTL	CNS	THR	TSC	FBR	CSP	TOT
SES	1983	15	0	22	0	4	37	7	3	11	100
	1993-94	13	0	18	0	4	39	8	3	15	100
	2004-05	9	0	18	0	5	44	11	5	7	100
	2011-12	9	0	18	0	5	43	10	6	9	100
RES	1983	2	2	30	2	2	10	12	5	36	100
	1993-94	1	2	30	3	2	11	12	6	34	100
	2004-05	1	2	30	2	2	17	12	8	28	100
	2011-12	1	2	29	3	3	17	10	11	25	100
CES	1983	19	1	32	0	20	8	12	1	8	100
	1993-94	20	1	22	0	28	8	11	1	10	100
	2004-05	10	1	23	0	43	11	8	1	3	100
	2011-12	10	1	19	0	49	10	6	1	3	100

Table 3.32:Percentage Distribution of Workers by Usual Status across industrial sectors:Urban Females

Urban Female		AGRI	MIN	MFG	UTL	CNS	THR	TSC	FBR	CSP	TOT
SES	1983	33	0	33	0	1	24	1	1	8	100
	1993-94	24	0	34	0	0	25	0	1	16	100
	2004-05	20	0	40	0	26	0	1	2	12	100
	2011-12	12	0	46	1	0	27	0	2	12	100
RES	1983	1	2	15	1	1	2	3	2	73	100
	1993-94	1	1	14	1	0	3	3	5	72	100
	2004-05	1	0	15	1	1	4	3	7	69	100
	2011-12	1	0	13	2	1	6	1	9	67	100
CES	1983	41	1	29	0	11	2	2	0	14	100
	1993-94	39	1	23	0	17	3	1	0	17	100
	2004-05	37	1	17	0	24	5	0	0	16	100
	2011-12	28	1	24	0	25	4	1	1	16	100

*SES= Self-Employed Status, RES= Regular employed status, CES= Casual employed status

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using various NSS rounds

Self-employed urban male workers (Table 3.31) were mostly concentrated in Trade, Hotels and Restaurants, where 37 percent of urban male workers were engaged which increased to 43 percent in 2011-12. Regular wage and salaried workers were mostly engaged in manufacturing sector, but the share has not yet increased since 1983 and has been stable at 30 percent since 2004-05, declining marginally to 29 percent in 2011-12. Percentage of regular wage and salaried workforce in Community, Social and Personal services was 36 percent in 1983, declining to 25 percent in 2011-12. While construction sector has been one of the largest employing sectors, just 3 percent of the regular wage and salaried urban male were engaged in construction sector. In case of casual employment, nearly 50 percent of urban male were engaged in construction sector, while only 3 percent were engaged in Community, social and Personal services.

In case of urban female workforce (Table 3.32), 46 percent of self-employed workforce was engaged in utilities sector, followed by another 26 percent in Trade, Hotels and Restaurants. In case of regular wage and salaried category for urban female workforce, 67 percent was engaged in Community, Social and Personal Services. In casual employment, 28 percent of urban females were engaged in agriculture sector, while 24 percent was in utilities sector, and 25 percent was in construction sector, while 16 percent was in Community, Social and Personal Services.

The trends in the recent part of the 3 decade period, i.e. between 2004-05 and 2011-12 in status of work for those employed in the subsidiary capacity (whether they are employed usually in principal status or not), in terms of sector and status of subsidiary activity are shown below (Tables 3.33 and 3.34). For those who were principally employed in self employed, or regular or casual status, subsidiary activity during 2004-05 was dominantly in agriculture, while in 2011-12, those principally employed in regular wage jobs and having a subsidiary activity were also moving towards service sector subsidiary jobs, while those with casual employment in the principal status generally were found to have subsidiary employment in agriculture or in construction. At the same time, those who were employed in principal status and also had a subsidiary activity, generally were self-employed or had a casual status in the respective subsidiary activity.

Table 3.33: Employment in Principal Status and Subsidiary activity sector of work

2004-05	NIC - Subsidiary Capacity					2011-12	NIC - Subsidiary Capacity				
Status PS	AGRI	IND	CONS	SER	Total	Status PS	AGRI	IND	CONS	SER	Total
SES	78.42	5.23	5.96	10.39	100	SES	50.44	5.65	33.97	9.93	100
RES	76.98	4.61	1.78	16.63	100	RES	67.89	6.18	5.67	20.27	100
CES	84.19	4.79	6.23	4.79	100	CES	57.14	4.17	34.41	4.28	100
Seek.	51.35	13.98	6.42	28.25	100	Seek.	49.62	10.32	17.56	22.5	100
Study	70.5	11.82	0.79	16.89	100	Study	59.62	12.71	5.39	22.28	100
Dom.	84.14	10.51	0.69	4.66	100	Dom.	71.73	13.35	9.28	5.63	100
OTH.	76.34	7.43	1.69	14.53	100	OTH.	66.65	6.35	12.6	14.4	100

Table 3.34: Employment in Principal Status and Subsidiary activity status of work

2004-05	Status: Subsidiary Capacity				2004-05	Status: Subsidiary Capacity			
Status PS	SES	RES	CES	Total	Status PS	SES	RES	CES	Total
SES	57.94	1.35	40.71	100	SES	57.94	1.35	40.71	100
RES	87.85	4.31	7.84	100	RES	87.85	4.31	7.84	100
CES	81.94	0.6	17.45	100	CES	81.94	0.6	17.45	100
Seek.	49.79	14.74	35.47	100	Seek.	49.79	14.74	35.47	100
Study.	86.43	4.55	9.02	100	Study.	86.43	4.55	9.02	100
Dom.	84.74	0.97	14.29	100	Dom.	84.74	0.97	14.29	100
OTH.	80.6	3.91	15.49	100	OTH	80.6	3.91	15.49	100

*SES= Self-Employed Status, RES= Regular employed status, CES= Casual employed status

**AGRI= agriculture &allied, IND= mining, manufacturing & utilities, CONS= construction, SER=THR, TSC, FBR & CSP

Meanwhile, for those who only had a subsidiary activity and no principal status employment (those who were seeking work, studying, in domestic chores or other in their principal status), the trends are more interesting. Those who were seeking employment (unemployed in the principal status) but were employed in a subsidiary capacity were either in agriculture or in service sector jobs, a trend increasingly shifting towards service sector jobs, also for those who were getting educational attainment in their principal status. Agriculture was the main subsidiary activity for those who were primarily engaged in household and domestic chores, and that too in self-employed status, generally rural women when the need to supplement household income arose (see Abraham, 2009), while those who were seeking work or gaining education and south subsidiary activity work were in casual employment, generally in services, which explains the growth of a large number of informal services.

It is to be expected that the chances of being in a regular salaried or self-employed job are higher for the more ***educated*** sections of the population (see Lanjouw, 1999; Srivastava and Sachdev (undated) and Srivastava (undated) for instance). They find evidence of the odds of being in regular salaried work are as high as 177 times for graduates and above as compared to less educated sections. At the same time, casualisation actually rose in rural areas accompanied by gradual decline of self-employed work as well. Interestingly, their analysis suggests that higher increases in self-employed status were visible for ***rural females*** in agriculture as well as manufacturing, and the marginal increase in regular salaried jobs in rural areas was also more in the case of females, both in rural as well as urban areas. Women have been found to be working in agriculture as males often diversify or migrate for work to support the household income, and a variety of household industries such as pickle-making, custom tailoring, bidi rolling etc., are run by females (Nivedita, 2008).

It is evident from all the above analysis that subsidiary status workers as a percentage of total workers are more in rural as compared to urban areas. Interestingly, women 'not in the workforce' sometimes enter the workforce in a subsidiary capacity, generally as self-employed. Women therefore become reserve labour in the household, and switch between household domestic chores and sometimes enter the workforce to support family income. This is also consistent with Himanshu's theory (2007) on the income-effect determining work participation of women; the reservation labour supply and whenever income of the household falls below this

level, they send their reserve labour (consisting generally of women and sometimes children and elderly as well) to work temporarily on a subsidiary capacity generally.

At the same time, comparing the trends in employment among the youth between 15 and 29 years of age in rural and urban areas in particular yields that over time, rural male youth have been leaving agriculture and moving towards construction and THR mainly, while rural female youth (around 70 per cent) are still engaged in agriculture though the share has been declining over time and rural female youth seem to have a larger share in manufacturing as compared to males. Meanwhile in urban areas, share of employment of youth in manufacturing has been increasing (more for females comparatively) as is the case in CSP, while for urban male youth, increase in employment in construction and THR is also apparent.

Table 3.35: Employment shares across major sectors: Rural Youth

RURAL YOUTH (15-29 years)	1983		1993 -94		2004-05		2011-12	
	Male	Female	Male	Female	Male	Female	Male	Female
Agri	77.0	86.4	72.8	83.3	62.8	77.7	53.5	68.3
Min	0.6	0.5	0.7	0.7	0.7	0.5	0.7	0.5
Mfg	7.9	7.5	8.1	9.4	9.5	12.4	10.5	15.8
Util	0.2	0.0	0.2	0.0	0.1	0.0	0.2	0.1
Cons	2.8	1.2	4.0	1.2	8.8	2.3	17.2	5.2
THR	4.5	1.4	5.6	1.3	9.0	2.3	8.1	3.4
TSC	2.0	0.1	2.5	0.1	4.7	0.3	4.6	0.1
FBR	0.3	0.0	0.5	0.2	0.7	0.2	0.9	0.2
CSP	4.7	2.9	5.6	3.9	3.7	4.4	4.3	6.5
Total	100	100	100	100	100	100	100	100

Table 3.35: Employment shares across major sectors: Urban Youth

URBAN YOUTH (15-29 years)	1983		1993 -94		2004-05		2011-12	
	Male	Female	Male	Female	Male	Female	Male	Female
Agri	9.5	25.0	8.5	19.0	4.6	10.9	4.2	5.1
Min	0.9	0.4	0.8	0.8	0.3	0.2	0.7	0.3
Mfg	30.0	32.2	26.7	30.1	29.3	32.9	27.6	33.3
Util	0.9	0.4	0.7	0.5	0.2	0.2	1.6	0.5
Cons	5.7	4.3	8.6	5.0	11.4	3.9	13.4	3.7
THR	22.5	6.6	24.6	8.0	30.7	11.0	27.0	9.9
TSC	10.0	2.1	9.2	1.6	9.3	2.0	8.1	0.8
FBR	2.9	1.7	2.6	2.9	5.0	5.1	6.8	7.6
CSP	17.6	27.5	18.2	32.1	9.1	34.0	10.7	38.7
Total	100	100	100	100	100	100	100	100

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using various NSS rounds

In case of share of employment among rural youth (Table 3.35), while 77 percent of males and 86 percent of females were engaged in agriculture in 1983, it decreased to just 53 percent for

males and 68 percent for females in 2011-12. In non-agriculture sector, while 8 percent of young male and female workers were in manufacturing sector in 1983, it just marginally increased for young males to 10.5 percent but for young females it doubled to nearly 16 percent in 2011-12. Majority of rural youth males were in construction sector to the tune of 17 percent, while for young females the share was just 5 percent in 2011-12. In case of urban youth (Table 3.36), 30 percent of the male workers and 32 percent of female workers were engaged in manufacturing sector in 1983, but by 2011-12, the share of young males in manufacturing sector came down to 27 percent, but for young females it was still one -third of the young workforce that were engaged in manufacturing sector. Also, while most of the young males were concentrated in three key sectors, namely Manufacturing, Trade, Hotels and Restaurants; and Construction sector, young females were mostly concentrated in Community, Social and Personal services.

Emerging patterns of Workforce Diversification

The workforce diversification process in India has also been moving from traditional routes to commuting between rural and urban areas to having multiple natures of activities at the same time in order to increase incomes and diversify into different avenues for the purpose. A brief overview of these emerging routes of workforce diversification is given in the following section.

Commuting

In the year 2011-12, the work location patterns for rural workers (Table 3.36) revealed that in case of work in Utilities, or Construction or FBR, over 20 per cent, 10 per cent and 15 per cent workers (respectively) had work location in urban areas, while in TSC, around 15 per cent workers did not have a fixed location of work. Although the percentages are not too high, a small share of commuting workers does seem to come to light.

Table 3.36: Work location patterns for rural workers

UPS	Rural Workers Commuting			
2011-12	Rural	Urban	Not fixed	Total
Agri	94.3	1.4	4.3	100
Min	94.1	5.6	0.2	100
Mfg	91.9	7.0	1.1	100
Util	73.2	20.6	6.2	100
Cons	87.1	10.6	2.4	100
THR	89.1	6.3	4.6	100
TSC	76.2	9.0	14.8	100
FBR	82.2	15.6	2.3	100
CSP	91.3	7.1	1.6	100
Total	88.6	8.0	3.5	100

Source: Author's estimations using various NSS rounds

Pluriactivity

The aspect of 'pluriactivity' or performing multiple activities of work is also important in the Indian context. As discussed earlier, a gradual and steady transfer of agricultural workforce from rural areas to non-agricultural work was witnessed since the 1980s (Visaria and Basant, 1994). One of the arguments that Vaidyanathan (1986) put forth to this effect was that the 20 per cent share of rural main workforce employed in non-agricultural activities during the 1981 Census leading to rural non-agricultural employment accounting for one-third of total non-agricultural employment, when seen in terms of man-days of actual work yielded non-agricultural work to be 22 per cent of total employment for males.

This non-agricultural spurt, as Chadha (1994) argued, was not all of a sudden, but the result of rural households engaging in multiple activities other than agriculture for better income. He describes how men, women and sometimes even children in the households would engage in activities apart from agriculture, at times emerging from agriculture and at other times ranging from part-time to full-time employment in construction or manufacturing sectors, and sometimes even in self-employment in trade or some-based handicrafts etc. Pluriactivity therefore has been an integral part of households' livelihood and diversification strategies.

The following tables (3.37 and 3.38) attempt to capture the number as well as sectors generally seen in case of workers who engaged in multiple activities of work on the *current daily status (CDS)* basis in a week. Generally, only one multiple activity was recorded, while a few cases also reported more than one multiple activities in 2004-05, which declined in 2011-12. Within agriculture as the principal activity for instance in 2004-05, around 47 per cent had another activity of work, while 6 per cent has two additional activities of work, while in 2011-12, only 35 per cent of those in agriculture had a multiple activity and 2 per cent had more than one extra activity. At the same time, for those who had only a single activity, agriculture, THR, manufacturing and CSP were among the top sectors of work, while share of construction rose in 2011-12. Meanwhile, for those with another activity, agriculture, construction, and THR were the main sources of supplementary activity, a trend also seen for those with more multiple activities. These are the sectors with major scope for informal and casual work easily available for short terms as and when the market demands.

Table 3.37: Multiple (additional) activities within major sectors of work

2004-05	Multiple (additional) activities					2011-12	Multiple (additional) activities				
NIC_CDS	0	1	2	3	Total	NIC_CDS	0	1	2	3	Total
Agri	46.5	46.5	6.4	0.6	100	Agri	62.6	34.7	2.4	0.3	100
Min	65.2	31.3	3.0	0.4	100	Min	79.8	19.5	0.6	0.1	100
Mfg	66.9	31.5	1.5	0.1	100	Mfg	73.0	26.4	0.6	0.0	100
Util	86.7	12.5	0.8	0.0	100	Util	91.3	8.4	0.3	0.0	100
Cons	47.7	48.3	3.9	0.2	100	Cons	61.2	36.3	2.3	0.1	100
THR	73.8	24.9	1.2	0.1	100	THR	80.3	19.1	0.6	0.0	100
TSC	75.3	23.3	1.4	0.1	100	TSC	81.2	18.4	0.4	0.0	100
FBR	82.6	16.9	0.5	0.0	100	FBR	83.9	15.7	0.4	0.0	100
CSP	83.1	16.0	0.8	0.1	100	CSP	86.3	13.3	0.4	0.1	100
Total	56.5	38.7	4.4	0.4	100	Total	69.6	28.6	1.6	0.2	100

Table 3.38: Distribution of additional activities across major sectors of work

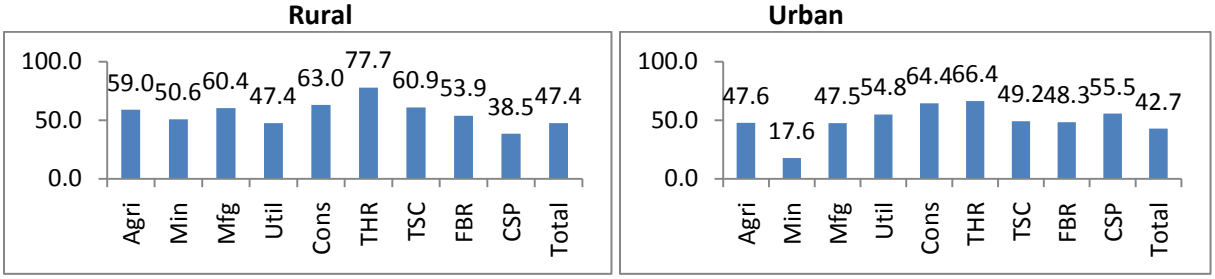
2004-05	Sector - Multiple Activity					2011-12	Sector - Multiple Activity				
NIC_CDS	0	1	2	3	Total	NIC_CDS	0	1	2	3	Total
Agri	47.97	70.1	84.69	89.87	58.33	Agri	43.27	58.22	72.65	82.77	48.09
Min	0.73	0.51	0.44	0.63	0.63	Min	0.63	0.37	0.2	0.51	0.55
Mfg	13.67	9.39	4	2.69	11.54	Mfg	13.49	11.86	4.43	2.03	12.86
Util	0.42	0.09	0.05	0	0.27	Util	0.67	0.15	0.1	0	0.51
Cons	4.66	6.89	4.9	2.43	5.52	Cons	9.15	13.21	14.89	8.97	10.4
THR	13.98	6.89	3.02	2.12	10.7	THR	13.08	7.58	3.9	1.11	11.34
TSC	5.42	2.45	1.3	0.87	4.07	TSC	5.85	3.23	1.22	0	5.02
FBR	1.99	0.59	0.17	0.02	1.36	FBR	2.91	1.32	0.61	0.32	2.41
CSP	11.15	3.13	1.44	1.37	7.58	CSP	10.95	4.1	2.01	4.29	8.83
Total	100	100	100	100	100	Total	100	100	100	100	100

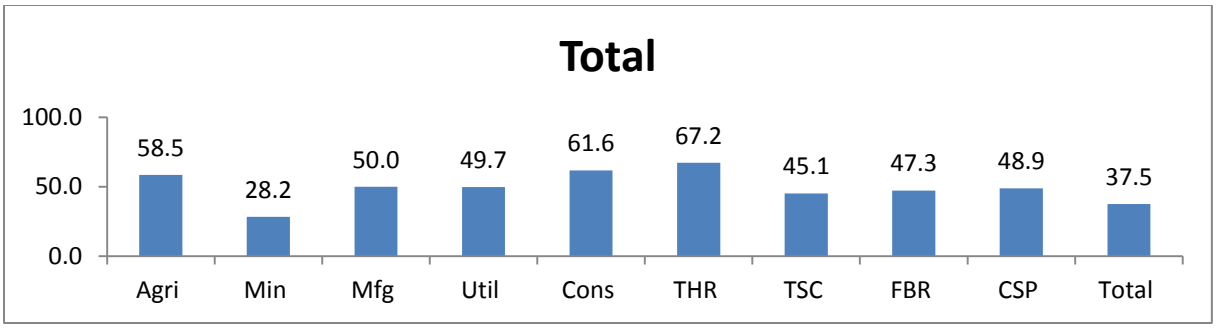
*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using various NSS rounds

When the ratio of earnings of workers with multiple activities are compared with those who have a singular activity (Figure 3.1), the ratio suggests that the workers with multiple activities earn upto as much as 50 per cent of what those with a single activity earn in rural areas, and upto 42 per cent in urban areas while the earnings are generally much closer to those with single activity when the additional activity is in services or manufacturing sector. This shows the precarity and distress of workers who within a week have to engage in multiple activities to make ends meet.

Figure 3.1: Ratio of earnings (weekly) of workers with multiple activities as compared to singular activity





*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using various NSS rounds

The World Bank report (undated) called 'Stylized Facts on Poverty' in India, states that construction sector and retail and transport sector jobs often tend to be casual or self-employed in nature, while regular salaried jobs are supposed to have some stability in income. However, the nature of contract is also important in each category of jobs. In 2011-12, it was noted that among those who had no written contract (Table 3.39), the major shares were in the manufacturing, construction and THR sectors, and where these sectors did offer a written contract, only CSP had a share of higher number of contracts over 4 years.

Table 3.39: Percentage of workers (UPS) by duration of written contracts, 2011-12

NIC_PS	Duration of Written of Job Contract				
2011-12	No contract	<1 year	1-3 yrs	> 4 yrs	Total
Agri	2.42	0.79	0.25	0.66	2.05
Min	1.54	0.60	1.97	2.50	1.68
Mfg	22.46	19.06	21.45	14.21	20.97
Util	0.97	2.17	3.29	3.73	1.50
Cons	35.39	15.55	2.72	1.86	28.70
THR	10.77	8.43	8.49	2.85	9.34
TSC	9.01	15.18	14.74	12.26	9.81
FBR	3.39	10.15	16.45	9.61	4.83
CSP	14.05	28.07	30.63	52.33	21.14
Total	100	100	100	100	100

Table 3.40: Percentage of workers (UPS) with contracts receiving any benefits, 2011-12

2011-12	Paid Leave			2011-12	Social Security		
	Yes	No	Total		Yes	No	Total
Agri	62.1	37.9	100	Agri	59.7	40.3	100
Min	93.17	6.83	100	Min	92.84	7.16	100
Mfg	73.15	26.85	100	Mfg	70.15	29.85	100
Util	89.81	10.19	100	Util	82.88	17.12	100
Cons	36.82	63.18	100	Cons	33.44	66.56	100
THR	64.4	35.6	100	THR	50.78	49.22	100
TSC	86.67	13.33	100	TSC	79.18	20.82	100
FBR	86.33	13.67	100	FBR	79.13	20.87	100
CSP	90.63	9.37	100	CSP	79.86	20.14	100

Source: Author's estimations using various NSS rounds

For those with any contract (Table 3.40), around 38 per cent of those in agriculture were not eligible for paid leave, 27 per cent of those in manufacturing, 63 per cent of those in construction, and 35 per cent of those in THR were not eligible for paid leave. In general, for those with any contracts, over 40 per cent in agriculture and THR and 66 per cent in construction did not receive any social benefits, while around 20 per cent in manufacturing and service sector jobs did not receive any social benefits.

When looking in terms of Current Weekly Status of work, the trends in employment are similar to the UPS and UPSS measures, and show a decline in share of agricultural employment, which has been replaced over time by increase in employment in construction, THR and CSP (Table 3.41)

Table 3.41: Employment Trends by Current Weekly Status Criterion

	1983			1993-94			2004-05			2011-12		
CWS	**Total**	**Rural**	**Urban**	**Total**	**Rural**	**Urban**	**Total**	**Rural**	**Urban**	**Total**	**Rural**	**Urban**
AGRI	64.0	77.8	11.5	61.9	76.1	10.9	56.0	70.4	7.9	47.1	62.7	6.3
MIN	0.7	0.6	1.1	0.8	0.8	1.2	0.7	0.6	0.8	0.6	0.5	0.8
MFG	11.5	7.4	27.1	11.0	7.5	23.7	12.2	8.5	24.3	13.0	9.0	23.7
UTIL	0.4	0.2	1.0	0.4	0.2	1.0	0.3	0.2	0.7	0.5	0.2	1.3
CONS	3.2	2.8	4.7	3.5	2.8	6.1	5.9	5.3	7.7	10.6	11.2	9.1
THR	7.2	4.1	19.1	8.1	4.8	19.8	11.1	6.8	25.4	11.4	6.9	23.5
TSC	2.8	1.3	8.6	3.0	1.6	8.0	4.3	2.7	9.5	5.1	3.2	10.1
FBR	0.8	0.3	2.9	1.0	0.3	3.5	1.5	0.5	4.6	2.5	0.8	6.7
CSP	9.4	5.5	24.1	10.3	6.0	25.7	8.2	5.0	19.0	9.1	5.5	18.6
Total	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: Author's estimations using various NSS rounds

A Discussion on Pathways of Diversification

At the same time, the component of diversification pathways also needs to be understood, to clearly understand the motivation behind the same. For instance, growth in employment also should be seen in the light of whether it is through rise in PS or SS. *Pull factors* might be in the nature of Secondary Status Workers (SS) without Principal Status (PS) jobs or PS workers with low incomes, to move towards non-agricultural sector work to supplement household income.

In this context, Bhalla (1989) identifies two kinds of distress diversification in which non-agricultural rural activities become residual labour force absorbers. The first is the case of supplementary workers who have no main occupation, but engage in some subsidiary work to supplement household income. The second is the case of persons with a main occupation who

also engage in secondary activity. These correspond to the Only SS and PS with SS categories discussed in earlier sections.

As is apparent from the above analysis and as mentioned earlier as well, there is a need to look beyond 'apparent facts', as also suggested by Tendulkar and Sundaram (2002), who argued that any changes in work participation rates have been primarily supply changes rather than demand in the context of residual absorption of labour, and though some of the supply reduction in workforce participation could be attributed to schooling improvements, supply reduction was not found to be offset by a rise in Principal Status of work by these authors.

Essentially, the entire process of workforce diversification in the context of *vertical* shift, i.e. shift of workforce from agriculture towards non-agricultural sectors has been at the centre of the *prosperity-pull* versus the *distress-push* debate as discussed in detail in the previous chapter. While the prosperity-pull argument suggests that economic growth in general and agricultural productivity due to modernization in particular, along with increasing urbanisation etc. have been instrumental in the creation of diversified activities and jobs by creation of agricultural surplus and impacting the demand-patterns of the population[20], (in accordance with Kuznets' hypothesis,1996), this agricultural prosperity could also at the same time result in an increased demand for labour in agriculture itself and constrict the flow of surplus labour to non-agricultural sectors[21]. Though a wide literature on the other hand suggests *distress* as one of the main factors leading to the structural shift of workforce (Papola 1987; Bhalla, 1989; Basant and Kumar 1989; Chandrashekhar 1991, Unni 1991 and Shukla 1992), it has become widely accepted that development and distress together may also influence work structure (for instance, Basu and Kashyap, 1992; Basant, 1994; Rani and Shylendra, 2002 and so on). This debate, although useful for understanding inter-sectoral shift of workers, may not be completely able to address the *horizontal* shift i.e. shift of workers within a sector; for instance within the agricultural sector or within the secondary and tertiary sectors.

More importantly, it is important to look at the *share of workers per component in terms of share in Non-Agriculture* (this is done in Chapter 5 in detail). When this exercise is done, figures based

[20] See for instance Unni (1994)
[21] For instance, Vaidyanathan (1986)

on share of total workforce and figures based on share of non-agricultural employment show slightly differing and interesting trends. Since share of agricultural employment keeps changing (falling most of the time), this throws better light on the trends within non-agricultural workforce. For instance, Jatav and Sen (2013) have argued that crop diversification or any *horizontal* shift in agriculture in the long term that could result in higher rural incomes often prompted growth in non-farm jobs albeit in the form of growing demand for retail or in other services (also see Chand, 1996). One other reason for non-farm jobs predominantly growing in services sector could be the fact that though manufacturing share in total employment has shown some increase, its share in non-agricultural employment has fallen.

Trends within Secondary Sector

It is evident that construction overtakes manufacturing in rural areas in terms of share of workers. In urban areas, construction workers have been growing fast but the overall share is still low compared to manufacturing and tertiary sector workers. Moreover, manufacturing sector as a percentage of the total workforce increased marginally though with some fluctuations, but its share in non-agricultural employment has fallen quite significantly, particularly in rural areas.

The role of construction is also captured better by using this approach. To quote Sarkar and Mehta (2010), "A striking point about the accelerated reallocation of labour away from agriculture had been that manufacturing has played a minor role in absorbing the labour which had moved away from agriculture. This has been true both in the years before 1993-94 and the decade after it. It was the tertiary sector and construction which have provided the bulk of new opportunities for the growing labour force."In continuation with this theory, if diversification were to take place going by productivity levels, it should be the manufacturing, transport, storage and communication, and trade, hotels and restaurants to some extent that should have attracted workforce away from agriculture. While this is true more for the urban sector, the outcome for rural areas is quite different with a larger dependence on construction for jobs. Construction sector, which has increasingly been seen as a major provider of additional jobs, has the lowest productivity level among all components of non-agriculture. More importantly, productivity in construction was found to have remained stagnant.[22]Moreover, the failure of organised sector in

[22]CAGR of -0.1% per annum between 1993-94 and 2009-10

generating employment has had a dampening effect on employment in the secondary sector in particular (Visaria and Minihas, 1991).

Given the lower than expected share of employment growth in the manufacturing sector, Table 3.42 therefore looks at the trends and patterns of workers within the manufacturing sector since the1980s in order to capture in some sense the horizontal diversification in this sector.

Table 3.42: Trends and patterns of workers within the manufacturing sector

Industry Sector	Rural				Urban				Total			
NSS Round	38th	50th	61st	68th	38th	50th	61st	68th	38th	50th	61st	68th
Mining	7	8	6	5	4	5	3	3	5	6	5	4
Food Beverages	24	26	23	23	16	15	12	12	20	21	18	18
Textiles Leather Footwear	30	23	27	26	35	28	38	37	32	25	32	31
Wood and Wood Products	14	13	13	14	6	6	4	6	10	10	9	10
Paper Printing Publishing	1	1	1	1	4	4	5	3	2	2	3	2
Chemical Products	2	2	3	2	4	5	5	4	3	4	4	3
Rubber Coke Petroleum	0	1	1	1	2	3	2	3	1	2	2	2
Non-Metallic Mineral Prod.	11	10	12	12	5	4	4	4	8	7	8	8
Metals Fabricated Metal	4	4	3	6	9	9	6	8	6	6	5	7
Electrical Optical Equipment	0	1	1	1	3	3	3	3	1	2	2	2
Transport Equipment	1	0	1	2	3	2	3	3	2	1	2	2
Machinery NEC	3	2	1	1	3	4	3	2	3	3	2	2
Manufacturing NEC Recycling	3	6	6	5	5	8	10	9	4	7	8	7
Electricity Gas Water	2	3	2	3	3	4	3	5	3	3	2	4
	100	100	100	100	100	100	100	100	100	100	100	100

*38th round= 1983, 50th round= 1993-94; 61st round= 2004-05; 68th round= 2011-12
Source: Author's estimations using various NSS rounds

In Industry, mining sector constituted just 5 percent in 2011-12, whereas Food, Beverages and Tobacco constituted 23 percent of the overall employment. Also, textile sector constituted more than one-fourth of the industrial workforce. Wood and wood products; and non-metallic mineral products also constituted more than 10 percent of the industrial workforce. In urban areas as well as rural areas, the major sector of employment was in textile industry, followed by food and beverages industry.

As Table 3.43 shows, even though mining sector employed just 5.2 percent of the industrial sector workers in 1983 it had the share of nearly 20 percent in the value added for the industry. While in 1983 food and beverages sector employed nearly 20 percent of the industrial workers and textile sector over 30 percent of the industrial workers, their share in value added was just 10 percent. In 2011-12, however there was decline in the percentage of industrial workers engaged in textile sector to 23 percent, even though food and beverages sector continued to employ nearly

20 percent of the industrial workers. These two sectors continue to remain the highest sectors for employment for industrial workers; but their share in value added in 2011-12 with respect to 1983, had a marginal decline, but remains higher than most of the sectors.

Table3.43: Employment Share and Value Added Share in Manufacturing Sector

	Employment Share				Value Added Share (const 2011-12 prices)			
	1983	**1993-94**	**2004-05**	**2011-12**	**1983**	**1993-94**	**2004-05**	**2011-12**
Mining	5.2	6.2	4.8	4.4	19.6	20.6	18	14.1
Food Beverages	19.7	21.6	18.8	19.4	10.1	8.7	8.6	9
Textiles Leather	32.7	26.7	27.6	23.5	10.1	10.3	9	8.3
Wood & Wood Products	8.3	7.8	9.5	6.6	7.4	3.2	1	1.2
Paper Printing	2.2	2.3	3	2.7	2.2	2.3	2.1	2.1
Coke Petroleum	0.1	0.2	0.2	0.2	3.2	7.5	7.2	4.2
Chemicals Products	3.2	4	3.8	3.5	5.2	6.9	9	11
Rubber Plastic Prod.	0.8	1.5	1.5	2	1.4	1.5	1.8	2.4
Non-Metal Prod.	8.1	7.6	8	8.4	3.7	3.6	4.4	5.2
Metals & Fab. Metal	6.4	6.5	6.8	7.8	15.7	12.3	13.7	12.3
Machinery NEC	1.7	1.8	2.5	3.2	5	4.7	4.6	6.8
Electrical, Optical Eq.	1.5	2.2	2.2	4.3	2.2	2	3.3	4.4
Transport Equipment	1.5	1.2	1	1.9	4.3	3.6	5.2	7.2
Manufacturing NEC Rec.	6	7.6	8.4	10.4	1.4	1.7	1.8	1.9
Electricity Gas Water	2.6	2.8	2	1.8	8.3	11.1	10.4	10
	100	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: KLEMS

Trends within Services Sector

There is significant difference between the natures of service sector between rural and urban areas. For instance, the survey on services (NSSO, 2006-07) highlights the fact that the major contribution to Gross Value Added (GVA) had come from Own-Account Enterprises or OAEs (61%) in rural areas and from Establishments (89%) in urban areas. The tertiary sector has several components which are heterogeneous and require different levels of skills or provide diverse kinds of employment, sometimes highly skilled while sometimes acting as a residual low-productive job provider. The trends and patterns of workers within the services sector are shown in Table 3.44.

In services sector, employment in select sectors mainly constitute majority of the employment. In 1983, trade constituted 32 percent of total employment in the services sector. By 2004-05, the employment in trade constituted 40 percent of the service sector employment. The other sector that showed increase in employment was Transport and storage. In 1983 it constituted 11 percent

of the employment in services sector, but increased to more than 15 percent in 2004-05, and finally by 2011-12, employment in Transport and storage reached nearly 20 percent. In Public Administration, the percentage share decreased from 12 percent in 1983 to 6 percent by 2004-05. Also, the share of employment in other sectors decreased from 22 percent to just 5 percent in 2011-12.

Table 3.44: Trends and patterns of workers within the services sector

Services Sector	Rural				Urban				Total			
NSS Round	38th	50th	61st	68th	38th	50th	61st	68th	38th	50th	61st	68th
Trade	32	34	40	39	30	31	37	36	31	32	38	38
Hotels Restaurants	5	4	5	6	5	5	6	7	5	5	5	7
Transport Storage	11	13	16	19	15	14	13	13	13	14	15	16
Post Telecom	1	1	2	2	1	1	2	5	1	1	2	4
Financial Services	1	2	2	2	3	4	4	5	2	3	3	4
Business Service	1	1	2	3	2	3	6	8	2	2	4	6
Public Administration	12	11	6	6	17	15	9	8	15	14	8	7
Education	11	11	12	14	7	8	9	10	9	9	10	12
Health Social Work	5	2	3	3	5	3	3	4	5	3	3	4
Other services	22	21	13	5	15	16	11	4	18	18	12	5
	100	100	100	100	100	100	100	100	100	100	100	100

*38th round= 1983, 50th round= 1993-94; 61st round= 2004-05; 68th round= 2011-12

Source: Author's estimations using various NSS rounds

As Table 3.45 shows, Trade accounted for 34 percent of the employment in services sector in 2011-12, which has not changed in any significant way as compared to the 1983 level. There has been a decline in the percentage of the workers in Public Administration, which halved from 14.7 percent in 1983 to 7.2 percent in 2011-12. At the same time, percentage of workers engaged in business services increased from just 1.2 percent in 1983 to over 5 percent in 2011-12. In terms of value added, since trade has the highest employment share, it also has the highest share in value added, recorded at 20 percent in 2011-12. This when compared to percentage of workers engaged in trade in 2011-12, which was 34 percent is much lower than the share of employment.

Table3.45: Employment Share and Value Added Share in Services Sector

	Employment Share				Value Added Share (const 2011-12 prices)			
	83-84	93-94	04-05	11-12	83-84	93-94	04-05	11-12
Trade	35.5	36.7	37	34.1	20	17.9	20.6	20
Hotels, Restaurants	4.9	4.3	5.2	5.8	1.8	1.7	2.4	2.3
Transport, Storage	13.1	12.7	14	14	10.9	10.1	10.8	10.2
Post, Telecom	1	1	1.7	1.3	0.4	0.4	1.4	3.2
Financial Services	2.1	2.8	2.6	3.2	5	7.3	8.2	12.1
Business Service	1.2	1.6	3.5	5.5	2.4	2.6	7.8	11.3
Public Administration	14.7	12.3	8.3	7.2	16.4	15.5	13.5	12.4
Education	8.6	8.4	9.7	10.2	6.8	6.7	7.7	6.7
Health, Social Work	3.1	2.7	3.2	3.4	3	3.2	4	2.8
Other services	15.8	17.6	14.9	15.4	33.5	34.6	23.7	19.1

Source: KLEMS

It is seen that for many sectors, during the period 2004-05 to 2011-12, there has been negative employment elasticity (Table 3.46). While agriculture obviously had the highest negative employment elasticity with respect to value added in that sector, the highest positive employment elasticity was seen in case of Coke and Petroleum Industry, followed by Rubber and Plastics industry.

Table3.45: Employment Elasticity and Labour Share in Value Added across sectors

	Elasticity (Based on Value Added)			Labour Share (income) in Value Added			
	1983-93	1993-05	2005-12	1983	1993-94	2004-05	2011-12
Agriculture, Allied	0.06	0.06	-0.08	0.53	0.52	0.51	0.52
Mining, Quarrying	0.17	0.01	-0.01	0.32	0.31	0.27	0.27
Food, Beverages	0.13	0.05	0.06	0.48	0.45	0.38	0.3
Textiles, Leather, Footwear	-0.01	0.2	-0.09	0.47	0.34	0.35	0.5
Wood and Wood Products	0.08	3.65	-0.12	0.25	0.32	0.61	0.36
Paper, Printing, Publishing	0.07	0.34	-0.04	0.51	0.33	0.33	0.41
Coke, Petroleum	0.05	0.02	0.4	0.15	0.06	0.05	0.09
Chemicals, Chemical Products	0.14	0.06	-0.01	0.32	0.23	0.19	0.21
Rubber, Plastic Products	0.59	0.14	0.2	0.22	0.27	0.29	0.3
Non-Metallic Mineral Prod.	0.05	0.14	0.06	0.29	0.28	0.28	0.25
Metals, Fabricated Metal	0.09	0.11	0.15	0.3	0.26	0.2	0.26
Machinery NEC	0.1	0.4	0.15	0.34	0.26	0.26	0.25
Electrical, Optical Equipment	0.31	0.1	0.63	0.32	0.37	0.29	0.31
Transport Equipment	0.0	0.03	0.47	0.32	0.3	0.22	0.25
Manufacturing NEC Recycling	0.24	0.18	0.21	0.58	0.65	0.66	0.57
Electricity, Gas, Water	0.06	-0.03	-0.02	0.39	0.25	0.31	0.38
Construction	0.29	0.18	0.45	0.8	0.8	0.8	0.77
Trade	0.15	0.15	0.05	0.48	0.48	0.47	0.48
Hotels, Restaurants	0.08	0.19	0.17	0.59	0.57	0.55	0.58
Transport, Storage	0.1	0.19	0.12	0.59	0.55	0.47	0.52
Post, Telecom	0.07	0.39	-0.11	0.57	0.29	0.36	0.46
Financial Services	0.18	0.12	0.26	0.5	0.35	0.33	0.28
Business Service	0.21	0.2	0.27	0.41	0.51	0.45	0.38
Public Administration	0.06	0.0	0.02	0.79	0.76	0.8	0.83
Education	0.11	0.2	0.14	0.85	0.69	0.66	0.72
Health, Social Work	0.06	0.19	0.22	0.75	0.61	0.58	0.72
Other services	0.23	0.15	0.13	0.47	0.49	0.44	0.44

Source: Author's computations from KLEMS data

Another disheartening feature is that there has been constant decline in the labour income share in the value added for many industries. When compared to the labour share of income in 2011-12 with respect to 1983 at 2012 constant prices, a decline is seen in each and every industry. Thus there is a dual phenomenon of decreasing employment elasticity compounded by decreasing labour income share. This puts the labourer in a bleak position, and as the wave of Fourth industrial revolution surges, this would eventually put many sections of labourers and industry in an adverse situation.

HOUSEHOLD LEVEL ANALYSIS

This section looks at household as a unit and its diversification patterns, having looked at the individual level trends and patterns in employment and workforce diversification. Table 3.46 provides the distribution of households across different industrial sectors.

Table 3.46: Distribution of Households across Different Industries

	TOTAL				RURAL				URBAN			
	1983	1993-94	2004-05	2011-12	1983	1993-94	2004-05	2011-12	1983	1993-94	2004-05	2011-12
AGRI	60	56	50	43	76	73	67	59	9	8	6	5
MIN	1	1	1	1	1	1	1	1	2	2	1	1
MGF	12	11	12	12	7	7	8	8	26	23	22	21
UTL	1	1	1	1	0	0	0	0	1	1	1	2
CNS	3	4	7	12	2	3	7	12	5	6	9	10
THR	8	9	12	13	5	5	8	8	18	19	24	24
TSC	4	4	6	7	2	2	4	4	11	10	12	12
FRB	1	1	2	3	0	0	1	1	3	4	5	7
CSP	11	13	10	10	7	8	6	6	25	26	20	18
	100	100	100	100	100	100	100	100	100	100	100	100

Source: Author's estimations using various NSS rounds

As Table 3.46 shows at the household level, overall 60 percent of the households in India were agricultural households in 1983, which decreased to 43 percent in 2011-12. It is also seen that total percentage of households in manufacturing had not increased over time. The main change in the post-reform period was increase in the percentage of households engaged in construction sector and THR sector. In rural areas, percentage of households in agriculture came down from 76 percent to just below 60 percent in 2011-12. Also, households belonging to construction sector increased from 3 percent in 1983 to 12 percent in 2011-12. A notable trend in urban areas was the decline in percentage of households engaged in manufacturing sector from 26 percent in 1983 to 21 percent in 2011-12; while those in CSP also declined from 25 percent in 1983 to 18 percent in 2011-12. This implies that structural transformation process has led to increase in the percentage of households belonging to construction sector and THR sector.

As Table 3.47 shows, in 1983, 80 percent of ST category households were engaged in agriculture, while only 56 percent of General category households were in agriculture. In 2012, 64 percent of ST category households were still engaged in agriculture, but only 40 percent of general category households were in agriculture. As shown earlier, there has been increase in percentage of households engaged in the construction sector and THR sector. In this table it is

seen that it is mainly ST and SC households that increased in construction sector, from 3 percent and 4 percent in 1983 to 13 percent and 19 percent respectively in 2011-12, while less than 10 percent of general category households were engaged in construction in 2011-12. Also, 15 percent of general category households were engaged in THR in 2011-12, but for ST category households it was just 5 percent. Another notable trend is that the percentage of households across social groups remained constant in manufacturing sector.

Table 3.47: Distribution of Households across social groups and Industry (Total)

	1983			1993-94			2004-05			2011-12		
	ST	SC	GEN	ST	SC	GEN	ST	SC	GEN	ST	SC	GEN
AGRI	80	67	56	75	64	52	73	53	47	64	43	40
MIN	2	1	1	2	1	1	1	1	1	1	1	1
MGF	6	10	13	6	8	12	5	10	13	6	10	13
UTL	0	0	1	0	0	1	0	1	1	0	1	1
CNS	3	4	3	5	6	3	7	12	6	13	19	9
THR	2	4	9	3	5	11	4	8	14	5	8	15
TSC	1	4	4	2	4	4	3	6	6	3	7	7
FRB	0	0	1	0	1	2	0	1	2	1	2	3
CSP	6	10	12	7	10	14	6	9	10	8	9	10
	100	100	100	100	100	100	100	100	100	100	100	100

*ST= Scheduled Tribes households, SC= Scheduled Caste households, GEN= General (and OBC) households

Table 3.48: Distribution of Religious Groups across Industry (Total)

TOT	1983				1993-94				2004-05				2011-12			
	HIN	MSL	CHR	OTH	HIN	MSL	CHR	OTH	HIN	MSL	CHR	OTH	HIN	MSL	CHR	OTH
AGRI	62	47	51	58	58	42	52	54	52	37	46	49	45	30	36	42
MIN	1	1	2	1	1	1	1	1	1	0	1	0	1	0	1	0
MGF	11	17	11	11	11	14	10	10	11	16	10	8	12	17	10	10
UTL	1	1	1	1	1	0	1	1	0	0	0	1	1	0	1	1
CNS	3	4	4	3	4	5	4	4	7	8	8	8	11	14	12	12
THR	7	14	5	10	8	16	7	10	11	20	11	14	12	18	13	13
TSC	3	6	6	5	4	7	5	6	6	9	7	6	6	9	6	7
FRB	1	1	1	2	1	1	2	2	2	1	2	3	3	2	5	5
CSP	11	11	19	11	12	14	18	12	10	8	15	10	10	8	16	10
	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

*HIN= Hindu households, MSL= Muslim households, CHR= Christian households, OTH= Others

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using various NSS rounds

From Table 3.48, it is seen that, in 1983, more than 60 percent of Hindu households were engaged in agriculture, but for Islamic/ Muslim households just 47 percent of households were in agriculture. In 2011-12, just 45 percent of Hindu households were engaged in agriculture, but for Islamic households, those engaged in agriculture came down to 30 percent. Overall, higher percentage of Muslim households are engaged in manufacturing sector and THR sector, while

relatively higher percentage of Christian households are in CSP. It is also seen that more or less same level of percentage of households from each of the religious category are engaged in construction sector, and even the increase has been almost by same level.

Household Types in Rural and Urban Areas

In the case of rural households especially, income may be earned through different channels and understanding these is important to understand the dynamics of rural livelihood diversification strategies for households (as well as individuals in these households). As Islam (1997) has theorised, rural households may earn extra income through non-farm activities in rural areas within or out of the household in wage or self-employment, or by commuting to urban towns for work, or through remittances received from members who have migrated. Similarly, in the NSS-EUS surveys, rural and urban household types have been classified based on the major source of their income, which generally consists of an activity group which contributes maximum to the household's share of income.

The household type in NSS has been classified and defined based on the major activity of source of income of the household. In rural areas, households have been classified into self employed households in non-agriculture, agricultural labour households, other labour households, self-employed households in agriculture and other households. In urban areas on the other hand, households are classified as self-employed, regular salaried, casual labour and other households depending on which activity earns the major income in such households. These classifications are strictly comparable since the 1990s.

When household types in rural and urban areas are compared on the basis of social group (Table 3.49), it is evident that in general (with little change over time), general and OBC category households in rural areas have generally been self-employed in agriculture (owning land) or self-employed in non-agriculture or others. Meanwhile, ST and SC households in rural areas have been associated with agriculture, either as self-employed in agriculture or as agricultural labour. On the other hand, in urban areas, general and OBC category households have mostly been either in the category or regular salaried or self-employed households over time. On the other hand, SC and ST households in urban areas show a relatively higher share in casual labour status as compared to general households.

Table 3.49: Distribution of HH Type across Social Group

		Rural						Urban				
		SE NAG	AGL	OTL	SE AG	OTH	TOT	SE	RGWS	CL	OTH	TOT
ST	1993-94	6	38	10	38	8	100	22	44	20	14	100
	2004-05	6	34	11	39	9	100	26	42	17	15	100
	2011-12	8	24	14	41	12	100	20	47	18	16	100
SC	1993-94	11	49	10	20	10	100	25	39	28	8	100
	2004-05	14	41	15	20	10	100	29	41	22	8	100
	2011-12	14	31	21	20	14	100	27	44	21	9	100
GEN	1993-94	14	23	7	43	12	100	35	44	11	10	100
	2004-05	18	20	9	40	13	100	39	41	10	10	100
	2011-12	17	17	11	38	17	100	37	41	10	11	100

*Rural Household Type (HH Type): SE NAG= self employed households in non-agriculture, AGL= agricultural labour households, OTL= other labour households, SE AG= self-employed households in agriculture, OTH= other households.

**Urban Household Type (HH Type): SE= self-employed, RGWS= regular wage/ salaried, CL= casual labour, OTH= other households

Source: Author's estimations using various NSS rounds

The above table gives the distribution of households based on social groups across the household status of work category. Apart from general category households, just a marginal percentage of rural ST households and rural SC households were engaged in self-employment work in non-agriculture. Although percentage of Agricultural Labourer households has come down for all social groups, disproportionately higher percentage of rural SC households are still engaged in agricultural labour. Also, while around 40 percent of rural ST households and rural General category households have been self-employed in agriculture since 1983, it is just 20 percent for rural SC households. In urban areas, percentage of ST households in Regular wage and salaried class was marginally higher than urban SC households, and urban SC households marginally higher than percentage of general category households. Also, in urban areas comparatively higher percentages of General category households were engaged in self-employment at 37 per cent, whereas for SC household it was 27 per cent and for ST households it was 20 per cent.

On the other hand, when social groups in rural and urban areas are compared on the basis of household type, the distribution of groups within each household type is evident. In rural areas, as in 2011-12, within the self-employed households in non-agriculture and/or agriculture, the general and OBC category households have a dominant share of 77 per cent, while ST and SC households form a combined share of almost 40 per cent in the agricultural labour or other labour

households[23]. In urban areas meanwhile, casual labour households consist of 30 per cent of SC/ ST households (Table 3.50)

Table 3.50: Distribution of Social Group across HH Type

	Rural					Urban			
1993-94	**SE NAG**	**AGL**	**OTL**	**SE AG**	**OTH**	**SE**	**RGWS**	**CL**	**OTH**
ST	5	13	14	11	8	2	3	5	4
SC	18	35	27	11	19	9	12	27	11
GEN	77	52	59	78	74	89	85	69	85
	100	100	100	100	100	100	100	100	100
2004-05	**SE NAG**	**AGL**	**OTL**	**SE AG**	**OTH**	**SE**	**RGWS**	**CL**	**OTH**
ST	4	14	11	12	8	2	3	5	5
SC	19	34	31	12	18	11	15	27	12
GEN	76	52	58	76	74	86	82	68	83
	100	100	100	100	100	100	100	100	100
2011-12	**SE NAG**	**AGL**	**OTL**	**SE AG**	**OTH**	**SE**	**RGWS**	**CL**	**OTH**
ST	6	13	11	13	9	2	4	5	5
SC	19	31	33	12	18	11	15	24	11
GEN	75	56	56	75	73	88	81	71	84
	100	100	100	100	100	100	100	100	100

*Rural Household Type (HH Type): SE NAG= self employed households in non-agriculture, AGL= agricultural labour households, OTL= other labour households, SE AG= self-employed households in agriculture, OTH= other households.

**Urban Household Type (HH Type): SE= self-employed, RGWS= regular wage/ salaried, CL= casual labour, OTH= other households

Source: Author's estimations using various NSS rounds

Table 3.50 shows how within social groups are placed on the basis of household type. General category households form three-fourths of the non -agricultural self-employed households and agricultural self-employed households. Agricultural labourer households and other labour households in rural India still comprise of over 30 percent households from SC category. Thus with respect to their population size, their share in agricultural labour and other labour households is proportionally higher than their population share. It is also the case in urban areas where SCs form around one-fourth of the Casual labour households. The share of ST households forms just a minuscule percentage of Self employment households, and is less than 5 percent of regular wage and salaried class households.

When household types in rural and urban areas are compared on the basis of religion (Table 3.51), it is evident that in general in rural areas, Hindu households have been more predominantly self-employed in agriculture (due to land ownership) while Muslim households have increasingly become self-employed in non-agriculture, while others are wither self-

[23] This must also be interpreted with the caveat of relative share of SC and ST households being lower then OBC and general category households in general, being minority categories.

employed in agriculture or have other sources of income (such as inheritances or remittances etc.). In urban areas meanwhile, Hindu and Christian households were more predominantly regular salaried, while Muslim households were found to be more predominantly self-employed increasingly over the years.

Table 3.51: Distribution of HH Type across Religious Groups

		Rural						Urban				
		SE NAG	AGL	OTL	SE AG	OTH	**TOT**	SE	RGWS	CL	OTH	**TOT**
HIN	1993-94	12	31	8	39	11	100	31	46	13	10	100
	2004-05	14	26	11	37	11	100	36	43	12	10	100
	2011-12	14	22	13	36	15	100	33	44	11	12	100
MSL	1993-94	22	26	9	30	13	100	48	27	15	10	100
	2004-05	28	22	11	26	14	100	49	30	14	7	100
	2011-12	25	18	16	24	16	100	50	28	15	7	100
CHR	1993-94	11	31	10	32	16	100	21	54	12	13	100
	2004-05	15	19	15	35	16	100	27	47	11	15	100
	2011-12	16	10	14	34	26	100	24	46	13	17	100
OTH	1993-94	12	33	8	36	11	100	41	41	9	9	100
	2004-05	14	28	12	35	11	100	43	36	11	10	100
	2011-12	14	19	13	36	18	100	40	42	7	11	100

*HIN= Hindu households, MSL= Muslim households, CHR= Christian households, OTH= Others

*Rural Household Type (HH Type): SE NAG= self employed households in non-agriculture, AGL= agricultural labour households, OTL= other labour households, SE AG= self-employed households in agriculture, OTH= other households.

**Urban Household Type (HH Type): SE= self-employed, RGWS= regular wage/ salaried, CL= casual labour, OTH= other households

Source: Author's estimations using various NSS rounds

In Table 3.51, the percentage distribution of households based on religion is presented across religious groups. In 2011-12, 36 percent of rural Hindu households were in Agricultural Self employed category, less than 15 percent in non-agricultural self-employed category. Around 25 percent of rural Muslim households were self-employed in non-agricultural and agricultural category. Only 10 percent of rural Christian households were engaged in Agricultural Labourers category, while it was around 20 percent for Hindu households and Muslim households. In urban areas however around 45 percent of Hindu and Christian households were in regular wage and salaried category, but it was just 28 percent for urban Muslims. Half of urban Muslim households were engaged in self employment, while it was one-third for urban Hindu household and one-fourth for urban Christian households.

On the other hand, when religious groups in rural and urban areas are compared on the basis of household type (Table 3.52), the distribution of religious groups within each household type is

evident. In rural areas in 2011-12, Hindu households constituted more than 75 per cent of all household types. In urban areas, similar trends may be seen with around 20 per cent of self-employed households being Muslim.

Table 3.52: Distribution of Religious Groups across HH Type

	Rural					Urban			
1993-94	SE NAG	AGL	OTL	SE AG	OTH	SE	RGWS	CL	OTH
HINDU	79	87	84	88	83	75	85	80	79
MUSLIM	16	8	10	7	11	19	8	15	14
CHRIST	2	2	3	2	3	2	4	3	4
OTHERS	3	3	3	3	3	4	3	2	3
	100	100	100	100	100	100	100	100	100
2004-05	**11**	**12**	**13**	**14**	**19**	**21**	**22**	**23**	**29**
HINDU	77	86	83	87	82	76	84	79	81
MUSLIM	18	9	10	8	12	18	10	16	11
CHRIST	2	2	3	2	3	2	3	3	5
OTHERS	3	3	3	3	3	4	3	3	4
	100	100	100	100	100	100	100	100	100
2011-12	**11**	**12**	**13**	**14**	**19**	**21**	**22**	**23**	**29**
HINDU	77	87	82	87	82	75	85	78	84
MUSLIM	18	10	14	8	12	20	9	18	9
CHRIST	2	1	2	2	3	2	3	3	4
OTHERS	2	2	2	3	3	3	3	2	3
	100	100	100	100	100	100	100	100	100

*Rural Household Type (HH Type): SE NAG= self employed households in non-agriculture, AGL= agricultural labour households, OTL= other labour households, SE AG= self-employed households in agriculture, OTH= other households.

**Urban Household Type (HH Type): SE= self-employed, RGWS= regular wage/ salaried, CL= casual labour, OTH= other households

Source: Author's estimations using various NSS rounds

In 2011-12 in self-employed non-agricultural category 77 percent were Hindu households, while in self-employment in agriculture and Agricultural labourers' category 87 percent were Hindu households. Also, the highest share of Muslim households was found to be self-employed in non agriculture, while in self employed agricultural category just 8 percent were Muslims. In urban areas, in self employed category 75 percent were Hindu households, while Muslims formed another 20 percent of the category. However, in regular wage and salary work 85 percent were Hindu households, but only 9 percent Muslims. Also, in casual employment category, nearly 80 percent were Hindu and also 18 percent were Muslim households.

Composition of Household Types

The composition of each household type within a sector is given in Table 3.53. In rural areas, within agriculture, the dominant household types were the self-employed households in agriculture. Mining was dominated by other labour in rural areas, while manufacturing was

found to be upto 47 per cent by self-employed in non-agriculture households followed by other labour households. Construction as expected was dominated by other labour households. While THR in rural areas has been dominated by self-employed households in non-agriculture, other services have been dominated by the self-employed households (in non-agriculture) or other income source households. In urban areas, while construction had a larger share of casual labour households, manufacturing showed a share of just under 60 per cent as regular salaried households. Again, while THR remained a major activity dominated by self-employed households, over time regular salaried jobs in TSC and FBR were also seen to be rising.

Table 3.53: Composition of HH Types in each industrial sector

		Rural						Urban				
	AGRI	SE NAG	AGL	OTL	SE AG	OTH	**TOT**	SE	RGWS	CL	OTH	**TOT**
AGRI	1993-94	1	42	1	53	3	100	47	8	38	7	100
	2004-05	1	41	1	57	0	100	58	7	29	5	100
	2011-12	1	37	1	60	1	100	64	7	28	1	100
MIN	1993-94	10	5	68	0	17	100	5	82	12	1	100
	2004-05	10	0	74	0	16	100	8	80	12	0	100
	2011-12	7	8	61	1	23	100	5	75	20	0	100
MGF	1993-94	52	4	31	1	12	100	29	57	13	0	100
	2004-05	56	1	30	0	13	100	34	54	12	0	100
	2011-12	47	0	23	2	28	100	32	56	12	0	100
UTL	1993-94	13	2	21	2	62	100	6	89	4	2	100
	2004-05	5	2	18	0	75	100	1	95	3	1	100
	2011-12	10	0	13	0	76	100	7	90	3	0	100
CNS	1993-94	17	6	69	1	7	100	26	14	60	0	100
	2004-05	19	1	78	0	2	100	27	8	64	0	100
	2011-12	14	1	81	1	4	100	22	13	64	1	100
THR	1993-94	88	1	6	1	4	100	75	19	5	1	100
	2004-05	83	1	8	1	7	100	73	23	4	0	100
	2011-12	80	0	5	3	11	100	69	26	5	0	100
TSC	1993-94	37	5	28	1	29	100	29	54	16	1	100
	2004-05	48	1	27	0	24	100	41	50	9	1	100
	2011-12	45	0	18	1	35	100	37	56	7	0	100
FRB	1993-94	25	2	9	2	61	100	30	68	1	1	100
	2004-05	49	1	14	0	37	100	41	56	3	1	100
	2011-12	42	0	7	2	50	100	33	64	2	1	100
CSP	1993-94	30	2	15	1	52	100	21	69	5	5	100
	2004-05	29	1	16	0	54	100	16	80	3	1	100
	2011-12	32	0	5	1	62	100	20	76	4	1	100

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

**Rural Household Type (HH Type): SE NAG= self employed households in non-agriculture, AGL= agricultural labour households, OTL= other labour households, SE AG= self-employed households in agriculture, OTH= other households.

***Urban Household Type (HH Type): SE= self-employed, RGWS= regular wage/ salaried, CL= casual labour, OTH= other households

Source: Author's estimations using various NSS rounds

Table 3.53 is a key to understanding the trends of diversification of households in India in the post-reform period. It presents the percentage distribution of households engaged in different industries by their category of work status. Rural agricultural households were primarily engaged in self-employed agricultural status category and the rest mostly worked as Agricultural labourers. Although there is a small percentage of agricultural households in urban areas, they are also primarily engaged as self-employed category. Within the rural mining households, over 60 percent workers were from other labour category, but in urban areas 5 percent were in regular wage and salaried category households. In rural manufacturing households, 47 percent were self-employed households and 23 percent were labourer households. In urban manufacturing households, more than 50 percent were in regular wage and salaried category, and just over 10 percent were casual labour households. In rural construction households, over 80 percent in 2011-12 were labour households, and this was also the case for urban construction sector households. Just 8 percent were in regular wage and salaried category, 64 percent were casual labour households. Also, there was significant extent (22 percent) of self-employment in urban construction households. In rural THR households, 80 percent were self-employed households, and in urban areas it was nearly 70 percent in self-employment, but also over 25 percent in regular wage employment. Apart from this, most of the urban TSC and FRB households were also regular wage and salaried households. The highest percentage of CSP households was also regular wage households, which was second highest after utilities sector.

Meanwhile, the distribution of household types across industrial sectors for rural and urban areas is given in Table 3.54. In rural areas, across the self-employed household in non-agriculture, the earlier higher share of manufacturing (35 per cent in 1983) fell to 23per cent in 2011-12, and a dominance of THR was noted along with the increase in construction activities. For agricultural labour households and households self-employed in agriculture, the main activity was agriculture by definition. In case of other (casual) labour household, while share of manufacturing came down from 29 to 13 per cent and share of CSP fell from 18 to 2 per cent between 1983 and 201-12, increase was seen in construction from 23 per cent in 1983 to 70 per cent in 2011-12. Other rural households are generally dominated by CSP activities. In general, Self- employed non-agricultural households are mostly concentrated in THR, followed by manufacturing sector. It can also be seen that percentage of self-employed households engaged in CSP came down from

18 percent in 1993-94 to 12 percent in 2011-12, while there was marginal overall increase in self-employed non-agricultural households in THR from 6 percent in 1993-94 to 12 percent in 2011-12. In Non Agricultural labour households, in 1983 just 26 percent were in construction sector, but in 2011-12, the percentage of non-agricultural labour households engaged in construction sector rose overwhelmingly to 70 percent. The highest decline of non-agricultural labour households was in CSP, where it decreased from 15 percent in 1983 to just 2 percent in 2011-12. Also, the decline was witnessed in manufacturing sector, where 27 percent of non-agricultural household were engaged in 1983, but declined to just 13 percent in 2011-12.

Table 3.54: Distribution of HH type across NIC –Rural

		AGRI	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP	
SE NAG	1993-94	6	1	28	0	4	36	6	1	18	100
	2004-05	4	0	26	0	8	38	11	2	10	100
	2011-12	2	0	23	0	11	38	12	3	12	100
AGL	1993-94	97	0	1	0	1	0	0	0	1	100
	2004-05	99	0	0	0	0	0	0	0	0	100
	2011-12	99	0	0	0	1	0	0	0	0	100
OTHL	1993-94	13	7	27	1	26	4	8	0	15	100
	2004-05	6	5	20	0	46	5	9	1	8	100
	2011-12	3	2	13	0	70	3	5	0	2	100
SE AG	1993-94	99	0	0	0	0	0	0	0	0	100
	2004-05	100	0	0	0	0	0	0	0	0	100
	2011-12	98	0	0	0	0	1	0	0	0	100
OTH	1993-94	24	2	9	2	2	3	7	3	47	100
	2004-05	5	2	15	3	2	9	13	3	49	100
	2011-12	7	1	22	3	4	8	14	5	36	100

Table 3.55: Distribution of HH type across NIC –Urban

		AGRI	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP	TOT
SE	1993-94	11	0	18	0	5	40	8	3	15	100
	2004-05	8	0	18	0	6	43	12	5	8	100
	2011-12	9	0	17	0	5	42	11	6	9	100
REG	1993-94	1	3	28	3	2	8	12	6	38	100
	2004-05	1	2	27	2	2	12	13	7	35	100
	2011-12	1	2	25	3	3	13	14	10	29	100
CL	1993-94	22	1	21	0	27	7	12	0	10	100
	2004-05	13	1	20	0	43	8	8	1	4	100
	2011-12	11	1	18	0	47	9	6	1	5	100
OTH	1993-94	24	1	4	1	1	5	3	2	58	100
	2004-05	36	1	5	1	4	7	14	5	27	100
	2011-12	14	0	7	1	16	16	9	11	25	100

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

**Rural Household Type (HH Type): SE NAG= self employed households in non-agriculture, AGL= agricultural labour households, OTL= other labour households, SE AG= self-employed households in agriculture, OTH= other households.

***Urban Household Type (HH Type): SE= self-employed, RGWS= regular wage/ salaried, CL= casual labour, OTH= other households
Source: Author's estimations using various NSS rounds

In urban areas meanwhile (Table 3.55), across self-employed households, the highest shares have been of THR, followed by manufacturing and TSC. Regular salaried households meanwhile have been showing a declining share in CSP and manufacturing while THR, TSC and FBR gained importance. Casual labour households in urban areas have been dominantly in construction. In general, Self-employed households in urban areas largely engaged in THR to the tune of around 40 percent, while 17 percent were in manufacturing sector. There was a decline in percentage of self-employed households engaged in CSP. In 1983, 28 percent of regular wage and salaried class households were engaged in manufacturing sector, but in 2011-12 it came down to 25 percent. There was also a decline in the percentage of regular salaried households engaged in CSP from 38 percent in 1993-94 to 29 percent in 2011-12. In case of casual labour household, 22 percent of the households were engaged in agriculture sector in 1983, but it came down to just 11 percent in 2011-12. There was also marginal decline in the percentage of casual labour households in manufacturing sector from 21 percent in 1993-94 to 18 percent in 2011-12. As expected, there was huge rise in the percentage of casual labour households that were engaged in construction activity from 27 percent in 1983 percent to 47 percentage in 20112, that is nearly one half of the casual laborers households.

Movement of Individuals within Household Types

Individuals' decisions on work participation and diversification often stem from the household features. Especially in the case of rural areas, households diversify their activities to improve their income and livelihoods to meet their household needs, given the job market situation (for instance Hazell, Haggblade and Reardon, 2008). These rural households may then participate in wage or self-employed non-farm activities in manufacturing or services, along with agriculture to increase their total earnings (Lanjouw and Shariff, 2000). This is another form of pluriactivity; multiple activities within a household by the same individual or by different members of the household, with the aim of increasing household income. More often than not, since these activities are pursued out of necessity to raise income, they tend to be in low productive sectors, where workers often accept whatever extra income they can receive which in many cases, reflects the distress situation of households. The possession of assets in a household in the form

of land, capital and/ or education ensures better non-farm options for work as compared to households which are generally poorer and have to accept any job that comes their way (for instance, see Nath (1996)).

Tables 3.56 and 3.57 show the transition of individuals within rural and urban household types respectively between 1993-94 (immediately post-reforms) and 2011-12 in order to reflect upon the individuals' choices within a given household status and background.

Table 3.56: Mobility of Individuals within Household types- Rural

	1993-94 Rural						2011-12 Rural					
IND HHT	SE-A	SE-NA	CL A	CL NA	OTH	IND HHT	SE-A	SE-NA	CL-A	CL-NA	OTH	RES
AGRI	94.6	18.1	94.7	29.6	38.5	AGRI	93.3	11.6	92.9	13.5	41.2	18.6
MIN	0.1	0.7	0.2	5.3	1.3	MIN	0	0.3	0.3	2.2	0.7	0.9
MFG	1.4	28.4	1.9	24.3	10.6	MFG	1.4	23.8	2.1	14.1	7.1	20.9
UTIL	0.1	0.3	0	0.5	1.8	UTIL	0	0.2	0	0.2	0.6	1.9
CONS	0.4	3.4	0.8	19.8	2.7	CONS	1.6	10	2.4	59.3	14.7	5.6
THR	1	28.6	0.6	3.5	3.8	THR	1.5	31.8	0.8	3.4	14.2	8.2
TSC	0.5	4.2	0.4	5	5.9	TSC	0.7	8.8	0.5	4	5.4	10.8
FBR	0.1	0.6	0	0.3	2.5	FBR	0.2	2.1	0.1	0.6	1.3	3.8
CSP	1.7	15.8	1.3	11.6	33	CSP	1.3	11.4	1	2.7	14.8	29.3
Total	100	100	100	100	100	Total	100	100	100	100	100	100

Table 3.57: Mobility of Individuals within Household types- Urban

	1993-94 Urban				2011-12 Urban				
IND NIC HHT	SES	RES	CL	OTH	IND NIC HHT	SES	RES	CL	OTH
AGRI	12.2	3.2	24.7	29.8	AGRI	8.8	1.3	12.7	10.6
MIN	0.3	2.1	1.2	0.2	MIN	0.1	1.2	1.3	0
MFG	21.2	27.2	22	10.6	MFG	20.9	26	21.5	10.3
UTIL	0.2	2.1	0.4	0.9	UTIL	0.4	2.6	0.3	0.9
CONS	4.1	2.9	23.4	4.7	CONS	5.4	3.6	40.5	12.4
THR	35.8	9.7	7.5	9.9	THR	38.2	14.2	9.9	16.8
TSC	6.4	10.1	9	6.2	TSC	9	13	5.9	6.3
FBR	2.7	5.6	0.4	2.6	FBR	5.8	9.3	1.1	11
CSP	17	37.1	11.4	35.1	CSP	11.3	28.9	6.8	31.8
Total	100	100	100	100	Total	100	100	100	100

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

**Rural Household Type (HH Type): SE NA= self employed households in non-agriculture, CL A= agricultural labour households (casual), CL NA= other labour households (casual), SE A= self-employed households in agriculture, OTH= other households, RES= regular employed households

***Urban Household Type (HH Type): SE= self-employed, RES/RGWS= regular wage/ salaried, CL= casual labour, OTH= other households

Source: Author's estimations using various NSS rounds

It is seen from Table 3.56 that in rural areas, most of the members from the self-employed agricultural households or casual agricultural labour households would be in agriculture. In 1993-94, almost 95 percent of the members from self-employed agricultural households and

agricultural labour households had agriculture as their principal industry; it still remained so even after two decades of reforms. In 2011-12, 93 percent of members from self-employed agricultural households and casual agricultural employed were working in agriculture. In 1993-94 amongst self-employed non -agricultural households, 18 percent of members were working in agriculture, while 28 percent each were engaged in manufacturing and construction sector. By 2011-12, members of self- employed households, working in manufacturing marginally declined to 23 percent, while 31 percent of members were now in THR. In case of casual labour households in non-agriculture, around 30 percent of members were still engaged in agriculture in 1983, and this came down to just 13 percent in 2011-12, but now considerable percentage (60 per cent) of casual labour households' members working in construction sector. In 2011-12, regular wage and salaried household is also shown, and in such households, still 18 percent of members work in agriculture, 20 percent in manufacturing sector, and 30 percent in CSP sector.

In case of urban areas (Table 3.57), over 35 percent of the individuals from self-employed households were in trade Hotels and Restaurants, and over 20 percent were in manufacturing sector in 1993, which increased marginally to 38 percent in Trade Hotels and Restaurants and remained almost same for manufacturing sector in 2012. In case of regular wage and salaried class 37 percent of the workers in the household were in community, social and personal services, but by 2012, it decreased to 29 percent. Also, the parentage of individuals from regular wage and salaried class in manufacturing g sector was just over 25 percent. In casual worker households, around 24 percent were engaged in agriculture sector and another 25 percent were engaged in construction sector during 1993-94, but by 2011-12, 40 percent of individuals from casual workers households were engaged in construction sector.

Concluding Remarks and Outlook of the Following Chapter

The structural transformation of the economy in the last three decades has been significant, but with structural transformation of economy, structural transformation of employment has been lagging. Even though there has been decline in the share of agriculture in GDP, but the decline in employment has not been in tandem, and there has been a lopsided transformation of the economy. The period between 2004-05 and 2011-12 showed the least increase in employment (before the release of PLFS data, which is discussed in Chapter 6), given the lack of non-

agricultural job creation amidst declining agricultural employment. Also, subsidiary status employment has been declining constantly while there was rise of workers with only principal status employment. Another important aspect was the declining female labour force, along with low level of participation of female workers. In case of self-employment, agriculture remains a key employing sector; and in case of regular wage and salaried workers, Community, social and Personal services is becoming a major sector of employment. For casual sector workers, construction sector emerged as the key sector of employment. In case of diversification of principal sector workers also having subsidiary activity, agricultural linkages are found to be dominant across all industries; most of the workers who had some subsidiary activity, had their subsidiary work in agriculture sector. With respect to workers that undertake more than one activity as means of securing livelihood, there is evident distress as the wages received by them is on average lesser than the average wage received by workers that take up single work. Finally when a detailed analysis is undertaken for various sectors, textile and garments sector along with food and beverages remains the highest employer. At the same time there has been declining employment elasticity for most of the key industries within manufacturing sector as seen from NSS and KLEMS data. Moreover, labour income share in value added has been continuously declining. Under the threat of job loss growth thus emerging in the economy, the following chapter delves deeper into state level analysis of employment and structural transformation.

Chapter 4: An Exploration of State Level Trends and Patterns

'...Action to be effective must be directed to clearly conceived ends...' Jawaharlal Nehru

Setting the Background

The previous chapter gave insights into the overall trends at the individual and household level on workforce diversification patterns and trends. These patterns show a generally slow trend of the structural transformation process of the workforce, as well as different pathways of workforce diversification that have been evolving and changing in the pre-reform as well as post-reforms period. This chapter seeks to examine these trends at the state level for a much better understanding.

Outline of the Chapter

As mentioned above, this chapter aims at examining the detailed trends and patterns of workforce diversification in India since the early 1980s, for both rural as well as urban areas across at a more disaggregated level. To capture regional differentials at the broad level, this chapter therefore looks at 17 major states in India (Andhra Pradesh, Bihar, Chattisgarh, Gujarat, Haryana, Jharkhand, Karnataka, Kerala, Maharashtra, Madhya Pradesh, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, Uttarakhand and West Bengal). These 17 states together contribute to a large part of the total GDP of India as well as the total labour force and share of population. The patterns of structural change, GDP shares, sectoral employment elasticities and public expenditure patterns at the state level are examined.

4.1 Spatial Analysis: State Level

The spatial trends analysed by Vaidyanathan (1986) and Dev (1990) for rural non-farm employment in the pre-reforms period in particular suggest that there seemed to be a wide regional disparity in the share of non-farm employment in the rural areas ranging between a meager 11 per cent in Madhya Pradesh to 35 per cent in Kerala for males, and ranging between just 4.7 per cent in Rajasthan to 31.3 per cent in West Bengal for women. This gender gap in employment was also corroborated by Chadha (1997). These papers argue that during the pre-reforms period, agriculturally developed states also expanded in non-farm jobs for males. However, in the post-reforms period, proportion of male workers declined in many states, while

the proportion of female workers showed even more dismal trends. This section analyses the sector of work, status of work and employment elasticities for major sectors of work with respect to states' per capita GDP for the major states in India. The employment in terms of Usual Principal Status is considered in particular to stress on the growth of more long-term employment. More importantly, with increasing growth (and development expenditure by states), longer-term jobs should grow and existing workers in subsidiary and unemployed categories seeking work should also be able to find long-term employment (in UPS) due to increase in jobs with growth.

Based on this, the following groupings of states have been used for analysis of trends in structural change, employment patterns and employment elasticity:

- ***Group 1 (Developing States):*** States with higher per capita income including Tamil Nadu (TN), Maharashtra (MH), Gujarat (GJ), Punjab (PB), Haryana (HR), Andhra Pradesh (AP), Karnataka (KR) and Kerala (KL).
- ***Group 2[24] (Laggard States):*** States with lower per capita income including Bihar (BH), Madhya Pradesh (MP), Rajasthan (RJ) and Uttar Pradesh (UP) along with Odisha (OR), Jharkhand (JH), Chattisgarh (CH) and West Bengal (WB).

Table 4.1 gives the workforce participation rate for states since 1983 based on usual principal status. In the first instance it is evident that Workforce Participation Rate (WFPR) for most of the states has declined in 2011-12 as compared to 2004-05 and in many states it has come below the 1983 levels, which is indeed disconcerting. It is to be expected that as the economy grows there should be an increase in the WFPR but rather, the opposite seems to be gradually surfacing. The second important feature being that in Group 1 states WFPR are higher than in Group 2 states. In group 2 states it seems to be because of the lack of employment opportunities and lack of structural change. The highest overall WFPR of 45.3 percent is seen in Andhra Pradesh in 2011-12, but it has come down from 48.6 percent in 2004-05. Also, the lowest overall WFPR is seen in the case of Bihar- Jharkhand which is just 27.1 percent, while for Uttar Pradesh-Uttarakhand it was 29 percent. In Group 1 states, the lowest WFPR is seen in case of Haryana followed by Punjab, but it is still higher than Bihar and Uttar Pradesh. It is also to be noted that for all of the

[24] For comparable analysis over 4 decades, Bihar includes Jharkhand; Uttar Pradesh includes Uttarakhand; and Madhya Pradesh includes Chattisgarh.

states in Group 2, overall WFPR as well as rural and urban WFPR in 2011-12 have come down (below the 1983 level), including Bihar and Uttar Pradesh which had the least WFPR. In the Group 1 states, it is also seen that WFPR in rural areas is higher than the WFPR in the urban areas and for states such as Andhra Pradesh, Gujarat, Karnataka, Maharashtra and Tamil Nadu; Rural WFPR is significantly higher than Urban WFPR. In Group 2, states Bihar Jharkhand and Uttar Pradesh having lowest overall WFPR, it is seen that urban areas have higher WFPR than rural areas.

Table 4.1: Work Force Participation Rate (WFPR)

		Total				Rural				Urban			
	STATE	**1983**	**1993**	**2004**	**2012**	**1983**	**1993**	**2004**	**2012**	**1983**	**1993**	**2004**	**2012**
GRP 1	**AP**	46.2	49.3	48.6	45.3	50.3	54.1	52.2	50	33.1	35.5	38.3	35.8
	GJ	39	38.5	42	39.8	43.1	41.5	45	41.4	31.5	32.3	36	37.5
	HR	29.9	27.5	31.9	30.9	29.4	26.2	32.2	30.9	32	31.2	31	31.1
	KL	30.5	33	33.9	34	30.7	32.5	34.3	33.9	29.4	34.2	32.9	34.1
	KR	40.8	42.3	47.5	41.7	43.9	45.6	51.8	44.3	33.7	34.1	37.8	37.2
	MH	43.2	42.2	44	40.2	48.5	47.1	49	44.3	32.9	33.8	36.5	35.3
	PB	31.2	30.7	31.6	32.7	30.9	30.3	30.3	31.5	32.1	31.8	34.5	34.8
	TN	43.2	45.6	47.3	41.7	47.5	49.5	51.3	44.3	35.2	38.4	40.9	38.5
GRP 2	**UP UK**	32.6	32	30.8	29	33.4	32.8	30.9	28.7	29	28.6	30.5	29.9
	WB	31.2	32.1	34	34.9	30.7	31.6	33.6	34.2	33	33.8	35.4	36.9
	BH JH	32	31.8	30.6	27.1	32.5	32.6	31	27.3	28.2	26.1	27.4	25.5
	MP CT	42.7	40.4	42.1	38.1	46.3	43.5	44.4	40	30.7	30.3	33.4	32.5
	OR	38.3	37.4	38.3	36.2	39.5	38.2	39.2	36	30.4	32	32.1	37
	RJ	40.6	39.2	37.2	35.1	43.7	41.8	38.9	36.6	30.6	30.7	31.6	30.3

Table 4.2: Seeking Employment-Currently Unemployed (%)

		Total				Rural				Urban			
	STATE	**1983**	**1993**	**2004**	**2012**	**1983**	**1993**	**2004**	**2012**	**1983**	**1993**	**2004**	**2012**
GRP 1	AP	0.9	0.7	0.9	1.1	0.6	0.4	0.7	0.8	1.9	1.4	1.6	1.7
	GJ	0.8	0.7	0.6	0.3	0.4	0.5	0.4	0.2	1.6	1.3	1.1	0.3
	HR	1.1	0.8	1.2	1	1	0.7	1.1	0.9	1.7	1	1.5	1.4
	KL	4.6	3.7	6.9	3.4	4.4	3.4	6.4	3.5	5.5	4.7	8.2	2.9
	KR	0.9	0.8	0.8	0.8	0.4	0.5	0.6	0.5	2	1.5	1.2	1.3
	MH	0.9	1	1.2	0.6	0.4	0.6	0.7	0.4	2	1.7	1.9	0.9
	PB	1.3	0.8	1.9	0.9	1.2	0.5	1.9	0.8	1.5	1.3	2	1.1
	TN	2.1	1.5	1.3	1.3	1.5	1.1	1.1	1.4	3.1	2.4	1.6	1.2
GRP 2	UP UK	0.5	0.5	0.5	0.7	0.4	0.4	0.4	0.5	1.3	1	1.3	1.4
	WB	1.9	1.6	1.7	1.6	1.3	1	1.3	1.3	4.1	3.6	2.9	2.3
	BH JH	0.7	0.8	0.7	1	0.6	0.7	0.5	0.9	1.5	2.1	2.1	1.7
	MP CH	0.3	0.6	0.5	0.5	0.1	0.3	0.3	0.3	1	1.8	1.1	1.2
	OR	0.8	1.1	3	1.1	0.7	0.9	2.7	1.1	1.8	2.6	5.3	1.4
	RJ	0.4	0.2	0.7	0.6	0.2	0.2	0.6	0.4	1.2	0.6	1.1	1.1

Source: Author's estimations using various NSS rounds

Table 4.2 shows the percentage of workers that are currently employed and seeking employment as per their principal usual status. In the Group 1 states, Kerala has the highest unemployment rate overall (with a declining trend) and in rural as well as urban areas, unemployment in urban areas being lower than rural areas. In 2004-05, Kerala was having unemployment rate of 6.9

percent which came down to 3.4 percent in 2011-12, in rural areas it was 6.4 percent in 2004-05 which also came down to 3.5 percent in 2011-12. Also, Tamil Nadu showed the second highest unemployment rate in Group 2, with 1.3 percent overall in 2011-12 remaining the same as in 2004-05; while in rural areas it was 1.4 percent while in urban areas it was 1.2 percent. In case of Group 2 states, highest unemployment rate is observed in West Bengal with 1.6 percent in 2011-12, which declined marginally from 1.7 percent in 2004-05. In Odisha, unemployment rate peaked in 2004-05 (3 percent) which came down to 1.1 percent in 2011-12. It is observed that overall unemployment was significantly higher in 2004-05 which in most of the states had declined in 2011-12. However in Andhra Pradesh, Uttar Pradesh and Bihar there has been marginal increase in overall unemployment rate.

Employment Elasticity across States and Sectors

Under the increasing debates and discourses on 'jobless' and rather 'job loss' growth (Kannan and Raveendran, 2019 for instance), and the dismal trends in WFPR seen above over 3 decades despite a growing window of 'demographic dividend', the following section analyses the employment generating capacity of the economic growth in the economy at the state level as well as at the sectoral levels in detail. To begin with, annual employment growth and employment elasticity for major states in India are given in Table 4.3 based on 2004-05 prices.[25]

Table 4.3 A: Annual Employment Growth

	STATE	Total			Rural			Urban		
		1983-93	1993-05	2005-12	1983-93	1993-05	2005-12	1983-93	1993-05	2005-12
GRP 1	AP	1.8	1.3	0.6	1.5	1.1	-0.6	3.2	2.2	4.7
	GJ	0.9	3.1	1.6	1.2	2.9	-0.4	0.3	3.7	6.9
	HR	-2.1	4.1	1.3	-3.2	4.7	0.3	3	2.7	4
	KL	1	3.1	0.4	-0.1	3.5	-0.4	6.2	1.9	3
	KR	1.1	2.9	0	1.4	2.6	-1.4	0.2	3.7	4.4
	MH	1.7	2.9	0.4	1	2.4	-1	3.5	4.4	3.4
	PB	0.8	2.7	1.7	0.2	1.9	0.9	2.5	4.6	3.6
	TN	2	0.4	0.7	1.7	-0.2	-1	2.5	1.5	4.1
GRP 2	UP UK	1.8	2.3	0.6	1.6	1.9	0	2.9	3.7	2.6
	WB	1.7	2.7	1.3	1.8	2.5	0.9	1.5	3.5	2.7
	BH JH	0.6	2.7	1.3	0.7	2.7	1	0.3	2.8	4.1
	MP CH	1.2	3	-0.4	1	3.1	-1.1	2.1	2.5	2.9
	OR	1.4	1.5	-0.3	1.4	1.5	-0.9	1.4	2	4.3
	RJ	0.6	3.1	0.3	0.6	2.8	0.1	0.5	4.6	0.4

Source: Author's estimations using various NSS rounds

[25]Using interpolation similar to retropolation method and (splicing) of time series using the benchmarks of the new reference measure (see for instance, Moreno(2014)), in essence is corrects older series to match with the recent series at the common reference year while trying to retain its features).

Table 4.3 B: Employment Elasticity

	STATE	Total			Rural			Urban		
		1983-93	1993-05	2005-12	1983-93	1993-05	2005-12	1983-93	1993-05	2005-12
GRP 1	AP	0.2	0.2	0.1	0.2	0.1	-0.1	0.4	0.3	0.5
	GJ	0.2	0.3	0.1	0.2	0.3	0	0.1	0.3	0.5
	HR	-0.3	0.5	0.1	-0.4	0.5	0	0.4	0.3	0.3
	KL	0.1	0.4	0	0	0.4	0	0.9	0.2	0.3
	KR	0.2	0.3	0	0.2	0.3	-0.1	0	0.4	0.5
	MH	0.2	0.4	0	0.1	0.3	-0.1	0.3	0.6	0.3
	PB	0.1	0.5	0.2	0	0.3	0.1	0.4	0.8	0.4
	TN	0.2	0	0.1	0.2	0	-0.1	0.3	0.2	0.3
GRP 2	UP UK	0.4	0.4	0.1	0.3	0.3	0	0.6	0.7	0.3
	WB	0.3	0.3	0.2	0.3	0.2	0.1	0.2	0.3	0.4
	BH JH	0.2	0.5	0.1	0.2	0.5	0.1	0.1	0.5	0.4
	MP CHT	0.2	0.6	0	0.2	0.6	-0.1	0.3	0.5	0.3
	OR	0.4	0.2	0	0.4	0.2	-0.1	0.4	0.3	0.4
	RJ	0.1	0.3	0	0.1	0.3	0	0.1	0.5	0

Source: Author's estimations using various NSS rounds

In Table 4.3A, it is clearly evident that there has been a trend of jobless growth in the recent period especially between the 2004-05 and 2011-12 phase. Employment growth did pick up between 1993-94 and 2004-05 over 1983 to 1993-94 periods; however in the period between 2004-05 and 2011-12, employment growth drastically came down. There was evidence of negative employment growth in Madhya Pradesh-Chhattisgarh and Odisha. The situation was much severe in the rural areas where most of the states had a negative employment growth, in 2004-05 to 2011-12, especially in the Group 1 states. However even in Group 2 states in rural areas, Madhya Pradesh-Chhattisgarh and Odisha again had a negative employment growth. It is the urban areas that had a positive but moderate employment growth during 2004-05 to 2011-12. It is especially during 2004-05 to 2011-12 that there was an initiation and escalation of jobless growth and most cases even job loss growth, as even though there was robust economic growth followed by bleak employment growth. Overall there was indeed positive but moderate employment growth but that was at the cost of negative rural employment growth compensated by above average urban employment growth.

It is also observed (from Table 4.3B) that in most of the states the employment elasticity in the decade immediately after the reform period (1993-94 to 2004-05) was higher than the employment elasticity in the pre-reform period (1983 to 1993-94). However in the second decade (2004-05 to 2011-12), the employment elasticity for most of the states in both Group 1 and Group 2 turned zero or was insignificant. This confirms the theory of jobless growth in the economy, as the period 2004-05 to 2011-12 witnessed stable high level of economic growth in

terms of Net State Domestic Products (NSDP) for all the states. The highest employment elasticity in Group 1 for 2004-05 to 2011-12 was seen in Punjab, and in Group 2 states was seen in West Bengal; but in both cases, employment elasticity decreased from the 1993-94 to 2004-05 level. Another significant observation shows that employment elasticity for urban areas for both Group 1 and Group 2 states has been significantly higher than rural employment elasticity in 2004-05 to 2011-12 periods. In rural areas, employment elasticity in the 2004-05 to 2011-12 period was either zero or was negative, except for Punjab in Group 1 and West Bengal and Bihar-Jharkhand in Group 2 whose employment elasticity was a dismal 0.1 percent. Group 2 states form a major section of workforce and have relatively low per capita incomes, and such low employment elasticity presents a bleak employment scenario.

Agriculture Sector

The following segment looks at employment growth and elasticity at the sectoral level. The first major sector considered is agriculture. With the aggregate picture showing declining employment shares in agriculture, the employment elasticity in agriculture with respect to agricultural NSDP is shown below along with employment growth in agriculture across the major states.

Table 4.4 A: Agriculture Sector Annual Employment Growth

	STATE	Total			Rural			Urban		
		1983-93	1993-05	2005-12	1983-93	1993-05	2005-12	1983-93	1993-05	2005-12
GRP 1	AP	1.4	0.1	-1	1.4	0.2	-0.9	3.7	-1.8	-5
	GJ	-0.2	2.7	-0.7	0.2	2.7	-0.7	-6.1	3.6	0.6
	HR	-4.3	3.0	-0.3	-4.3	2.9	-0.3	-4.3	5.1	-0.6
	KL	-0.3	-0.2	-4	-0.9	0.2	-4.1	8.1	-3	-3.7
	KR	0.8	2.5	-3.0	1.0	2.7	-3.3	-1.6	-2.2	3.9
	MH	0.5	2.0	-1.7	0.5	2.0	-1.6	-0.1	1.4	-2.9
	PB	-0.9	-0.4	-2.3	-0.9	-0.3	-2.6	-1.5	-1.3	5.4
	TN	1.0	-0.7	-2.6	1.1	-0.7	-3.3	0.4	-1.5	9.7
GRP 2	UP UK	1.4	0.5	-1.9	1.3	0.6	-2.0	6.0	-0.6	1.1
	WB	0.3	2.5	-1.0	0.2	2.5	-1.0	6.0	-1.9	0.7
	BH JH	0.8	1.5	-1.1	0.9	1.5	-1.0	-0.9	6.4	-7.1
	MP CH	1.0	2.2	-2.1	0.9	2.3	-2.3	3.1	-0.9	3.7
	OR	1.5	-0.2	-2	1.5	-0.2	-2.1	0.4	0.7	6.3
	RJ	-0.7	1.7	-2.3	-0.4	1.6	-2	-4.5	4.1	-8.9

Source: Author's estimations using various NSS rounds

Table 4.4B: Agriculture Sector Employment Elasticity with respect to Agricultural NSDP

	STATE	Total			Rural			Urban		
		1983-93	1993-05	2005-12	1983-93	1993-05	2005-12	1983-93	1993-05	2005-12
GRP 1	AP	0.6	0	-0.2	0.6	0	-0.2	1.5	-0.5	-1.2
	GJ	0.2	0.5	-0.1	-0.2	0.5	-0.1	5.2	0.6	0.1
	HR	-0.8	1.1	-0.1	-0.8	1.1	-0.1	-0.8	1.8	-0.1
	KL	-0.1	0.3	6.8	-0.2	-0.2	6.9*	1.5	4.2	6.2
	KR	0.2	3.1	-0.6	0.2	3.5	-0.6	-0.4	-2.7	0.7
	MH	0.1	4.4	-0.3	0.1	4.4	-0.3	0	2.9	-0.5
	PB	-0.1	-0.1	-1.2	-0.1	-0.1	-1.3	-0.2	-0.5	2.8
	TN	0.2	8.9	-0.4	0.2	8.4	-0.5	0.1	16.4	1.3
GRP 2	UP UK	0.5	0.2	-0.6	0.5	0.2	-0.6	2.2	-0.2	0.3
	WB	0	0.6	-0.5	0	0.6	-0.5	1	-0.5	0.4
	BH JH	11.1	0.4	-0.2	11.5	0.4	-0.2	-12	1.8	-1
	MP CH	0.3	2.2	-0.3	0.3	2.3	-0.3	0.9	-0.9	0.5
	OR	-5.4	-0.2	-0.6	-5.5	-0.2	-0.7	-1.5	0.7	1.9
	RJ	-0.9	0.3	-0.3	-0.6	0.3	-0.3	-6.3	0.8	-1.2

Source: Author's estimations using various NSS rounds

From Table 4.4A, it is clearly seen that during 2004-05 to 2011-12, across all major states there has been a negative employment growth, and workers have moved out from agriculture. The highest overall decline for the period 2004-05 to 2011-12 was visible in the state of Kerala, followed by Karnataka. Agriculturally developed states such as Punjab and Tamil Nadu also had a very high negative overall employment growth in agriculture for 2004-05 to 2011-12. States from Group 2, especially Madhya Pradesh-Chhattisgarh, Odisha and Rajasthan had a higher negative overall employment growth for 2004-05 to 2011-12. Kerala is the only state that has been showing decline in overall employment growth (in agriculture) in all the time periods since 1983. In rural areas too, there has been an overall decline in agricultural employment, but there has been some marginal increase in (agricultural) employment in urban areas for many states during 2004-05 to 2011-12, the highest percentage being in Tamil Nadu at 9.7 percent. However, since urban areas have a marginal share of agricultural employment, its increase is not reflected substantially in overall employment growth for rural and urban areas combined.

Table 4.4B gives the employment elasticity which gives the change in employment in agricultural sector, with the change in the agricultural sector NSDP at 2004-05 constant prices. With the growth in the economy there is bound to be structural change, as workers move out from agriculture and joins secondary and tertiary sector. In the period 2004-05 to 2011-12, employment elasticity for all states except that of Kerala has been negative. Highest negative employment elasticity was recorded in Punjab, which had the highest proportion of workers that moved out from agriculture (with respect to NSDP) in all three periods, the highest being in

2004-05 to 2011-12. In Group 2 states, the highest negative employment elasticity in agricultural sector was seen in Uttar Pradesh-Uttarakhand and Odisha. In Bihar-Jharkhand agricultural employment elasticity was 11.1 in the period 1983 to 1993-94, showing highest increase in agricultural employment with respect to agricultural NSDP, while in 2004-05 to 2011-12 it was -0.2 per cent, least movement away from agriculture within the Group 2 states. Urban areas have only marginal agricultural employment, but as shown above, in urban areas most of the states had positive agricultural employment elasticity, while it is negative for all of the states at the aggregate level.

Mining Sector

Table 4.5A: Mining Sector Annual Employment Growth

	STATE	Total			Rural			Urban		
		1983-93	1993-05	2005-12	1983-93	1993-05	2005-12	1983-93	1993-05	2005-12
GRP 1	AP	7.5	3.7	-3.1	2.9	6.6	-5	31.8	-1.1	2.7
	GJ	38.9	6.5	-2.4	31	3.2	-1.1	76.7	14	-3.9
	HR	-1.7	-5.9	-0.9	-2.7	-6.5	5.3	0	-1.0	-14.3
	KL	2.1	2.2	-6.9	2.5	2.3	-7.1	-0.6	1.1	-4.1
	KR	11.5	-5.2	-3.0	4.5	-3.1	-4.4	34.1	-7.5	2.9
	MH	12.6	2.5	-8.9	8.9	-0.4	-9.6	23.9	7.4	-8.3
	PB	21.3	13.2	-14	0.0	22.2	-14	-0.8	-8.4	-14.3
	TN	-2.4	-0.2	13	-3.0	-1.4	9.4	-0.4	2.8	18.4
GRP 2	UP UK	31.3	4.9	22.7	24.7	6.1	13.6	0.0	-1.0	113.6
	WB	3.6	-1.4	3.3	-5.6	4.8	6.7	24.8	-3.2	1.0
	BH JH	-3.8	1.0	2.0	-5.4	1.6	-0.7	0.2	0.3	5.4
	MP CH	-0.5	-1.8	-2.1	11.1	-2.5	-1.3	-6.0	0.0	-3.7
	OR	4.8	-2.0	-6.7	13.6	-2	-7.9	-5.2	-2.3	0.6
	RJ	25.4	-1.1	-0.7	29.8	-1.4	-1.9	6.5	2.0	6.9

Table 4.5B: Mining Sector Employment Elasticity with respect to Mining sector NSDP

	STATE	Total			Rural			Urban		
		1983-93	1993-05	2005-12	1983-93	1993-05	2005-12	1983-93	1993-05	2005-12
GRP 1	AP	0.7	0.3	-0.2	0.3	0.6	-0.3	2.8	-0.1	0.1
	GJ	5.1	2.6	-5.1	4.0	1.3	-2.5	10.0	5.5	-8.2
	HR	-0.1	-0.6	0.1	-0.2	-0.7	-0.6	0.0	-0.1	1.7
	KL	0.1	0.2	-0.5	0.1	0.3	-0.5	0.0	0.1	-0.3
	KR	4.2	-0.4	0.6	1.7	-0.2	0.9	12.5	-0.6	-0.6
	MH	2.5	0.2	-3.4	1.8	0.0	-3.6	4.7	0.7	-3.2
	PB	2.9	0.9	6.3	0.0	1.6	6.3	-0.1	-0.6	6.4
	TN	-0.2	0.0	3.5	-0.3	-0.2	2.6	0.0	0.5	5.0
GRP 2	UP UK	3.4	0.4	-24.4	2.7	0.5	-14.5	0.0	-0.1	-121.7
	WB	2.5	-0.3	27.4	-3.9	1.1	55.3	17.4	-0.7	8.5
	BH JH	-0.5	0.3	0.1	-0.7	0.5	-0.1	0.o	0.1	0.4
	MP CH	-0.1	-0.2	-0.3	1.6	-0.3	-0.2	-0.9	0.0	-0.6
	OR	0.2	-0.1	-1.1	0.6	-0.1	-1.3	-0.2	-0.1	0.1
	RJ	2.3	-0.1	0.0	2.7	-0.1	0.0	0.6	0.2	0.2

Source: Author's estimations using various NSS rounds

In Table 4.5A, in the mining sector, for most of the states there has been a declining employment growth and in 2004-05 to 2011-12, for most of the states, employment growth was negative. In Group 1 states, only Tamil Nadu had a positive overall employment growth in 2004-05 to 2011-12, but there was decline in employment in the period 1983 to 1993-94 as well as 1993-94 to 2004-05. In Group 2 states, Uttar Pradesh-Uttarakhand showed significant increase in employment growth in the 1983 to 1993-94 phase and 2004-05 to 2011-12 phase. However, states with mineral endowment such as Madhya Pradesh-Chhattisgarh, Rajasthan and Odisha had a negative overall employment growth in 2004-05 to 2011-12. However, Bihar-Jharkhand and West Bengal had a marginal increase in employment growth in mining. It is evident that mining sector has not been able to serve as a vehicle for employment growth, and remains a huge untapped potential for the mineral endowed states.

Table 4.5B shows the employment elasticity for Mining sector in terms of employment in mining sector for states with respect to the mining sector's net state domestic product at 2004-05 base (constant prices). It clearly shows that there has also been decline in employment elasticity which has become negative for many states in the 2004-05 to 2011-12 period. India has a great potential in mining sector, as it is endowed with an abundance of natural resources but still imports minerals. There has been a lack of holistic programmes for employment generation in the mining sector, and a general lack of policy at the state and central level on mineral and mining policy for jurisdiction, and environmental clearance was one major reason for stagnation in mining sector, and this had adversely also effected employment opportunities in mining sector. This sector becomes much more significant in Group 2 states that have abundance of mineral wealth but the lowest shares of NSDP. Uttar Pradesh had the highest negative employment elasticity in mining in the period 2004-05 to 2011-12, while West Bengal had the highest positive employment elasticity in 2004-05 to 2011-12. In Group 1 states, Punjab and Tamil Nadu had the highest employment elasticity in mining in 2004-05 to 2011-12, while in Group 2 states (apart from West Bengal), Bihar-Jharkhand showed positive employment elasticity. West Bengal also had the highest rural employment elasticity in mining sector, while in Group 2 states, it was the only state having positive employment elasticity, and the highest negative employment elasticity was seen in the case of Uttar Pradesh.

Manufacturing Sector

Table 4.6A: Manufacturing Sector Annual Employment Growth

	STATE	Total			Rural			Urban		
		1983-93	1993-05	2005-12	1983-93	1993-05	2005-12	1983-93	1993-05	2005-12
GRP 1	AP	0.6	2.9	-0.4	0.3	3.3	-1.7	1.1	2.4	1.9
	GJ	2.8	3.2	5.3	10.5	0.5	-0.4	-0.3	5.5	8.6
	HR	0.0	9.2	0.4	-3.9	20.1	0.4	4.6	3.7	0.6
	KL	-0.2	2.7	-0.6	-1.5	3.9	-1.6	4.0	0.3	2.4
	KR	0.7	1.4	4.3	3.2	0.0	7.7	-1.0	2.7	1.7
	MH	1.9	3.5	1.4	2.2	3.5	0.3	1.7	3.5	2.0
	PB	0.5	6.2	4.7	-1.0	7.5	5.3	1.6	5.4	4.4
	TN	2.6	1.1	1.4	3.9	0.4	0.4	1.5	1.9	2.4
GRP 2	UP UK	1.1	5.9	0.9	0.5	6.4	-0.6	2.1	5.3	3.1
	WB	3.5	0.7	5.7	7.5	0.0	5.7	-0.1	1.9	5.7
	BH JH	-3.3	8.6	-1.3	-3.8	12.5	-2.3	-2.0	0.9	3.0
	MP CH	-0.4	5.4	-1.6	-0.1	7.1	-1.7	-0.7	3.7	-1.3
	OR	-1.4	7.1	-3.0	-1.4	9.5	-3.4	-1.2	0.1	-0.7
	RJ	-0.1	7.3	0.4	0.0	9.7	-1.7	-0.2	5.0	3.3

Table 4.6B: Manufacturing Sector Employment Elasticity with respect to Manufacturing NSDP

	STATE	Total			Rural			Urban		
		1983-93	1993-05	2005-12	1983-93	1993-05	2005-12	1983-93	1993-05	2005-12
GRP 1	AP	0.0	0.4	0.0	0.0	0.4	-0.2	0.1	0.3	0.2
	GJ	0.3	0.3	0.4	1.2	0.0	0.0	0.0	0.4	0.7
	HR	0.0	0.8	0.1	-0.3	1.8	0.1	0.4	0.3	0.1
	KL	0.0	0.8	-0.1	-0.2	1.1	-0.2	0.7	0.1	0.3
	KR	0.1	0.1	0.5	0.3	0.0	0.9	-0.1	0.2	0.2
	MH	0.2	0.6	0.1	0.2	0.6	0.0	0.2	0.6	0.2
	PB	0.0	1.3	0.3	-0.1	1.6	0.3	0.1	1.1	0.3
	TN	0.5	0.3	0.1	0.7	0.1	0.0	0.3	0.4	0.2
GRP 2	UP UK	0.1	1.0	0.1	0.1	1.0	0.0	0.2	0.9	0.3
	WB	0.9	0.1	0.9	1.9	0.0	0.9	0.0	0.3	0.9
	BH JH	-1.0	1.2	2.7	-1.2	1.7	4.8	-0.6	0.1	-6.1
	MP CH	-0.1	1.1	-0.2	0.0	1.4	-0.2	-0.1	0.7	-0.2
	OR	-0.2	0.7	-0.2	-0.2	1.0	-0.3	-0.2	0.0	0.0
	RJ	0.0	0.7	0.0	0.0	0.9	-0.1	0.0	0.5	0.2

Source: Author's estimations using various NSS rounds

In manufacturing sector, there has been a case of dismal employment growth and overall stagnation of employment (Table 4.6A). Structural change has not enabled robust employment growth in the manufacturing sector. The highest overall employment growth for 2004-05 to 2011-12 was in Gujarat, which already had a high level of industrialization. At the same time during 2004-05 to 2011-12, Andhra Pradesh, Kerala, Bihar Jharkhand, Madhya Pradesh and Odisha have had a negative overall employment growth, while Haryana, Uttar Pradesh and Rajasthan had marginal increases in employment. There is evident rural and urban contrast in employment growth in the manufacturing sector, for both Group 1 and Group 2 states during 2004-05 to 2011-12. Apart from Karnataka and Punjab in Group 1 states, and West Bengal in Group 2, all others had a negative growth or had a marginal increase in the employment in rural

areas for 2004-05 to 2011-12. Maximum decline in manufacturing employment in Group 2 states was seen in the case of Odisha and Bihar, which has lower levels of industrialization. In urban areas, only Madhya Pradesh had negative employment elasticity during 2004-05 to 2011-12, and the other states in general had a positive employment growth. Highest urban growth in manufacturing employment is in seen in the case of Gujarat, but in the aggregate there was higher employment growth in urban areas in the manufacturing sector as compared to rural areas.

Table 4.6B shows the manufacturing sector elasticity with respect to employment in manufacturing sector of states and state net domestic product of the manufacturing sector of states at 2004-05 base prices. There is an evident case of premature deindustrialization across states in 2004-05 to 2011-12 as compared to the 1993-94 to 2004-05 period. In Group 1 states, a decline in overall elasticity in manufacturing employment was seen in 2004-05 to 2011-12 in Andhra Pradesh, Haryana, Kerala, Maharashtra, Punjab and Tamil Nadu, while in Group 2 states, it was Uttar Pradesh, Madhya Pradesh, Odisha and Rajasthan. Except for Gujarat and Haryana in Group 1 and West Bengal and Bihar in Group 2, all other major states witnessed a decline in overall employment elasticity in manufacturing. In rural areas, the trend remained the same. Andhra Pradesh and Kerala in Group 1 states and Madhya Pradesh, Odisha and Rajasthan in Group 2 states registered negative employment elasticity; while Gujarat, Maharashtra and Tamil Nadu in Group 1 and Uttar Pradesh in Group 2 showed zero employment elasticity in rural areas. For urban areas, employment elasticity was not very significantly different from employment elasticity of rural areas. Bihar and Madhya Pradesh showed negative urban employment elasticity. It is in these low industrialized states in Group 2 states that industrialization should be promoted more vigorously so that more non-farm employment can be generated, that would eventually lead to structural change, but as it is seen that even in urban areas there is an evident case of negative employment elasticity.

Utilities Sector

Table 4.7A: Utility Sector Annual Employment Growth

	STATE	Total			Rural			Urban		
		1983-93	1993-05	2005-12	1983-93	1993-05	2005-12	1983-93	1993-05	2005-12
GRP 1	AP	11.2	-3.4	26.9	-4.3	19.3	11.4	27.1	-7.0	60.1
	GJ	7.4	-0.5	78.4	5.6	0.5	-10.7	8.8	-1.3	153.9
	HR	6.4	7.0	-2.9	6.2	7.5	-9.7	6.8	6.1	11.7
	KL	-1.3	0.1	10.9	-2.0	1.8	4.6	-0.1	-2.4	25.4
	KR	8.1	-3.4	12.9	25.4	-6.9	66.7	4.7	-1.8	5.3
	MH	0.6	-0.6	10.0	-2.1	-1.5	-4.0	2.8	-0.2	15.7
	PB	7.1	0.3	8.6	13.8	-1.5	6.3	0.7	4.0	11.3
	TN	0.8	-2.7	26.4	1.3	-4.9	57.1	0.4	-0.9	13.0
GRP 2	UP UK	2.9	-2.0	23.1	6.5	-1.1	17.1	1.2	-2.5	28.4
	WB	6.1	-1.6	8.4	-1.5	0.5	-1.9	11.4	-2.3	12.6
	BH JH	15.5	-4.6	7.6	15.2	-6.2	19.6	16.5	-0.4	-4.1
	MP CH	1.8	-2.5	9.7	13.5	-1.6	-1.1	-0.9	-3.0	17.6
	OR	29.1	-0.1	8.6	14.5	6.8	5.1	42.8	-3.1	12.6
	RJ	-1.6	4.9	1.7	-1.6	2.1	1.6	-1.6	6.5	1.7

Table 4.7B: Utility Sector Employment Elasticity with respect to Utilities' NSDP

	STATE	Total			Rural			Urban		
		1983-93	1993-05	2005-12	1983-93	1993-05	2005-12	1983-93	1993-05	2005-12
GRP 1	AP	0.8	-0.4	5.2	-0.3	2.2	2.2	2.0	-0.8	11.7
	GJ	0.4	-0.1	3.6	0.3	0.0	-0.5	0.4	-0.1	7.1
	HR	0.5	0.6	-0.2	0.5	0.6	-0.7	0.5	0.5	0.9
	KL	-0.1	0.0	6.9	-0.2	0.0	2.9	0.0	-0.1	16.2
	KR	0.9	-0.5	2.0	2.7	-1.0	10.2	0.5	-0.3	0.8
	MH	0.0	-0.1	0.8	-0.2	-0.3	-0.3	0.2	0.0	1.3
	PB	0.6	0.1	1.3	1.2	-0.3	1.0	0.1	0.8	1.7
	TN	0.1	-0.7	-3.0	0.1	-1.3	-6.4	0.0	-0.2	-1.5
GRP 2	UP UK	0.2	-0.6	3.8	0.5	-0.3	2.8	0.1	-0.8	4.7
	WB	0.4	-0.2	1.4	-0.1	0.1	-0.3	0.7	-0.2	2.1
	BH JH	1.7	-1.1	1.5	1.7	-1.5	3.9	1.8	-0.1	-0.8
	MP CH	0.1	-0.6	0.9	0.4	-0.4	-0.1	0.0	-0.8	1.6
	OR	3.2	0.0	9.2	1.6	1.2	5.5	4.7	-0.5	13.4
	RJ	0.0	0.4	-0.6	0.0	0.2	-0.5	0.0	0.6	-0.6

Source: Author's estimations using various NSS rounds

It is seen from Table 4.7A, that during 2004-05 to 2011-12, there has been high growth of employment in Utility sector. Overall, there seemed to be a higher employment growth in Group 1 states, while in Group 2 states, highest growth in employment in utilities sector was seen in Uttar Pradesh. The highest growth in 2004-05 to 2011-12 was seen in Gujarat (78.4 per cent), while least growth was seen in Haryana (-2.9). Overall, there was higher employment growth in Group 1 states and Group 2 states. Also, rural areas have a lower employment growth than urban employment growth in the utilities sector. As in case of Gujarat, even though the highest growth in utilities' employment was seen in Gujarat for the period 2004-05 to 2011-12, rural areas saw negative growth, while in urban areas Gujarat had a very significant growth. In urban areas the

difference between Group 1 states and Group 2 states was not very significant, but in rural areas there was a visibly stark difference between employment growth between Group 1 states and Group 2 states. Table 4.7B shows the utility sector's employment elasticity with respect to employment in utility sector of states and utility sector's net domestic product at 2004-05 base prices. There was significant decline in employment elasticity in the decade in the period immediately post-reforms (1993-94 to 2004-05) as compared to the pre-reform decade (1983 to 1993-94). In the second decade after reforms (2004-05 to 2011-12), there was significant improvement in the employment elasticity as compared to the 1993-94 to 2004-05 period. In the period 2004-05 to 2011-12, Haryana and Tamil Nadu in Group 1 and Rajasthan in Group 2 had negative overall employment elasticity in utilities sector. Highest overall employment elasticity for utilities sector was seen in Odisha (9.2), followed by Kerala (6.9) and Andhra Pradesh (5.2). In the rural sector, highest employment elasticity in the utility sector noted in the period 2004-05 to 2011-12 was in Karnataka (10.2). It is also seen that in 2004-05 to 2011-12, employment elasticity in rural areas was lower than urban areas. Gujarat, Haryana and Tamil Nadu from Group 1 and West Bengal, Madhya Pradesh and Rajasthan from Group 2 showed negative rural employment elasticity in the utilities sector. In urban areas, Andhra Pradesh, Kerala and Odisha had employment elasticity greater than 10, which was far greater than most of the other states. Even though utilities sectors employ only a marginal share of workforce, it still is an important sector as part of public service delivery, water supply gas and other utilities.

Construction Sector

Table 4.8A: Construction Sector Annual Employment Growth

	STATE	Total			Rural			Urban		
		1983-93	1993-05	2005-12	1983-93	1993-05	2005-12	1983-93	1993-05	2005-12
GRP 1	AP	6.7	6.9	9.4	5.9	10.6	8.3	7.5	3.4	11.3
	GJ	7.6	4.5	3.3	2.5	5.4	3.1	21.4	3.5	3.6
	HR	7.1	9.5	8.7	2.4	15.6	7.3	33	-0.3	14.7
	KL	10.1	11.2	7.7	9.9	13.4	8.3	10.5	6.5	6
	KR	-1.1	8.7	7.1	-2.5	7.6	12.1	0.5	9.5	3.9
	MH	3.5	8.2	5.1	1.2	4.3	10.1	7.1	12.1	2
	PB	7.1	18	9.1	6.2	22.2	10.3	9.3	9.4	5.6
	TN	8.8	5.7	9.1	7	12.5	10.3	10.3	0.8	7.1
GRP 2	UP UK	4.6	20.2	17.1	3.9	22.3	20.1	6.6	14.9	7.4
	WB	6.6	9.7	11.6	6.2	12.7	16.6	7.1	5.8	2.4
	BH JH	6	29.5	22.4	9.4	37.3	24.1	1.2	10.1	12.1
	MP CH	0.1	21.7	19.4	-0.8	39.2	21.7	1	8	14.7
	OR	4.6	21.8	12.7	4	25.7	14.7	6.5	11.3	3.6
	RJ	9	6.8	11.6	13.1	6.6	12.9	0.9	7.5	6.1

Table 4.8B Construction Sector Employment Elasticity with respect to Construction NSDP

	STATE	Total			Rural			Urban		
		1983-93	1993-05	2005-12	1983-93	1993-05	2005-12	1983-93	1993-05	2005-12
GRP 1	AP	1.4	0.6	0.9	1.2	0.9	0.8	1.6	0.3	1.1
	GJ	0.8	0.3	0.2	0.3	0.4	0.2	2.3	0.3	0.2
	HR	2.9	1.7	1.0	1.0	2.8	0.8	13.6	-0.1	1.7
	KL	1.0	1.0	0.7	1.0	1.2	0.8	1.0	0.6	0.6
	KR	-0.2	0.6	0.5	-0.5	0.5	0.9	0.1	0.6	0.3
	MH	0.8	1.2	0.3	0.3	0.7	0.6	1.7	1.8	0.1
	PB	3.5	1.3	0.9	3.0	1.6	1.0	4.5	0.7	0.6
	TN	0.7	0.5	0.6	0.6	1.0	0.6	0.8	0.1	0.4
GRP 2	UP UK	3.4	1.5	1.6	2.9	1.7	1.9	5.0	1.1	0.7
	WB	0.7	1.2	3.4	0.7	1.5	4.9	0.8	0.7	0.7
	BH JH	0.8	2.3	0.8	1.2	2.9	0.8	0.2	0.8	0.4
	MP CH	0.0	1.3	0.9	-0.3	2.3	0.9	0.3	0.5	0.6
	OR	1.0	24.4	1.1	0.9	28.8	1.3	1.4	12.6	0.3
	RJ	0.6	0.6	1.8	0.9	0.6	2.0	0.1	0.6	1.0

Source: Author's estimations using various NSS rounds

In Table4.8A it is seen that construction sector employment growth has been positive for all the states except for Karnataka during 1983 to 1993-94. It is also seen that during 1993-94 to 2004-05, growth of employment in construction was highest, while there was marginal decline in construction employment growth post 2004-05, but still very high as compared to other sectors. In both the time periods 1993-94 to 2004-05 and 2004-05 to 2011-12, annual growth rate of overall and rural employment in Group 2 states was more than 10 percent. Highest growth in overall employment was in Bihar-Jharkhand for 2004-05 to 2011-12, and in rural areas highest growth in employment was in Madhya Pradesh-Chhattisgarh, while in urban areas highest growth was seen in case of Haryana and Madhya Pradesh-Chhattisgarh. Slowest growth in construction sector during 2004-05 to 2011-12 in overall employment was seen in Gujarat (3.3 percent), for rural areas also in Gujarat (3.6 percent); and finally for urban areas, West Bengal showed lowest employment growth in construction. In table 4.8B, employment elasticity in construction sector for states is shown, as responsiveness of percentage change in employment in construction sector to percentage change in the construction sector state net domestic product at 2004-05 base prices. Highest overall employment elasticity in 2004-05 to 2011-12 in the construction sector was seen in West Bengal (3.4) while the least was in case of Gujarat (0.2). For many states, even though the percentage increase in workforce was very high, in case of employment elasticity with respect to State's construction sector domestic product, the percentage increase in construction sector NSDP outstripped the percentage increase in construction sector employment of the states. Employment elasticity in 1993-94 to 2004-05 was

marginally greater than the 1983 to 1993-94 period as well as 2004-05 to 2011-12 period. It is evident that given the fact that there has been tremendous shift of workforce to construction sector, still employment elasticity has marginally declined in 2004-05 to 2011-12 as compared to 1993-94 to 2004-05, on account of higher construction sector NSDP. Also, on account of greater number of persons in rural areas moving out from agriculture and started joining construction sector post NREGA, employment elasticity in rural areas is greater than urban areas in 2004-05 to 2011-12. Again highest employment elasticity for construction sector in rural areas was in West Bengal and in urban areas it was for Haryana (1.7) in Group 1 states and Rajasthan (1.0) in Group 2 states. In most of the states both for rural areas and urban areas, employment elasticity was less than 1, but remained a major contributor in the employment growth.

Trade, Hotels and Restaurants Sector (THR)

Table 4.9A: THR Sector Annual Employment Growth

	STATE	Total			Rural			Urban		
		1983-93	1993-05	2005-12	1983-93	1993-05	2005-12	1983-93	1993-05	2005-12
GRP 1	AP	2.9	5.5	0.7	2.9	5.9	-1.1	2.8	5.0	2.6
	GJ	2.9	8.3	4.1	3.1	10.3	0.7	2.8	7.5	6.0
	HR	3.3	7.9	-1.1	2.8	10.3	-2.3	3.8	6.1	0.0
	KL	3.9	6.5	1.9	2.2	6.9	1.4	8.4	5.5	2.9
	KR	1.8	8.4	2.7	2.3	4.9	2.9	1.5	10.8	2.7
	MH	4.8	7.3	1.4	4.7	7.8	-0.1	4.8	7.1	2.0
	PB	5.8	6.3	-0.9	5.1	7.0	-2.0	6.2	5.9	-0.1
	TN	2.3	3.2	2.6	0.9	2.7	1.0	3.2	3.5	3.6
GRP 2	UP UK	4.0	7.4	0.3	5.8	7.9	-0.4	2.7	6.9	1.1
	WB	4.1	6.0	-0.6	6.3	5.1	-2.3	1.9	7.3	1.4
	BH JH	1.6	7.8	3.9	2.6	8.7	3.3	0.1	6.2	5.1
	MP CH	3.2	10.5	0.9	2.2	17.3	-0.6	3.6	7.5	1.9
	OR	2.9	7.0	2.0	2.7	6.9	0.3	3.6	7.2	6.1
	RJ	3.4	9.5	0.4	4.3	10.9	2.1	2.9	8.5	-0.9

Table 4.9B: THR Sector Employment Elasticity with respect to THR NSDP

	STATE	Total			Rural			Urban		
		1983-93	1993-05	2005-12	1983-93	1993-05	2005-12	1983-93	1993-05	2005-12
GRP 1	AP	0.2	0.7	0.1	0.2	0.8	-0.1	0.2	0.6	0.2
	GJ	0.5	0.6	0.2	0.6	0.7	0.0	0.5	0.5	0.3
	HR	0.3	0.4	-0.1	0.3	0.5	-0.1	0.4	0.3	0.0
	KL	0.8	0.6	0.3	0.4	0.6	0.2	1.7	0.5	0.4
	KR	0.2	0.5	0.3	0.2	0.3	0.3	0.1	0.7	0.3
	MH	0.5	0.6	0.1	0.5	0.6	0.0	0.5	0.6	0.2
	PB	1.9	1.2	-0.1	1.6	1.3	-0.3	2.0	1.1	0.0
	TN	0.2	0.2	0.2	0.1	0.2	0.1	0.4	0.2	0.3
GRP 2	UP UK	0.8	2.0	0.0	1.1	2.2	0.0	0.5	1.9	0.1
	WB	0.6	0.4	-0.1	1.0	0.3	-0.3	0.3	0.5	0.2
	BH JH	0.3	1.9	0.3	0.6	2.1	0.3	0.0	1.5	0.4
	MP CH	0.4	2.5	0.1	0.3	4.1	-0.1	0.5	1.8	0.2
	OR	0.4	0.9	0.1	0.4	0.8	0.0	0.5	0.9	0.4
	RJ	0.3	1.0	0.0	0.3	1.1	0.2	0.2	0.9	-0.1

In Table 4.9A, it is shown that employment growth that picked up during 1993-94 to 2004-05 period, over 1983 to 1993-94 has decreased for all of the states. Overall Employment growth in 2004-05 to 2011-12 was moderate at best, the maximum being in case of Gujarat in Group 1 which was just over 4 percent, while in Group 2 Bihar-Jharkhand had the highest employment growth of nearly 4 percent. At the same time, Haryana, Punjab and West Bengal had a negative overall employment growth in THR sector. In rural areas however the growth in employment was negative for Andhra Pradesh, Haryana, Maharashtra, Punjab, Uttar Pradesh-Uttarakhand, West Bengal and Madhya Pradesh-Chhattisgarh. In urban areas, Gujarat and Odisha had the highest employment growth for 2004-05 to 2011-12. Also, for all the states, urban employment growth during 1993-94 to 2004-05 was at high level but it came down significantly during 2004-05 to 2011-12, even turning negative for Punjab and Rajasthan. Above all the situation of employment growth remained grim during 2004-05 to 2011-12.

In the case of trade, hotels and restaurants sector, it is again evident that employment elasticity (Table 4.9B) declined in 2004-05 to 2011-12 as compared to 1993-94 to 2004-05 period, for overall and rural and urban areas. Overall employment elasticity in THR in 2004-05 to 2011-12 turned negative in case of Punjab, Haryana and West Bengal. Trade forms the crux of service industry and in many cases trade represents the barometer of the economy. It is this sector that should also be leading the services sector in employment creation, but the highest overall elasticity in 2004-05 to 2011-12 that was observed in THR was just 0.3, in case of Kerala, Karnataka and Bihar. So as compared to increase in sectoral s NSDP in THR, employment growth was lagging behind substantially. In rural areas, employment elasticity in 2004-05 to 2011-12 was negative for Andhra Pradesh, Haryana, Punjab and Madhya Pradesh-Chhattisgarh, while zero in Gujarat and Maharashtra from Group 1 and Uttar Pradesh and Odisha from group 2. Again the highest elasticity in rural areas was just 0.3. In urban areas employment elasticity was just a notch better at 0.4 seen in state of Kerala, Bihar and Odisha. Also, only Rajasthan had a marginal negative elasticity of -0.1 for urban areas, while in Punjab and Haryana elasticity was zero. Thus it is evident that THR sector even in the urban areas had declining employment elasticity.

Transport, Storage and Communications (TSC)

Table 4.10A: TSC Annual Employment Growth

	STATE	Total			Rural			Urban		
		1983-93	1993-05	2005-12	1983-93	1993-05	2005-12	1983-93	1993-05	2005-12
GRP 1	AP	1.3	9.7	5.9	0.9	17.2	4.4	1.5	6.2	7.0
	GJ	2.4	7.0	1.4	6.6	14.2	-0.4	1.1	3.4	3.1
	HR	5.9	4.5	2.3	5.1	6.1	-2.4	7.2	2.5	10.9
	KL	2.8	9.5	2.7	2.4	12.1	2.6	3.4	5.1	3.1
	KR	-0.5	13.5	9.3	3.0	22.3	5.6	-1.4	10.1	11.7
	MH	3.4	7.3	4.7	6.7	14.5	-2.1	2.7	5.3	7.9
	PB	-0.3	8.3	2.3	0.4	7.5	0.3	-1.1	9.4	4.6
	TN	4.3	3.0	6.1	9.8	2.5	6.0	2.1	3.4	6.3
GRP 2	UP UK	2.5	7.2	0.1	3.3	6.9	4.1	1.6	7.5	-4.0
	WB	3.1	6.6	0.6	6.3	5.4	0.9	0.8	8.2	0.4
	BH JH	1.0	10.5	3.0	2.2	18.4	2.0	-0.2	1.8	6.0
	MP CH	5.3	3.3	4.9	12.9	9.0	7.1	4.0	1.6	3.7
	OR	7.4	8.4	4.6	7.3	21.2	1.3	7.5	0.3	11.4
	RJ	4.0	6.3	2.7	5.7	14.4	3.0	3.2	1.3	2.1

Table 4.10B: TSC Employment Elasticity with respect to TSC NSDP

	STATE	Total			Rural			Urban		
		1983-93	1993-05	2005-12	1983-93	1993-05	2005-12	1983-93	1993-05	2005-12
GRP 1	AP	0.2	0.5	0.3	0.1	0.9	0.2	0.2	0.3	0.3
	GJ	0.3	0.3	0.1	0.9	0.7	0.0	0.1	0.2	0.2
	HR	0.6	0.2	0.2	0.5	0.3	-0.2	0.7	0.1	0.8
	KL	0.2	0.3	0.1	0.2	0.4	0.1	0.3	0.2	0.1
	KR	0.0	0.5	0.7	0.3	0.8	0.4	-0.1	0.4	0.8
	MH	0.4	0.3	0.2	0.8	0.7	-0.1	0.3	0.2	0.4
	PB	0.0	0.3	0.2	0.0	0.3	0.0	-0.1	0.4	0.4
	TN	0.4	0.2	0.3	1.0	0.2	0.3	0.2	0.2	0.4
GRP 2	UP UK	0.4	0.5	0.0	0.5	0.5	0.3	0.2	0.5	-0.3
	WB	0.3	0.5	0.0	0.6	0.4	0.1	0.1	0.6	0.0
	BH JH	0.2	0.4	0.1	0.5	0.6	0.1	0.0	0.1	0.3
	MP CH	0.6	0.2	0.3	1.5	0.7	0.4	0.5	0.1	0.2
	OR	0.6	0.5	0.3	0.6	1.2	0.1	0.6	0.0	0.7
	RJ	0.4	0.4	0.1	0.6	0.8	0.2	0.3	0.1	0.1

Source: Author's estimations using various NSS rounds

As seen in Table 4.10A, there is a positive employment growth in TSC for states, except rural areas during 2004-05 to 2011-12. In TSC sector also, employment growth rate in 2004-05 to 2011-12 was less than 1993-94 to 2004-05 period. For many states difference in 1993-94 to 2004-05 growth rate and 2004-05 to 2011-12 growth rates was indeed very stark. In the Group 1 states, Karnataka had the highest overall employment growth, while Gujarat showed the least employment growth. In 2004-05 to 2011-12 among Group 2 states, Uttar Pradesh had just 0.1 percent increase and West Bengal showed just 0.6 percent employment growth. In rural areas of Gujarat, Haryana and Maharashtra, negative growth was recorded, while other states also showed a negligible growth. In urban areas, only Uttar Pradesh-Uttarakhand had a negative

employment growth in TSC, while Haryana, Karnataka and Odisha had higher growth rate of over 10 percent. There were high interstate differences especially in urban areas, with Group 2 states except Odisha recording below average employment growth.

In Table 4.10B showing employment elasticity in Transport, Storage and Communications sector, most of the states in the 2004-05 to 2011-12 period recorded employment elasticity as lesser than the 1993-94 to 2004-05 level. In group 1 states, Karnataka was having highest overall employment elasticity of 0.7 while in Group 2 states, highest overall elasticity was in Madhya Pradesh-Chhattisgarh (0.3) and Odisha (0.3) for the period 2004-05 to 2011-12. Also, in Group 2 states, for the time period 2004-05 to 2011-12, Uttar Pradesh-Uttarakhand and West Bengal had zero overall employment elasticity. In rural areas, Haryana and Maharashtra had a negative employment elasticity in TSC, while the maximum elasticity for rural areas was just 0.4. In rural areas there was decline in employment elasticity for most of the states while for urban areas there was increase in employment elasticity in 2004-05 to 2011-12 over 1993-94 to 2004-05. In Group 1 states, for the period 2004-05 to 2011-12, urban employment elasticity was higher for Group 1 states, with highest being in Karnataka (0.8) and Haryana (0.8) from Group 1, followed by Odisha (0.7) from Group 2, while only Uttar Pradesh-Uttarakhand showed a negative employment elasticity.

Financial Real Estate and Business Services (FBR)

Table 4.11A: FRB Sector Annul Employment Growth

	STATE	Total			Rural			Urban		
		1983-93	1993-05	2005-12	1983-93	1993-05	2005-12	1983-93	1993-05	2005-12
GRP 1	AP	8.4	6.3	16.0	15.5	8.5	6.3	6.8	5.5	20.1
	GJ	2.7	5.8	14.3	15.7	1.2	-0.9	0.3	8.0	18.4
	HR	-0.3	16.4	12.0	0.9	42.3	0.6	-0.6	8.8	21.6
	KL	2.7	14.4	4.0	0.7	18.1	2.4	6.2	10.0	6.7
	KR	0.8	5.4	19.7	-2.5	2.6	38.4	1.8	5.9	17.0
	MH	10.6	6.8	10.3	16.8	4.4	10.0	9.7	7.3	10.4
	PB	0.3	11.5	8.4	6.5	12.9	7.6	-1.1	11.0	8.9
	TN	7.1	5.1	8.0	12.9	-1.9	10.7	4.6	9.7	7.3
GRP 2	UP UK	6.5	5.9	7.3	10.7	14.3	6.4	5.6	3.5	7.7
	WB	4.1	8.5	6.4	5.5	13.8	1.9	3.7	6.5	8.9
	BH JH	6.1	13.5	14.7	9.1	14.5	8.6	4.9	13.1	18.4
	MP CH	5.0	6.5	9.9	-0.8	26.5	13.7	6.3	4.2	8.6
	OR	-4.0	27.0	2.3	-7.5	59.8	5.9	-0.9	19.2	0.1
	RJ	19.6	9.8	6.9	31.8	10.2	20.6	17.8	9.7	3.9

Table 4.11B: FRB Sector Employment Elasticity with respect to FBR NSDP

	STATE	Total			Rural			Urban		
		1983-93	1993-05	2005-12	1983-93	1993-05	2005-12	1983-93	1993-05	2005-12
GRP 1	AP	0.8	0.5	1.5	1.5	0.7	0.6	0.6	0.4	1.9
	GJ	0.2	0.7	1.1	1.0	0.1	-0.1	0.0	1.0	1.5
	HR	0.0	1.3	0.7	0.1	3.3	0.0	-0.1	0.7	1.2
	KL	0.2	1.2	0.3	0.1	1.5	0.2	0.6	0.8	0.5
	KR	0.1	0.3	1.3	-0.3	0.1	2.5	0.2	0.3	1.1
	MH	0.5	1.0	0.6	0.7	0.7	0.6	0.4	1.1	0.6
	PB	0.0	1.2	0.5	1.0	1.4	0.4	-0.2	1.2	0.5
	TN	0.5	0.4	0.4	0.9	-0.2	0.5	0.3	0.8	0.4
GRP 2	UP UK	0.8	0.8	0.4	1.3	1.9	0.4	0.7	0.5	0.5
	WB	0.6	0.3	0.4	0.9	0.5	0.1	0.6	0.2	0.6
	BH JH	1.5	1.1	0.8	2.2	1.1	0.5	1.2	1.0	1.0
	MP CH	0.6	0.7	0.6	-0.1	3.0	0.9	0.7	0.5	0.6
	OR	-0.6	2.8	0.2	-1.1	6.2	0.4	-0.1	2.0	0.0
	RJ	2.1	1.0	0.5	3.4	1.0	1.5	1.9	0.9	0.3

Source: Author's estimations using various NSS rounds

FRB is one of the key sectors in the service sector that has been gradually increasing over time for most of the states, and is bound to increase over time with economic growth. In table 4.11A, Group 1 states having high per capita income have a high level of overall employment growth in FRB. However, within Group 2 states, only Bihar had high employment growth in FRB sector in the 2004-05 to 2011-12 period. High percentage growth of employment in FRB sector in Group 2 states is essentially due to the fact that these states have low number of workers in this sector, so eventually any change would entail high employment growth. Also, the distribution of employment growth has been largely uneven in both rural and urban areas, as also uneven distribution of employment growth within each group of states. In rural areas while Karnataka had the highest employment growth in FRB during 2004-05 to 2011-12, its growth during 1993-94 to 2004-05 was only 2.6 percent, while Haryana had the highest growth in FRB sector during 1993-94 to 2004-05, its growth rate in 2004-05 to 2011-12 was just 0.6 percent. So, even the high employment growth in the decade immediately after reform was not sustained during the 2004-05 to 2011-12 phase especially in rural areas. Most of these services are mostly concentrated in urban areas, its growth has been high for most of the sates but states like Odisha had only 0.1 percent growth, while for Rajasthan employment growth in FRB was below 4 percent. In table 4.11B, employment elasticity in Financial Sector, Real Estate and Business services is shown. The overall employment elasticity in the period 1983 to 1993-94 was less than 1 for all states in Group 1, but increased to more than 1 in the 1993-94 to 2004-05 period for Haryana, Punjab, Kerala and Maharashtra. In Group 2 states, Rajasthan (2.1) and Bihar (1.5) had

highest overall elasticity for the period 1983 to 1993-94, which declined to 0.5 for Rajasthan and 0.8 for Bihar in 2004-05 to 2011-12. For states in Group 2, there has been a decline in overall employment elasticity for the period 2004-05 to 2011-12. In rural areas, there has been negative employment elasticity in Gujarat, while the highest employment elasticity in the 2004-05 to 2011-12 period was in Karnataka. For Group 2 states, highest rural employment elasticity in FRB was seen in Rajasthan. In urban areas, the highest employment elasticity for the period 2004-05 to 2011-12 was seen in Andhra Pradesh (1.9), along with Gujarat (1.5) and Haryana (1.2). In Group 2 states, highest employment elasticity in urban areas for the period 2004-05 to 2011-12 was seen in case of Bihar.

Community Social and Personal Services (CSP)

Table 4.12A: CSP Sector Annual Employment Growth

	STATE	Total			Rural			Urban		
		1983-93	1993-05	2005-12	1983-93	1993-05	2005-12	1983-93	1993-05	2005-12
GRP 1	AP	2.8	0.5	2.1	2.3	0.6	-2.3	3.4	0.4	7.1
	GJ	1.7	-0.9	1.9	3.4	0.9	-0.3	1.0	-1.8	3.4
	HR	-0.2	-1.4	3.1	-1.1	-1.7	0.7	1.1	-0.9	5.8
	KL	1.7	2.8	1.9	0.1	4.2	0.6	5.7	0.6	4.7
	KR	4.5	-0.1	3.7	10.9	-1.2	4.1	1.7	0.8	3.4
	MH	5.4	0.8	4.0	5.5	-0.5	1.0	5.3	1.5	5.2
	PB	4.7	0.3	5.0	7.1	-0.8	5.0	3.0	1.3	5.0
	TN	2.9	-1.6	2.0	2.6	-2.8	2.9	3.2	-0.7	1.4
GRP 2	UP UK	2.5	-0.7	2.3	2.7	-0.5	1.1	2.2	-1.0	3.8
	WB	2.3	0.2	2.0	3.7	-1.2	3.9	1.1	1.6	0.8
	BH JH	1.6	-0.7	6.6	1.1	-0.1	7.6	2.6	-1.9	4.8
	MP CH	4.0	1.5	1.1	1.8	4.7	0.6	5.3	-0.1	1.6
	OR	0.5	0.1	2.1	0.1	0.8	1.7	1.2	-0.9	2.7
	RJ	4.3	1.8	0.6	6.6	2.7	1.6	2.8	1.0	-0.5

Table 4.12B: CSP Sector Employment Elasticity with respect to CSP NSDP

	STATE	Total			Rural			Urban		
		1983-93	1993-05	2005-12	1983-93	1993-05	2005-12	1983-93	1993-05	2005-12
GRP 1	AP	0.3	0.1	0.3	0.2	0.1	-0.3	0.2	0.1	-0.3
	GJ	0.2	-0.1	0.2	0.5	0.1	0.0	0.5	0.1	0.0
	HR	0.0	-0.2	0.2	-0.2	-0.2	0.0	-0.2	-0.2	0.0
	KL	0.3	0.3	0.2	0.0	0.5	0.0	0.0	0.5	0.0
	KR	0.5	0.0	0.4	1.2	-0.1	0.5	1.2	-0.1	0.5
	MH	0.5	0.1	0.5	0.5	0.0	0.1	0.5	0.0	0.1
	PB	0.8	0.0	0.5	1.2	-0.1	0.4	1.2	-0.1	0.4
	TN	0.4	0.0	0.2	0.3	-0.1	0.2	0.3	-0.1	0.2
GRP 2	UP UK	0.3	-0.1	0.2	0.3	-0.1	0.1	0.3	-0.1	0.1
	WB	0.4	0.0	0.2	0.7	-0.2	0.3	0.7	-0.2	0.3
	BH JH	0.2	-0.1	0.8	0.1	0.0	0.8	0.1	0.0	0.8
	MP CH	0.5	0.2	0.1	0.2	0.7	0.1	0.2	0.7	0.1
	OR	0.1	0.0	0.3	0.0	0.1	0.2	0.0	0.1	0.2
	RJ	0.4	0.1	0.1	0.6	0.2	0.2	0.6	0.2	0.2

Source: Author's estimations using various NSS rounds

In table 4.12A showing employment growth in CSP, it is seen that apart from Andhra Pradesh and Gujarat where there was negative employment growth in rural areas, and Rajasthan where there was marginal negative employment growth in urban areas; there was no other state where there was decline in employment growth either overall or in rural or urban areas in CSP. CSP remains the residual sector where most of the employment especially for women is generated. Also as the life cycle advances, workers tend to move towards CSP sector. This particular growth feature is seen in the 2004-05 to 2011-12 phase, as during the 1993-94 to 2004-05 phase there were many states that had negative employment growth, indicating that earlier, workers were moving out from CSP rather than joining it. Most of the growth in CSP is seen in the urban areas as expected, the highest being in Andhra Pradesh with more than 7 percent annual employment growth. Urban areas provide more opportunities for self-employment as well as casual and regular wage employment in CSP sector. In Group 2 states, it is worthwhile to note that Bihar shows highest growth in employment both overall and in rural and urban areas, but growth in rural areas being higher than in urban areas.

In table 4.12B, it is evident that overall employment elasticity in CSP for the period 2004-05 to 2011-12 remains moderate at best, while there were no states showing negative overall employment elasticity. The highest overall employment elasticity was for Maharashtra (0.5) from Group 1 and Bihar (0.8) from Group 2. In rural areas however employment elasticity for 2004-05 to 2011-12 remained subdued, with Gujarat, Kerala and Haryana having zero employment elasticity and Andhra Pradesh reporting negative employment elasticity. It is also to be noted that there was a significant number of states that had negative employment elasticity for both rural and urban areas in the period 1993-94 to 2004-05 from Group 1 as well as Group 2 states. In the 2004-05 to 2011-12 period urban areas too had a similar trend of moderate employment elasticity, which means that a higher economic growth entailed only moderate increases even in employment in the CSP sector. There has been a significant increase in employment in CSP sector and in some sense it remains a residual sector for employment. The moderate employment elasticity presented above is a challenge for CSP sector; even though there has been significant increase in annual employment growth in CSP in the 2004-05 to 2011-12 period as compared to 1993-94 to 2004-05 period, employment elasticity should have been higher to counter jobless growth in the economy.

4.2 Structural Change: Employment and GDP

The following section looks at employment shares in conjunction with respective GDP shares for the major economic sectors in order to understand the situation of 'structural change' across the major Indian states since the 1980s.

Table 4.13: Employment Share and GDP Share: Agriculture

	STATE	Employment Share				GDP Share			
		1983	1993-94	2004-05	2011-12	1983	1993-94	2004-05	2011-12
GRP 1	AP	11	12	10	11	8	7	8	8
	GJ	5	5	6	6	7	5	6	8
	HR	2	1	1	2	4	4	4	4
	KL	2	2	2	1	5	6	4	3
	KR	6	7	7	7	6	7	6	6
	MH	11	10	11	11	9	11	9	9
	PB	2	2	1	1	5	6	6	5
	TN	7	8	6	6	5	6	5	5
GRP 2	UP UK	15	16	15	15	16	16	16	15
	WB	6	6	6	7	7	8	10	8
	BH JH	10	10	10	11	8	6	7	7
	MP CHT	11	11	12	12	9	9	8	9
	OR	5	5	4	4	5	4	4	3
	RJ	7	6	6	6	6	5	6	7
		100	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: Author's estimations using various NSS rounds and EPWRF

As Table 4.13 shows, there is indeed much disparity in the level of employment and level of GDP. Agriculturally developed states such as Punjab, where only 1 percent of agricultural workforce of major states is employed account for 5 percent of agricultural sector GDP in 2011-12. In the states from Group 2 that are primarily depended on agriculture, most of the states have higher percentage of workers in agriculture but their share in GDP is lesser than employment share. Bihar-Jharkhand employed 10 percent of agricultural workforce, but accounted for only 7 percent of agricultural sector GDP. Uttar Pradesh employed the highest percentage of agricultural sector workers (15 percent) and also accounted for 15 percent of agricultural sector GDP (but declining gradually) in 2011-12.

Table 4.14: Mining sector Employment Distribution and GDP Distribution

	STATE	Employment Share				GDP Share			
		1983	1993-94	2004-05	2011-12	1983	1993-94	2004-05	2011-12
GRP 1	AP	11	14	20	16	3	3	4	6
	GJ	1	4	6	6	21	21	14	10
	HR	2	1	0	0	0	0	0	0
	KL	6	5	6	3	0	1	1	1
	KR	6	10	4	4	4	3	4	2
	MH	4	6	8	3	7	6	7	6
	PB	0	0	0	0	0	0	0	0
	TN	7	4	4	8	3	4	3	3
GRP 2	UP UK	1	3	5	15	5	5	6	4
	WB	7	7	6	7	11	7	6	4
	BH JH	19	9	9	11	18	18	14	18
	MP CHT	25	17	14	12	21	20	22	22
	OR	6	7	5	3	4	7	12	12
	RJ	5	13	12	12	4	4	6	13
		100	100	100	100	100	100	100	100

Source: Author's estimations using various NSS rounds and EPWRF

There is evident imbalance between the employment distribution of mining sector and GDP distribution of mining sector (Table 4.14). In 2011-12, Andhra Pradesh employed 16 percent of mining workforce but had a share of only 6 percent of mining GDP. Tamil Nadu employed 8 percent of mining workforce but had only 3 percent of mining sector GDP. In 2011-12, out of the Group 2 states, Bihar-Jharkhand employed 11 percent of mining sector workforce accounting for 18 percent of GDP. Odisha employed only 3 percent of workforce of mining sector but had 12 percent share in mining sector GDP. Mining sector has the potential to generate high level of employment if a robust policy is formulated for this purpose in the mineral endowed states also considering the environmental concerns and interests of the local population, that are primarily depended on primary sector for livelihoods. There can be a turnaround for this sector and it is required especially in the low per capita income states that also have a bounty of mineral wealth.

In Table 4.15, it is evidently clear that, Group 1 states' contribution in manufacturing sector GDP outweighs share of manufacturing sector employment. In the period 2004-05 to 2011-12 Gujarat had 10 percent share in employment of manufacturing sector, but had 15 percent share in manufacturing sector GDP, while Maharashtra had 11 percent of employment in manufacturing sector but had 21 percent share in Manufacturing sector GDP. Whereas, Uttar Pradesh and West Bengal in Group 2 states had 16 percent and 13 percent share in manufacturing sector employment, but had only 10 percent and 5 percent share in manufacturing sector GDP respectively. From 1983 to 2011-12, states like Bihar saw manufacturing sector's employment

decline from 6 percent to 4 percent, Odisha from 4 percent to 3 percent and for Madhya Pradesh-Chhattisgarh from 6 percent to 5 percent. These states already had low levels of industrialization, and after three decades, instead of convergence of states there is an evident divergence of manufacturing sector employment level.

Table 4.15: Manufacturing Sector Employment Share and GDP Share

	STATE	Employment Share				GDP Share			
		1983	1993-94	2004-05	2011-12	1983	1993-94	2004-05	2011-12
GRP 1	AP	10	9	9	8	3	4	4	4
	GJ	7	8	8	10	10	10	14	15
	HR	2	2	3	2	3	4	5	5
	KL	4	4	4	3	4	3	2	2
	KR	6	6	5	6	6	6	7	7
	MH	11	11	11	11	20	23	21	21
	PB	2	2	3	3	3	4	4	4
	TN	14	15	12	12	15	13	11	12
GRP 2	UP UK	14	14	16	16	9	10	9	10
	WB	11	13	10	13	7	6	6	5
	BH JH	6	4	5	4	8	6	6	3
	MP CHT	6	5	6	5	6	6	6	5
	OR	4	3	4	3	2	2	2	3
	RJ	4	4	5	4	4	3	4	5
		100	100	100	100	100	100	100	100

Source: Author's estimations using various NSS rounds and EPWRF

Table 4.16: Utilities Sector Employment Share and GDP Share

	STATE	Employment Share				GDP Share			
		1983	1993-94	2004-05	2011-12	1983	1993-94	2004-05	2011-12
GRP 1	AP	4	7	5	7	6	5	6	5
	GJ	4	5	5	17	7	8	11	18
	HR	2	3	6	2	2	2	3	4
	KL	5	3	3	3	2	1	4	3
	KR	6	8	6	5	9	7	7	7
	MH	15	12	13	11	16	15	14	18
	PB	7	8	10	8	7	6	5	5
	TN	11	9	7	10	10	10	8	2
GRP 2	UP UK	13	13	11	14	10	9	7	7
	WB	5	6	6	5	6	6	7	7
	BH JH	4	7	4	3	6	4	4	3
	MP CHT	10	9	7	6	7	12	10	12
	OR	1	4	4	3	8	6	6	4
	RJ	11	7	12	7	3	7	9	5
		100	100	100	100	100	100	100	100

Source: Author's estimations using various NSS rounds and EPWRF

In utilities sector (Table 4.16) most of the employment is concentrated in just a few states; Gujarat, Maharashtra, Tamil Nadu, and Uttar Pradesh, all had more than 10 percent share in the employment. Also, Gujarat, Maharashtra and Madhya Pradesh accounted for nearly 50 percent

of the utilities sector GDP of major states. It is to note that although Uttar Pradesh account for 14 percent of utilities sector employment share, its share in utilities sector GDP was just 7 percent, while in Madhya Pradesh, utilities employment share is 6 percent but utilities sector GDP share was 12 percent.

Table 4.17: Construction Sector Employment Share and GDP Share

	STATE	Employment Share				GDP Share			
		1983	1993-94	2004-05	2011-12	1983	1993-94	2004-05	2011-12
GRP 1	AP	9	10	8	7	4	4	4	4
	GJ	5	6	4	3	5	6	7	8
	HR	3	4	3	3	8	6	5	4
	KL	5	6	6	5	6	7	7	7
	KR	9	5	4	4	6	6	7	7
	MH	13	11	10	7	18	17	13	15
	PB	3	3	4	3	3	3	3	3
	TN	9	11	8	7	6	9	10	11
GRP 2	UP UK	13	12	17	20	14	10	12	10
	WB	6	7	6	6	7	8	8	5
	BH JH	4	4	8	11	4	4	5	7
	MP CHT	7	5	7	9	6	5	7	9
	OR	3	3	5	5	9	8	4	4
	RJ	11	14	11	10	5	7	8	6
		100	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: Author's estimations using various NSS rounds and EPWRF

Again, in the construction sector (Table 4.17), there is distinct disparity in share of employment of construction sector and share of construction sector GDP, among Group 1 and Group 2 states. Differences between these states increased during the post-reform period. Also, the percentage share of Group 1 in construction sector employment kept decreasing and Group 2 states' share in construction sector increased in the post-reform period. In Uttar Pradesh, share of construction sector employment was only 13 percent in 1983, but it increased to 20 percent by 2011-12 while its share in construction sector GDP was only 10 percent. Also, in Bihar, the share of construction sector employment was just 4 percent which increased to 11 percent by 2011-12. For Bihar and Rajasthan whose share in employment 11 percent and 10 percent, their share of construction sector GDP was only 7 percent and 6 percent respectively.

As seen in Table 4.18, the states with highest THR Employment share in 2012 among major states was Uttar Pradesh (15 percent), Maharashtra (12 per cent), Andhra Pradesh, Tamil Nadu, West Bengal and Bihar, each having 9 percent share. One of the important observations is that there has not been any significant change in the distribution of THR workers among major states

as compared to pre and post reform period. Even during 2004-05 and 2011-12, there has not been any significant change in employment distribution and GDP distribution among states. Apart from Uttar Pradesh and Maharashtra, other states' disparity between employment share and GDP share is not very different. Uttar Pradesh had 15 percent of THR workforce in 1983 and accounted for 17 percent of THR GDP, in 2011-12 its employment share was still 15 percent but its THR GDP share came down to 10 percent. While Maharashtra in 1983 had 10 percent of THR workforce contributing 14 percent of THR GDP, in 2011-12 it had 14 percent of THR workforce, but its share in THR GDP increased to 17 percent.

Table 4.18: THR Sector Employment Share and GDP Share

	STATE	Employment Share				GDP Share			
		1983	1993-94	2004-05	2011-12	1983	1993-94	2004-05	2011-12
GRP 1	AP	11	11	10	9	4	6	5	5
	GJ	5	5	6	7	8	7	9	11
	HR	2	2	3	2	2	3	4	6
	KL	4	4	4	4	7	6	6	5
	KR	6	6	6	7	4	5	6	6
	MH	10	12	12	12	14	16	18	17
	PB	3	3	3	3	5	4	3	3
	TN	12	11	8	9	7	8	10	11
GRP 2	UP UK	15	15	16	15	17	15	10	10
	WB	10	11	10	9	7	7	9	8
	BH JH	8	7	7	9	10	9	6	6
	MP CHT	6	6	7	7	7	7	5	5
	OR	4	3	3	4	3	2	2	3
	RJ	4	4	5	4	3	5	5	5
		100	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: Author's estimations using various NSS rounds and EPWRF

Table 4.19: TSC Sector Employment Share and GDP Share

	STATE	Employment Share				GDP Share			
		1983	1993-94	2004-05	2011-12	1983	1993-94	2004-05	2011-12
GRP 1	AP	11	9	11	12	6	6	6	6
	GJ	6	6	6	5	8	7	8	8
	HR	3	3	3	3	3	4	4	4
	KL	5	5	6	6	4	4	6	8
	KR	6	4	6	8	4	5	6	6
	MH	13	13	14	15	16	16	18	19
	PB	4	3	3	3	3	3	3	3
	TN	11	12	9	10	11	12	11	11
GRP 2	UP UK	14	14	14	11	16	14	12	11
	WB	11	11	11	9	12	13	10	8
	BH JH	6	5	6	6	4	3	4	5
	MP CHT	5	6	5	5	6	6	5	5
	OR	2	3	3	3	3	3	3	3
	RJ	4	5	5	4	4	4	4	4
		100	100	100	100	100	100	100	100

Source: Author's estimations using various NSS rounds and EPWRF

TSC is also one of the emerging service sectors (Table 4.19), but concentrated in few states. In 2011-12 only Andhra Pradesh, Maharashtra, Uttar Pradesh and Tamil Nadu had more than 10 percent of TSC workforce. The distribution of employment share among states and GDP share is distributed at almost same proportion except for few states. In 2011-12, Andhra Pradesh had 12 percent of TSC workforce, but accounted for only 6 percent of TSC GDP, while Maharashtra had 15 percent of TSC workforce and account for nearly one-fifth of the TSC GDP. Overall there is not much imbalance between levels of employment-GDP share distribution for states especially for group 2 states. Also there has not been any significant change in the distribution of share of TSC workforce across states since 1983 for most of the states. TSC consists of communications sector, which is a highly productive sector.

Table 4.20: FRB Sector Employment Share and GDP Share

	STATE	Employment Share				GDP Share			
		1983	1993-94	2004-05	2011-12	1983	1993-94	2004-05	2011-12
GRP 1	AP	7	8	8	9	5	5	5	4
	GJ	6	5	4	5	7	7	7	6
	HR	2	2	2	3	3	3	3	3
	KL	6	5	7	5	5	5	5	5
	KR	11	7	6	9	7	6	9	8
	MH	15	20	19	20	23	34	27	28
	PB	4	3	3	3	4	3	3	3
	TN	13	14	12	11	9	9	10	12
GRP 2	UP UK	11	12	11	10	14	11	10	10
	WB	11	10	10	9	5	4	8	7
	BH JH	3	3	4	5	4	2	3	3
	MP CHT	5	5	5	5	6	5	5	5
	OR	3	1	3	2	3	2	2	2
	RJ	2	5	5	5	5	4	4	4
		100	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: Author's estimations using various NSS rounds and EPWRF

It is important to note that there is high level of unevenness of distribution of FRB workforce across states (Table 4.20). Maharashtra accounted for 15 percent of the FRB workforce in 1983; its share in post-reform period has been at 20 percent, with Tamil Nadu's share also being just over 10 percent in 2011-12. Other states from Group 2 that have a significant share of FRB workforce are Uttar Pradesh and West Bengal. Although most other states such as Bihar-Jharkhand, Madhya Pradesh-Chhattisgarh, Odisha and Rajasthan had 5 percent or less share of FRB workforce, but also other high per capita income states such as Punjab, Haryana, Gujarat and Kerala also had employment share in FRB of 5 percent or less. GDP share is skewed towards Maharashtra, which account for 28 percent of its FRB sector GDP, while Tamil Nadu was 12

percent, followed by Uttar Pradesh at 10 percent. For other states as their share in workforce was marginal so was their share in FRB GDP.

Table 4.21: CSP Sector Employment Share and GDP Share

	STATE	Employment Share				GDP Share			
		1983	1993-94	2004-05	2011-12	1983	1993-94	2004-05	2011-12
GRP 1	AP	10	10	11	10	5	6	6	5
	GJ	6	6	5	5	5	5	5	5
	HR	4	3	3	3	3	3	2	3
	KL	4	4	5	5	6	5	5	6
	KR	5	6	6	6	6	6	6	6
	MH	10	12	13	14	11	13	15	14
	PB	3	3	3	4	6	5	4	5
	TN	10	10	8	8	4	4	9	10
GRP 2	UP UK	15	15	14	13	14	14	13	13
	WB	10	10	10	9	15	13	11	12
	BH JH	7	6	5	7	8	8	7	7
	MP CHT	7	7	8	7	8	8	7	7
	OR	4	3	3	3	4	4	4	3
	RJ	4	5	6	5	4	5	5	5
		100	100	100	100	100	100	100	100

Source: Author's estimations using various NSS rounds and EPWRF

In the above table 4.21, employment share of CSP as can be seen, has not changed significantly across states. It is clear that across Group 2 states, the percentage share of CSP workforce did not change significantly. The distribution remained more or less similar to the pre-reform period. Maharashtra had some increase in the percentage of workforce in CSP from 10 percent in 1983 to 14 percent in 2011-12 while share of CSP GDP was 11 percent in 1983 and increased to 14 percent. Also, the distribution of share of CSP GDP remained same, except for Tamil Nadu whose share in CSP GDP was only 4 percent in 1983, but increased to 10 percent in 2011-12.

Table 4.22: Overall Sector Employment Share and GDP Share

	STATE	Employment Share				GDP Share			
		1983	1993-94	2004-05	2011-12	1983	1993-94	2004-05	2011-12
GRP 1	AP	11	11	10	10	5	5	6	5
	GJ	6	5	6	6	7	7	8	9
	HR	2	2	2	2	3	4	4	4
	KL	3	3	3	3	4	5	5	5
	KR	6	6	7	6	6	6	7	7
	MH	11	11	12	12	14	17	17	18
	PB	2	2	2	2	4	5	4	4
	TN	9	9	8	8	8	9	9	10
GRP 2	UP UK	15	15	15	15	15	13	12	11
	WB	7	8	8	8	8	7	9	7
	BH JH	9	8	8	9	8	6	6	5
	MP CHT	9	9	10	9	8	8	7	6
	OR	4	4	4	4	4	3	3	3
	RJ	6	6	6	6	5	5	5	5
		100	100	100	100	100	100	100	100

Source: Author's estimations using various NSS rounds and EPWRF

From Table 4.22, it is evident that in Group 1 states the percentage of GDP share is higher than the percentage share of employment, indicating productivity in these sectors. For Group 2 states percentage share of GDP has not increased as compared to pre-reform times (1983). Thus it is the states in Group 1 that seem to have increasingly benefited from the reforms and structural change. In case of Uttar Pradesh, share of workforce remained same at 15 percent since 1983, but its share of GDP has decreased from 15 percent in 1983 to 11 percent in 2012. While for Maharashtra, the share in GDP was 14 percent in 1983, which increased to 18 percent in 2011-12. Thus we see that overall the share of GDP for Group 1 states increased even though their share in employment remained more or less constant, while for Group 2 states, share in GDP decreased without decrease in its share of employment (indicating disguised employment to some extent). The following section looks at the compositional share of sectoral employment for the major states and the changes over time within this composition.

4.3 Intra-State Composition Changes

The composition of workforce within each state over time since 1983 is given in Table 4.23. In 1983, Bihar and Rajasthan had three-fourth of workforce in agriculture, while the lowest was in Kerala (50 percent). In 2011-12, just over 20 percent of the workforce in Kerala was engaged in agriculture, while in Bihar still 57 percent of the workforce is engaged in agricultural sector. Tamil Nadu and Gujarat had the largest percentage of their workforce working in industry at 22 percent, followed by West Bengal and Punjab. In 2011-12, states with least industrial sector workers were Bihar and Madhya Pradesh with 7 percent and 8 percent respectively. When it comes to construction sector, in 2011-12, Rajasthan (with 19 percent of the workers in this sector) was highest, followed by Kerala (18 percent of the workforce engaged in construction sector). The state with least percentage of workforce in construction sector was Karnataka, followed by Maharashtra and Andhra Pradesh. When it comes to services sector, Kerala had the highest service sector workers (45 percent), followed by Punjab (37 percent), while Tamil Nadu, Maharashtra and Haryana also each had 33 percent of workforce engaged in service sector. Rajasthan had only 22 percent of workforce in service sector, followed by Bihar, Uttar Pradesh and Odisha.

Table 4.23: Intra State Change in composition: Total

	1983				1993-94				2004-05				2011-12			
	AGI	IND	CNS	SER	AGI	IND	CNS	SER	AGI	IND	CNS	SER	AGI	IND	CNS	SER
AP	69	11	2	18	67	10	3	20	59	12	5	24	53	11	7	28
BH	75	9	1	15	76	6	2	16	68	8	5	18	57	7	13	23
GJ	64	14	2	20	57	17	4	22	55	17	4	23	47	22	5	26
HR	63	10	3	24	46	12	7	35	42	16	10	32	38	15	14	33
KL	50	19	4	28	44	17	7	32	32	16	12	40	22	15	18	45
KR	67	12	3	17	65	12	3	20	63	10	4	23	50	13	6	31
MH	66	12	3	19	60	12	3	25	55	12	5	27	47	13	7	33
MP	78	9	2	12	76	8	2	15	71	8	4	17	62	8	11	19
OR	72	11	2	15	73	9	2	16	61	12	7	20	53	10	13	24
PB	58	13	3	25	49	13	5	33	37	17	11	36	27	20	16	37
RJ	74	9	5	13	65	9	8	17	58	11	11	20	48	11	19	22
TN	56	18	3	23	52	19	4	25	46	20	6	28	36	22	10	33
UP	69	11	2	19	67	10	3	21	57	13	7	23	47	14	14	24
WB	55	17	2	26	48	20	3	29	47	16	5	32	40	21	8	31

*AGI=Agriculture & Allied, IND= Mining, Manufacturing & Utilities, CNS= Construction, SER=Services including THR, TSC, FBR and CSP
Source: Author's estimations using various NSS rounds

Table 4.24: Intra State Change in composition: Rural

	1983				1993-94				2004-05				2011-12			
	AGI	IND	CNS	SER	AGI	IND	CNS	SER	AGI	IND	CNS	SER	AGI	IND	CNS	SER
AP	80	8	1	11	79	8	2	11	72	10	3	15	70	9	6	15
BH	82	7	1	10	83	4	1	11	74	7	5	14	64	6	13	17
GJ	84	6	2	8	76	11	3	10	75	9	3	13	74	9	4	13
HR	74	7	3	16	62	7	6	25	54	12	11	23	52	12	16	20
KL	56	17	3	23	52	16	6	26	38	16	12	35	28	14	19	39
KR	83	7	2	8	80	8	1	10	81	6	2	11	70	10	4	16
MH	85	5	2	7	82	6	3	10	80	6	3	11	76	6	5	12
MP	90	5	1	5	89	5	1	5	83	5	4	8	76	5	10	9
OR	79	9	2	11	80	7	2	11	67	12	6	15	60	9	13	17
PB	76	8	3	14	68	8	4	20	54	11	13	23	42	14	21	23
RJ	85	5	4	6	77	6	8	9	69	8	11	12	59	7	20	14
TN	73	12	2	13	69	14	2	14	65	15	6	15	54	17	11	19
UP	80	8	2	11	78	7	2	13	69	10	6	15	59	10	15	16
WB	72	11	2	16	62	15	2	20	63	12	4	21	55	16	9	20

*AGI=Agriculture & Allied, IND= Mining, Manufacturing & Utilities, CNS= Construction, SER=Services including THR, TSC, FBR and CSP
Source: Author's estimations using various NSS rounds

Table 4.25: Intra State Change in composition: Urban

	1983				1993-94				2004-05				2011-12			
	AGI	IND	CNS	SER	AGI	IND	CNS	SER	AGI	IND	CNS	SER	AGI	IND	CNS	SER
AP	14	23	6	56	15	22	8	55	10	21	9	60	5	18	12	65
BH	13	26	4	57	11	21	5	62	15	18	8	60	6	17	11	66
GJ	15	34	2	49	6	33	7	54	6	38	7	50	4	44	6	47
HR	14	23	3	61	6	26	9	59	7	29	7	57	5	24	11	60
KL	19	24	7	50	21	21	9	50	12	18	13	58	7	17	15	61
KR	18	28	7	47	15	27	7	51	8	22	10	60	8	19	10	63
MH	12	30	5	53	8	27	6	59	7	25	9	60	4	23	8	65
MP	14	31	6	48	15	21	6	58	11	21	8	60	11	17	14	58
OR	15	27	4	54	14	21	6	59	12	16	11	61	14	13	10	63
PB	9	29	3	58	6	26	5	62	4	28	7	62	4	30	8	59
RJ	23	24	9	44	12	23	9	56	11	23	11	54	4	28	15	53
TN	13	34	5	48	11	31	8	50	8	32	7	53	10	29	8	52
UP	11	26	3	60	13	24	4	58	9	27	8	57	8	29	10	53
WB	3	36	4	57	4	33	6	57	3	28	7	63	2	33	7	59

Source: Author's estimations using various NSS rounds

In rural areas (Table 4.24), in 1983, almost four-fifths of the workforce across states except for Kerala, was engaged in agriculture. In 2011-12, for Kerala, just over one-fourth of the workforce was in agriculture, for Punjab it was just over 40 percent, but for most of other states still way over 50 percent of the workforce is in agriculture. Even for states from Group 1 in 2011-12, (Gujarat, Maharashtra), three-fourths of the rural workforce are in agriculture, while for Andhra Pradesh and Karnataka it is 70 percent of the rural workforce that is dependent on agriculture for their livelihood. The level of industrialization in rural areas is still low, the maximum rural workforce engaged in industry are in Tamil Nadu, followed by West Bengal. In the Group 1 states (even in Maharashtra and Gujarat), only 6 percent and 9 percent of the workforce are engaged in industry respectively. In 2011-12, for Maharashtra, Gujarat and Karnataka just around 5 percent of the rural workforce was working in construction sector. The states with the largest workforce in construction sector were Kerala, Punjab and Rajasthan where around one-fifth of the workforce was working in this sector. In Kerala almost 40 percent of the workforce is engaged in services sector, but for Madhya Pradesh it is less than 10 percent.

In the urban areas (Table 4.25) the share of agriculture is marginal in nature, since most of the workforce is engaged in non-agricultural work. In 1983, Rajasthan was the state with the highest share in agriculture (urban), while West Bengal was the state with least percentage of workers engaged in agriculture. While even agriculturally developed states like Punjab had 9 percent of urban workforce in agriculture. During 2011-12, most of the states had fewer than 10 percent of the workforce engaged in agriculture. There is again an evident case of deindustrialization for many states; as percentage of workers engaged in industry has come down significantly by 2011-12 as compared to pre-reform period. In 2011-12, Odisha had only 13 percent of workers in Industry; while Bihar, Kerala and Madhya Pradesh also had one of the lowest worker shares in industry (1 percent). On the other hand, states with highest worker shares in Industry included Gujarat and West Bengal with 44 percent and 33 percent of the workforce. Punjab, Tamil Nadu and Uttar Pradesh also had around 30 percent of their workers working in Industry. In the construction sector, Gujarat has only 6 per cent of its work force working in this sector, followed by West Bengal at 7 per cent, Maharashtra and Punjab at 8 per cent, the highest being in Rajasthan and Kerala at 18 per cent. In the urban area, the proportion of workforce of the states engaged in construction sector is not very high, while the opposite was the case in rural areas. It

is also seen that very high percentage of workers in urban areas are engaged in services sector, the highest being in Bihar and Maharashtra followed by Karnataka, Kerala and Haryana.

The following segment looks at the distribution of employment at usual status level, within each state since 1983. Employment is grouped into three heads: self-employed workers, regular wage and salaried workers, and casual labourers. It is expected that as structural transformation takes place, percentage of workers in regular wage and salaried class would eventually rise. It might even be the case that in absence of structural transformation and lack of regular employment growth, workers may be pushed to casual employment or self-employment categories.

Table 4.26: Interstate composition of Status of Employment-Total

	1983			1993-94			2004-05			2011-12		
	SE	WG	CL	SE	WG	CL	SE	WG	CL	SE	WG	CL
AP	46	13	40	45	11	44	46	13	40	45	18	37
BH	53	9	38	51	7	41	62	6	32	54	7	38
GJ	53	16	31	43	17	39	47	19	34	50	26	24
HR	59	20	21	55	23	22	57	25	17	52	27	21
KL	38	20	42	37	17	45	40	21	39	35	24	40
KR	49	14	38	50	13	37	46	14	41	47	23	30
MH	45	19	35	43	21	36	45	21	33	45	28	27
MP	61	13	26	56	11	33	56	10	34	56	11	33
OR	51	13	37	51	10	39	54	10	36	59	12	30
PB	59	22	19	51	22	27	47	28	25	44	33	23
RJ	78	9	13	71	12	17	71	12	17	62	15	24
TN	39	17	44	38	19	43	41	22	37	32	27	41
UP	72	10	18	69	10	21	70	12	18	61	13	26
WB	43	22	35	47	20	33	50	16	34	43	18	39
IND	54	15	31	52	15	33	54	16	30	50	19	30

*SE=Self-employed, WG=regular wage, CL=Casual labour
Source: Author's estimations using various NSS rounds

What is evident in India since the 1980s (see Table 4.26) is lack of any significant structural change in employment status; the composition of workers across self-employment category, regular wage and salaried category and casual labour category have not changed much in the pre-reform period or in the post-reform period. In self-employed workers category, in 1983 Uttar Pradesh had the highest percentage of self-employed workers at 72 per cent, and 18 per cent in casual employment. In 2011-12, Uttar Pradesh still had the maximum percentage of its workers in self-employment category at 61 per cent, but workers in casual employment increased to 26 per cent without any significant rise in regular wage and salaried class. This holds true for most of the states; there is indeed marginal decline in percentage of workers in self-employment

category, but with proportionate rise in casual employment for most of this states. In case of regular wage and salaried work in 1983, Punjab and West Bengal had the highest percentage of workers in regular wage and salaried category at 22 per cent. In 2011-12, Punjab had 33 per cent of its workers in regular wage and salaried category, which was highest for any state, but for West Bengal the percentage of workers in regular wage and salaried category decreased to just 18 per cent. Across states from Group 2, Bihar had the least proportion of workers in regular wage and salaried category at just 7 per cent, while for Madhya Pradesh it was 11 per cent, for Odisha it was 12 per cent, for Uttar Pradesh it was 13 per cent, and Rajasthan 15 per cent. It is clear that Group 2 states have comparatively far less percentage of workers in regular wage and salaried class when compared to Group 1 states.

Table 4.27: Interstate composition of Status of Employment-Rural

	1983			1993-94			2004-05			2011-12		
	SE	WG	CL	SE	WG	CL	SE	WG	CL	SE	WG	CL
AP	48	8	44	46	5	48	47	7	46	48	8	44
BH	54	6	40	52	4	44	63	3	34	54	4	41
GJ	58	6	36	46	8	46	50	8	42	55	11	34
HR	62	16	23	61	13	26	61	18	21	58	16	26
KL	39	17	44	38	13	49	41	18	41	36	20	45
KR	54	5	41	54	5	41	47	5	47	51	12	37
MH	50	8	42	46	8	46	50	8	42	52	10	38
MP	65	6	28	60	5	36	58	5	37	59	5	36
OR	52	9	39	53	5	42	55	6	39	60	8	32
PB	64	14	22	53	14	33	48	19	34	46	21	33
RJ	83	5	12	76	5	18	76	6	18	67	8	25
TN	42	9	49	40	10	50	42	11	47	32	15	53
UP	76	6	19	72	5	23	73	7	20	64	7	29
WB	46	12	42	50	11	39	52	8	39	43	10	48

*SE=Self-employed, WG=regular wage, CL=Casual labour
Source: Author's estimations using various NSS rounds

In rural areas (Table 4.27), the proportion of workers in each state, working in regular wage and salaried category for only few states is greater than 10 per cent even after three decades of structural transformation. In 2011-12, states with highest proportion of workers in regular wage and salaried category were Punjab and Kerala with around 20 per cent, given the fact that they also had one of the highest proportion of workers in regular wage and salaried category in 1983. Even across Group 1 states, proportion of worker in regular wage and salaried category for rural areas was very low. For Andhra Pradesh it was just 8 per cent while for Karnataka it was 10 per cent, and for Gujarat it was 11 per cent. States from Group 2 had far less proportion of the

workers in regular wage and salaried category compared to Group 1 states. Among the self-employment category and casual labour category, there was marginal decline in self-employment category for most of the states, with proportionate increase in casual employment category.

Table 4.28: Interstate composition of Status of Employment-Urban

	1983			1993-94			2004-05			2011-12		
	SE	WG	CL	SE	WG	CL	SE	WG	CL	SE	WG	CL
AP	40	39	21	39	36	25	44	37	19	37	47	16
BH	47	35	17	46	36	17	52	30	18	52	30	18
GJ	40	42	18	36	44	20	41	46	13	40	51	9
HR	48	41	11	40	45	15	46	46	8	40	50	10
KL	32	35	32	35	29	35	37	31	32	34	37	28
KR	34	39	27	39	39	22	41	39	19	39	45	16
MH	32	51	17	35	52	13	37	48	15	35	56	9
MP	39	44	17	40	40	20	46	37	16	44	36	20
OR	37	44	19	36	47	17	44	37	19	50	36	14
PB	45	46	9	46	42	11	45	47	8	42	50	8
RJ	57	30	13	48	41	11	53	36	11	43	41	16
TN	33	37	29	34	39	27	39	45	16	34	44	23
UP	54	35	12	57	31	12	57	32	11	52	31	17
WB	33	53	14	35	49	16	44	39	17	43	40	17
India	40	42	18	40	41	18	44	41	15	41	44	15

*SE=Self-employed, WG=regular wage, CL=Casual labour

Source: Author's estimations using various NSS rounds

In urban areas (Table 4.28), the composition of workers in self-employment category, regular wage and salaried category, and casual employment category is totally in contrast with what was seen above for rural areas. In 2011-12, Maharashtra had 56 per cent of its workers in regular wage and salaried category, while Gujarat, Haryana and Punjab also had more than 50 per cent workers in the regular wage and salaried category. In Group 2 states, Bihar and Uttar Pradesh had the least proportion of workers in regular wage and salaried category at around 30 per cent. This is a relatively high worker share percentage in regular wage and salaried class among Group 2 states in the urban areas, when the situation is compared to rural areas. There also seems to be overall decline in proportion of workers in casual employment, mostly for Group 1 states. Also for some of the Group 2 states decline is also seen in proportion of urban workers in regular wage and salaried class, with some marginal increase in self-employment category of work.

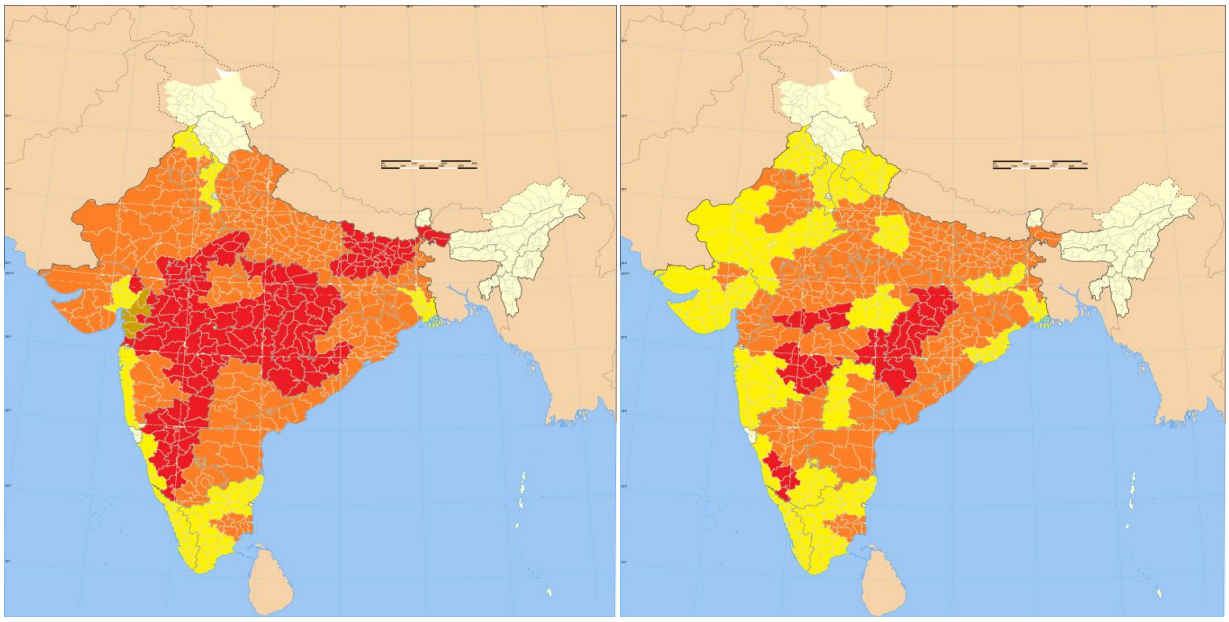
4.4 A spatial Analysis based on NSS Regions

Having done an extensive analysis of employment and workforce diversification at the state level, it is also at the same time important to note that even state level analysis could mask the inherent regional diversity and inequality. Most of the time, it may be the case that there may

exist higher level of inequality within intrastate level rather than the interstate level. Thus it would be relevant to have some analysis at more disaggregated spatial terms based on NSS data. For this purpose the last two rounds of NSS (NSSO 61st round (2004-05) and NSSO 68th round (2011-12) on Employment) have been taken. Employment is shown across 4 categories, Agriculture, Industry, Construction and Services. The regions having each of high, low and medium percentage of workforce (share in total workforce) for both rounds have been presented below.

Figure 4.1: Agriculture: Share of Total workforce: Across NSS Regions

2004-05 2011-12

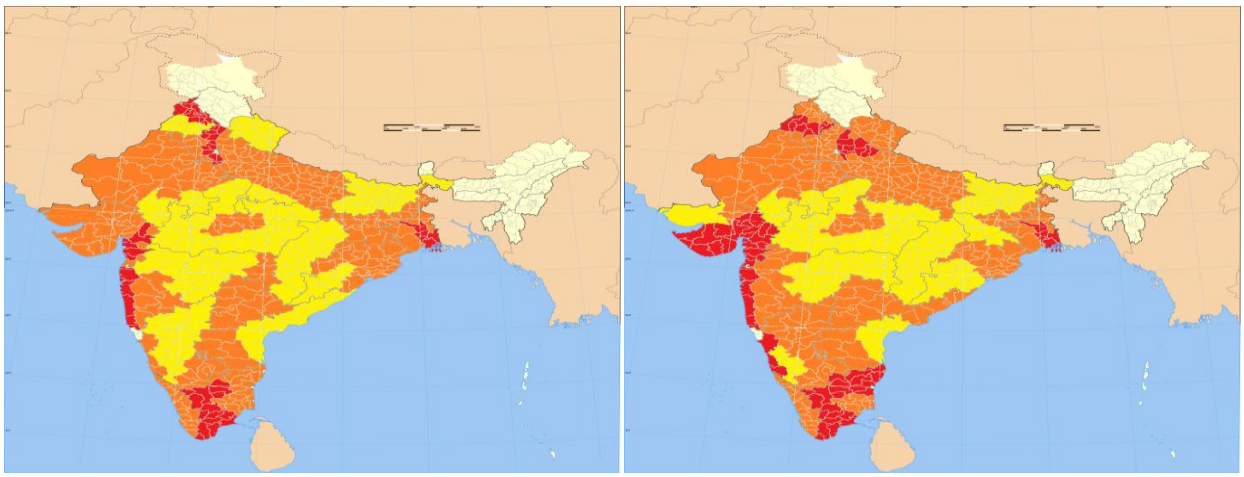


Source: Author's estimations using various NSS rounds

In Figure 4.1, the dark red region represents areas where 65 percent or more percentage of workforce is dependent on agriculture; dark yellow region is where more than 50 percent of workforce but less than 65 percent of workforce is engaged in agriculture, while light yellow region is where less than 50 percent of the workforce is engaged in agriculture. It is clearly seen that in 2004-05, there were just select regions where less than 50 percent of the workforce was dependent on agriculture, namely Kerala, parts of Tamil Nadu, Northern Punjab, Northern Haryana and costal Maharashtra and Karnataka. By 2011-12, most of the regions marked red during 2004-05 had disappeared, with the exception of Chhattisgarh, and Western part of Maharashtra and parts of southern Madhya Pradesh. Still in the central and eastern parts of India, more than 50 percent of the workforce is working in agriculture.

Figure 4.2: Industry: Share of Total workforce: Across NSS Regions

2004-05 2011-12

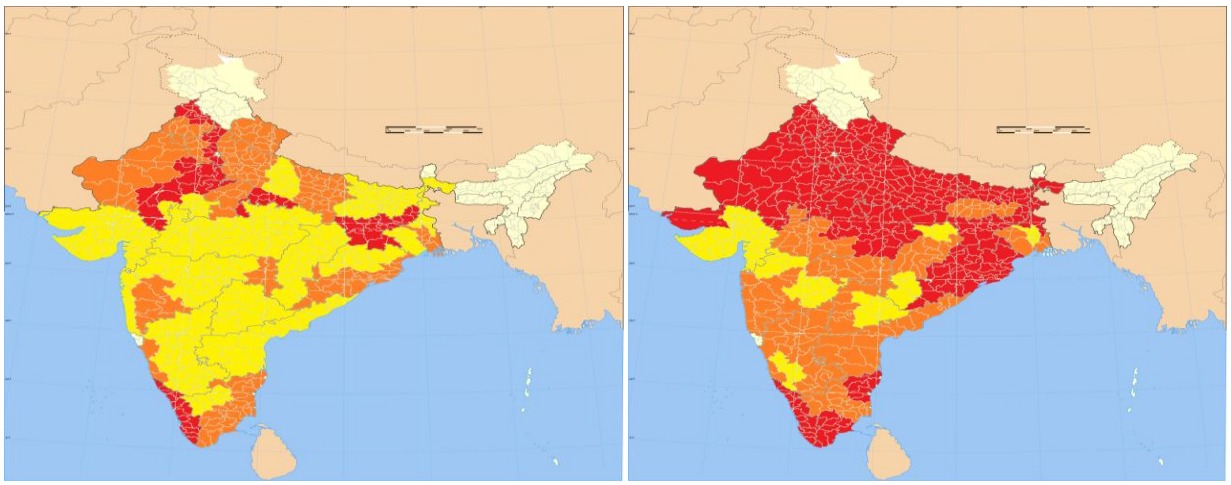


Source: Author's estimations using various NSS rounds

In Figure 4.2, red regions are the areas where more than 15 percent of the workforce is engaged in industry. Dark yellow regions are areas where 10 percent or more but less than 15 percent of the workforce is engaged in industry. Light yellow shaded regions are areas where less than 10 percent of the workforce is in industry. Industry includes mining sector and utilities sector along with manufacturing. There has not been much change in industry over 2004-05 and 2011-12. Still, Central region of India, namely Madhya Pradesh, Chhattisgarh, western Maharashtra and Bihar are the areas that have low percentage of workers in industry marked clearly in light yellow. There are also some regions that became red during 2011-12, which included Northern Tamil Nadu, Southern Karnataka and parts of coastal Andhra Pradesh, signifying some increase in share of industrial workforce.

Figure 4.3: Construction: Share of Total workforce: Across NSS Regions

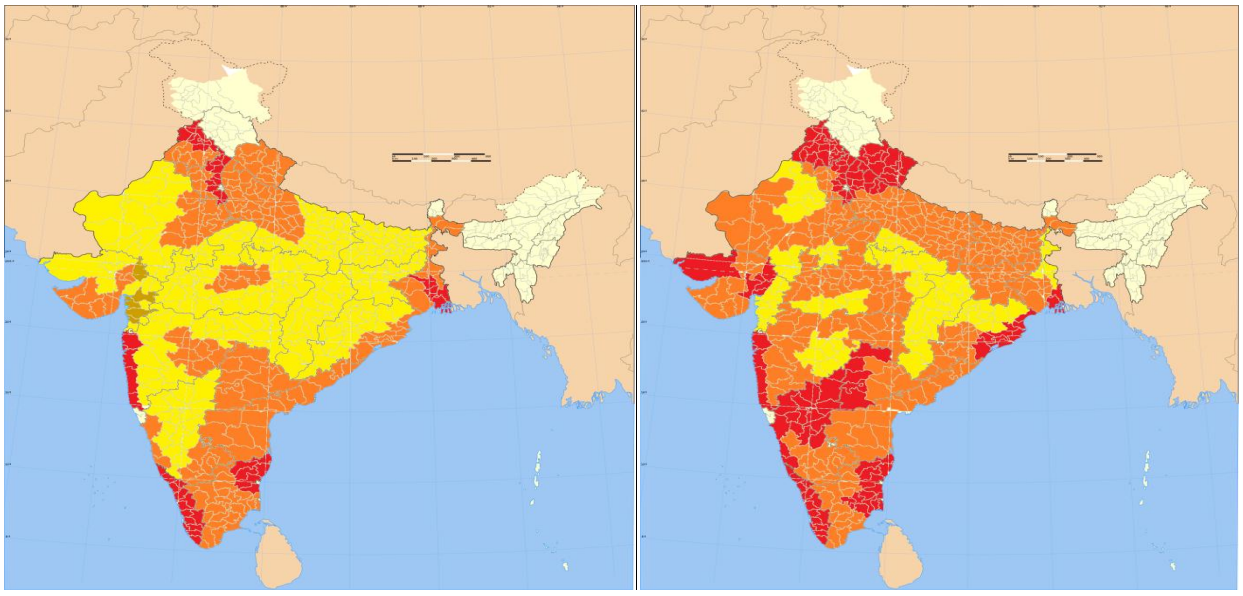
2004-05 2011-12



In case of construction sector, the red regions are areas where more than 10 percent of the workforce was working in construction sector, while dark yellow regions are areas with less than 10 percent but more than 5 percent of the workforce in construction sector; while light yellow colure regions are areas with very little of the workforce is engaged in construction sector. It is seen that in 2004-05, there were very few labourers that were in construction sector. It is especially in the regions such as northern areas that are marked vividly red in 2011-12. While most of the areas in 2004-05 was marked light yellow, in 2011-12 most of the areas are marked as dark red, while areas marked as light yellow are in patches such as Gujarat, Maharashtra and Bangalore in Karnataka etc.

Figure 4.4: Services: Share of Total workforce: Across NSS Regions

2004-05 2011-12



Source: Author's estimations using various NSS rounds

In case of services sector, areas where more than 30 percent of the workforce is working in service sector are marked as red, areas where more than 20 but less than 30 percent of the workforce is engaged in the services sector are marked as dark yellow, and finally whereas where less than 20 percent of the workforce is working in services sector are marked as light yellow. In India there has not been any significant structural change, and also workers moving out from the agriculture directly opted for services sector instead of first moving to manufacturing sector. This has resulted in service led growth in India. Thus in 2004-05 whereas most of the areas were marked in light yellow, signifying low level of participation in services

sector but the landscape has completely changed by 2011-12, where most of the regions are marked as dark yellow, signifying medium level of participation in services sector. The areas marked red in 2011-12 were Kerala, Central Coastal Tamil Nadu, coastal Maharashtra, Karnataka and parts of Punjab and Haryana and Uttarakhand.

4.5 Differentials between States

As explained earlier and which will be elaborated later, shift away from agriculture has not been uniform across states. The debate regarding the factors contributing to the shift away from agriculture should be seen in the context of uneven performance across states. It is evident that in most of the states, services' share has fallen (except Maharashtra and Karnataka), particularly when measured as a percentage of non-agricultural employment. Share of manufacturing as a percentage of non-agricultural employment has also declined with decline being sharp in states such as Madhya Pradesh, Uttar Pradesh, and Odisha. Even in advanced states like Tamil Nadu, Kerala, Punjab, and Haryana, manufacturing share as a percentage of non-agricultural employment has declined though the extent of the decline is somewhat slower. Gujarat seems to be an exception, where manufacturing has increased in share. Construction share has increased significantly in most states. This phenomenon may reflect what is sometimes referred to as ***premature deindustrialization***[26]**.**

At this juncture, it should be noted that like in the case of aggregate, for states also, structure of the workforce and changes therein will depend on changes in rural/urban areas, and changing rural-urban workforce (urbanisation). While data at state level does provide some useful clues about various factors at work in influencing workforce structure, more detailed analysis will be required at regional level. There are significant variations in workforce structure between different districts/ regions, even within a state[27].

The importance of infrastructure development has been stressed throughout in the literature. While Jayaraj (1994) and Narayanamoorthy et al (2002) emphasised the importance of developing transport infrastructure to boost non-agricultural employment, Singh (1994) stressed on the significance of rural electrification in the case of Uttar Pradesh. Similarly, village level

[26] Chaudhuri S, Premature Deindustrialization in India & Re thinking Role of Govt, FMSH-WP-2015-91, Apr 15

[27] The difference for example in Uttar Pradesh between regions has been documented in articles by Singh (2005) using data for 1999-00 and Ranjan (2009) for 2004-05.

studies by Pandey et al (2002) in Odisha and Som et al (2002) in Madhya Pradesh suggest that poor roads and power supply have been major constraints in agro-processing and its marketing. Infrastructure therefore is imperative for development of markets and hence diversification.

The role of urbanisation at the same time has also been cited as important in the process of workforce diversification. For instance, while Biradar and Kusugal (undated) show that in the case of Karnataka, shift of workers towards non-farm jobs was explained in part by distress (for females) and prosperity phenomena (for males), and more by human capital formation and the degree of urbanisation. On the other hand, looking at rural diversification in Warangal district, Vallapureddy (undated) describes the nature of diversification into the following categories: (i) shift of resources from agriculture to non-agriculture (ii) diversifying within agriculture and use a larger mix of resources & (iii) flow of resources from low to high value agriculture. Similarly, Rao (undated), studying non-agricultural works in districts of Andhra Pradesh says that rise in agricultural income, irrigation and investment along with education raises non-agricultural employment.

The story in Tamil Nadu also begins with agriculture; Narayanan (2009) argues that commercial agriculture's (gherkins, broilers) growing importance is a highly attributable to structural changes. However he too finds the strong links to agribusinesses and global markets, and growing urbanisation to have helped in diversification. Meanwhile in the case of Punjab, Chand (2008) studied the highly agriculturally advanced areas of rural Punjab and has concluded that there are majorly 53 types of non-agricultural activities such as traditional ones (cloth merchants, tailors, masons, carpenters, blacksmiths, goldsmiths, barbers, saw-mill operators, cobblers, sweepers, etc.) were performed by poorer households, while modern non-agricultural jobs involved taxi owners/drivers,, cable TV operators, radio and electrical repairs, video/cassette sellers, and soft drinks manufacturers/sellers, which are open only to households with sufficient human and financial capital, stressing on the households' prior situation in terms of possession of assets and/or connections.

The role of education has also been stressed in the case of Uttar Pradesh, where a higher level of education and increased per capita income were the main causes of shift towards non-agricultural activities (Ranjan, 2009). Noting a large presence of landless and marginal non-farm workers

with little education belonging to low social groups with limited assets, he argues that distress induced diversification holds in this case. However, Shukla (1992) had found that it was the 'benefits from agglomeration that the registered industrialization had translated into broad localisation benefits for similar activities', leading to livelihood diversification in Maharashtra, deliberating on the prosperity induced diversification argument. It is clear thus that a multitude of factors operate at different regional levels depending on local starting points and scenarios.

It is becoming clear that job diversification has been lagging behind GDP diversification (Binswanger, 2011). Manufacturing in India is mostly from unorganised sector and this sector consists largely of tiny units. This is clear both from NSSO and Economic Census data (a snapshot of which is presented in the following sections). Economic Census data and the NSS data are broadly indicative of the same trend though the absolute numbers are different, as documented by Himanshu (undated), Sen and Jha (2005). The Economic Census captures only part of the unorganised sector and largely underestimates construction. Only persons associated with the conduct of business activity or those managing establishments are counted.

Data at state level also confirms the relative decline of manufacturing in rural sector. Low income states have sharply reduced their manufacturing share (% of total). Even in industrially advanced states like Tamil Nadu, Maharashtra and West Bengal to some extent, manufacturing share has fallen in rural areas. Only in case of Karnataka and Gujarat, manufacturing share has remained by and large steady, though it varies from round to round. Trade, Hotels and Restaurants (THR) is another important sector that has contributed to job generation in the past. Though the share of THR in total rural jobs is on the rise but when measured in terms of total non-agricultural jobs, its share has remained steady. This is true for most states as well. Though Transport, storage and communication (TSC) is an indicator of development; in India, it has however remained within the range of 8 to 10 per cent in terms of total non-agricultural jobs. Share of TSC in low income states is expectedly low. Other services including financial services share in non-agriculture has also been declining in most states and even in aggregate it has remained steady. Earlier studies indicate near absence of wholesale trade in rural areas. Retail trade particularly of traditional items has been the mainstay of trade jobs in the rural sector. Bhalla (2005) suggests that shift towards retail trade for modern goods such as consumer durables may be in areas closer to the urban areas.

While services continue to remain an important source of jobs, this is particularly true in urban areas vis-a-vis rural areas. In rural areas, while service sector share as a percentage of total workforces has increased, it has not increased as rapidly as in the case of construction. This has resulted in either a stable share for components such as THR or some decline in Community, social and personal services (CSP) activities. CSP activities were important source in low income states but its share has been declining more due to faster growth in construction jobs. Services have been an important job source in urban areas whether it is in CSP (teachers, beauticians, maids). Thimothy (undated) has observed that it may not be correct to equate regular salaried jobs with better quality jobs. In services, in the urban areas, many of these regular jobs may actually be low productive jobs such as parlour, maids. It is the quality of jobs created that is much more complex phenomena.

Construction sector has been a chief source of additional job generation between 1983 and 2011-12. Its importance has been particularly on the rise in the decade of 2000. Share of construction in rural jobs has been on the rise both at aggregate and for individual states with the possible exception of Gujarat, Karnataka and West Bengal to some extent. These states are dependent on manufacturing sector for jobs. West Bengal has a much larger share of manufacturing for rural females, which may be because of high share of household industries in total workforce. NSS reports suggest that manufacturing for females is confined to few industries and some of these may be "home-based" (putting out systems for bidis, custom tailoring etc). An important feature of change in manufacturing sector has been the increased share of part time jobs (data from recent rounds of IMS). "Marginal workers" from Census similar to Subsidiary Status (SS) of NSS suggests that females have a much disproportionate share in SS. Even though manufacturing sector share for rural females has been modest, but this has to be seen in the light of increasing part time jobs.

Earlier, construction sector was considered as a sponge to absorb workers displaced by slower agricultural growth or in general less profitable/ less remunerative agricultural jobs. This seems to be confirmed by data on poverty for Uttar Pradesh and also by the fact that construction share has particularly been much higher for low income states. However, increased share of construction in states like Punjab, Haryana, Kerala, and to some extent Tamil Nadu suggest that construction may not be just a residual sector but also its growth could be due to dynamic nature.

It is also possible that construction sector's growth in recent rounds could be because of NREGA which is essentially a construction activity. It is also possible that even in low income states growth in construction jobs would be due both because of factors such as NREGA and also because improvement in housing quality has taken place in comparatively better off rural areas. The data at the state level therefore needs to be carefully interpreted because even within a state, there are significant variations between regions and/or districts. It is possible that smaller towns with increased income may have more construction activity. Construction, besides generating jobs, is also an indicator of living standards. Shift from kutcha houses to semi pucca/pucca houses can come through increased income and consumption expenditure pattern. Census towns that arise essentially from diversification may reflect this aspect. It may also influence demand for construction jobs in nearby areas. Its share in non-agricultural employment is lower than manufacturing in urban areas but has been gaining while that of manufacturing and some other sectors have been on the decline. Unlike increased construction share in rural sector, higher construction jobs in urban areas may come mostly from better quality housing.

In relative terms construction workers' productivity has declined; wages in construction are higher in casual labour in agriculture but household income for these workers may be lower than cultivators. It depends on the worker productivity, education level, and skill development rather than just in terms of whether it is Casual Labour Status (CLS), Self-Employed Status (SES) or Regular Employed Status (RES). Wages may also not fully reflect the quality because urban wages for a comparable occupation is higher than rural jobs. Wages in general depend upon demand supply factors as also worker productivity.

It has been well documented that while male workers have shifted from agriculture, women have shown some sense of structural rigidity. This is sometimes referred to as *feminisation* of agriculture (Mitra, 2011). Diversification of female workforce is therefore lower than that of males. Also, women are stuck to lower productivity components, for example even though overall share of Community, social and personal services have been on the decline, of both urban and rural areas, share of this sector for females is much more than that of males. Females generally work as teachers, maidservants, and beauticians etc, which are less productive, compared to other components. Many of these jobs are classified as regular jobs, but going by this trend, it may not be entirely correct to equate RES with better quality jobs. Transport,

storage and communication are another sector (which is considered as a sign of development) which accounts for smaller share in the case of females both in rural and urban areas. Even though construction sector shows higher share for both males and females, females are generally at the lower end of the segment. Manufacturing sector also has a high share for females but part time jobs are particularly high for females.

In general, low income states will be dominated by components with low productivity and vice versa. A good example of this is the share of Transport, Storage and Communication whose share in low income states is lower compared to those in middle and high income states. Its share is also lower in rural areas vis-à-vis urban areas. Components of service sector also show significant difference between states. There are common patterns of shift between different sectors at the state level though the pace of such shifts does vary among the states. Share of manufacturing also is found to be different across states when adjusted for agriculture employment. In particular, states like Tamil Nadu, Maharashtra, and Karnataka have a higher share than states like Uttar Pradesh, Madhya Pradesh etc. However, what is common among states is the falling share of manufacturing and increasing share of construction, particularly more so in rural areas. The fall in share of manufacturing is particularly sharp in low income states vis-à-vis those of middle and high income states. This reiterates the premature deindustrialization hypothesis. Another major point that comes is the declining share of services at the aggregate level for most of the states. The major reason for this is not that services have not grown, but construction has grown faster than service sector, particularly in rural areas.

To reiterate the point made earlier, despite increasing share of urban in total workforce, rural areas still account for close to 75% of the total workforce and changes at the aggregate level are significantly captured by what happens at the rural level. Manufacturing accounts for larger share of the urban workforce vis-à-vis that of construction. Though share of manufacturing has been on the decline in the urban areas, its share is relatively high. Urbanisation per se does not necessarily mean a shift towards services, even though they dominate non-agricultural workforce in urban areas (for example Tamil Nadu). Transport, storage and communication's share is particularly low for less developed states such as Madhya Pradesh, Chattisgarh, Jharkhand, Uttar Pradesh etc, reiterating that infrastructure development will play a major role in determining the patterns of workforce diversification.

4.6. Employment Elasticity Revisited

The issue of employment elasticity with respect to NSDP has been discussed in the previous section. This section revisits the issue of declining employment elasticity in India with respect to per capita GDP at the sectoral and state level and replicates the exercise, this time checking the growth of sectoral employment based on ***per capita development expenditure*** made by the respective states.

Table 4.29: Elasticity of Employment (UPS) with respect to Per capita Development Expenditure

	Agriculture		Manufacturing		Construction		Services	
State	1993-04	2004-11	1993-04	2004-11	1993-04	2004-11	1993-04	2004-11
AP & T	0.02	-0.03	0.16	-0.01	0.35	0.31	0.20	0.08
BH&JH	0.18	-0.04	0.83	-0.04	3.40	0.79	0.53	0.17
GJ	0.22	-0.05	0.26	0.29	0.35	0.16	0.29	0.15
HR	0.20	-0.02	0.58	0.01	0.57	0.37	0.19	0.04
KAR	0.16	-0.11	0.06	0.14	0.51	0.24	0.28	0.14
KER	-0.04	-0.13	0.23	-0.03	0.91	0.24	0.50	0.05
MP&CH	0.28	-0.06	0.43	-0.04	2.57	0.60	0.58	0.05
MH	0.14	-0.08	0.24	0.06	0.58	0.26	0.32	0.15
OR	-0.02	-0.05	0.50	-0.08	1.80	0.32	0.38	0.05
PB	-0.04	-0.13	0.52	0.29	1.64	0.51	0.39	0.10
RJ	0.19	-0.07	0.45	0.04	0.58	0.36	0.45	0.04
TN	-0.04	-0.10	0.11	0.08	0.43	0.33	0.10	0.10
UP&UK	0.03	-0.07	0.31	0.07	1.14	0.64	0.22	0.04
WB	0.18	-0.03	0.04	0.19	0.70	0.43	0.29	0.02

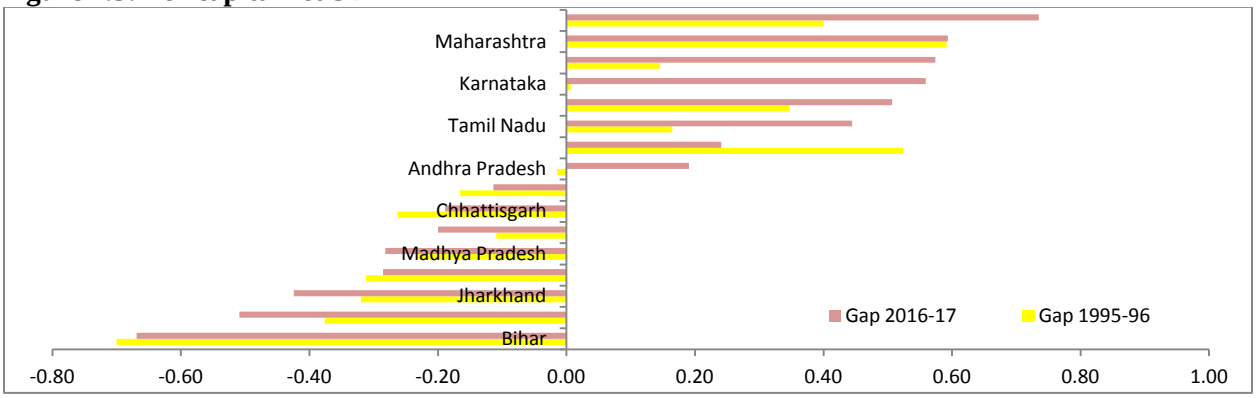
Source: Author's estimations using various NSS rounds

Per capita development expenditure includes economic as well as social expenditure. It is clear that the employment elasticity in agriculture has been declining and has become negative for all major states by 2011-12. Further, employment elasticity of manufacturing became negative between 2004-05 and 2011-12 in the states of Andhra Pradesh, Bihar, Madhya Pradesh, Odisha and Kerala. This is another indication of the threat of premature deindustrialization in India. The employment elasticities in construction and services sector has also been declining overall, which substantiates the debate of 'jobless growth'. As the analysis shows, there is not much significant difference between the employment elasticities obtained with respect to per capita GDP or with respect to per capita development expenditure. This raises the question of efficiency of public spending, and whether spending levels have been sufficient in the first place. The following section therefore covers the trends and patterns of public spending in India over the decades.

4.7. The Role of Public Investment

The analysis from the previous sections has been pointing to the role of public investment as a possible influence over structural transformation in general. This section explores this role in much greater detail, at the state level as well as for rural and urban areas separately, an exercise which hitherto has not been attempted in much detail[28]. To begin with, a grouping of the major states would be helpful in easing into the analysis. For this purpose, the per capita Net State Domestic Product is a good starting point and is shown in Figure 4.5.

Figure 4.5: Per capita Net SDP



Source: Author's estimations using RBI data

It is evident that the trend in per capita Net State Domestic Product across the major states is diverging over time rather than converging. Based on this, the following groupings of states have been used for analysis of trends in public investment (similar to the groupings used in the previous section):

- ***Group 1 (Laggard States):*** States with lower per capita income including Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh along with Odisha, Jharkhand, Chattisgarh and West Bengal.
- ***Group 2 (Developing States):*** States with higher per capita income including Tamil Nadu, Maharashtra, Gujarat, Punjab, Haryana, Andhra Pradesh, Karnataka and Kerala.

The analysis has been done for the 3 decades in the post-reform period, namely: D1 (1991 to 2000), D2 (2001 to 2011) and D3 (2011 to 2018). The major sectors analysed are: *First*, the social-sector's spending on health, education and allied services; and *Second*, the economic-

[28] Though such analyses have been explored for rural areas, for instance by Patnaik (2003 and 2011), and Jha and Acharya (2011), there is scope for more exploration, and the scenario for urban areas remains to be examined.

sector spending on sectors such as Agriculture and Rural Development, Industry, Irrigation and Energy sectors, Transport and Communication. Before beginning the analysis, it is necessary to understand the importance of such an exercise.

Per capita Income and Investment as Causal Origins of Diversification

The previous section already compared the role of per capita (development) expenditure on employment in various sectors vis-à-vis per capita State GDP analysed in the previous chapter as a driver of workforce diversification or at the least, as a boost or generator of employment. As far as theories go, the Clark-Fisher hypothesis (see Clark, 1940) about economic development and sectoral shifts in employment wherein a higher per capita income level is associated with higher working population in productive sectors and vice versa is generally accepted. Fisher (1952) adds to this theory the importance of a shift in investment as well as employment from primary to secondary and tertiary activities.

Role of Government Policy and Investment

The role of the State in administration, policy and investment through expenditure in various sectors for development purposes is a major factor impacting the economy as a whole and as a result the structure of employment as well, especially in rural and poor regions. The growth of non-farm activities through investment in non-farm sectors is much needed in areas lacking means to increase demand. In particular, development expenditure by the State in areas such as schools, skill development centers, public hospitals, irrigation, and infrastructure in general boosts construction on the one hand, and improves the quality of living of workers, making them more productive on the other. Such avenues also create jobs for teachers, nurses, trainers etc.

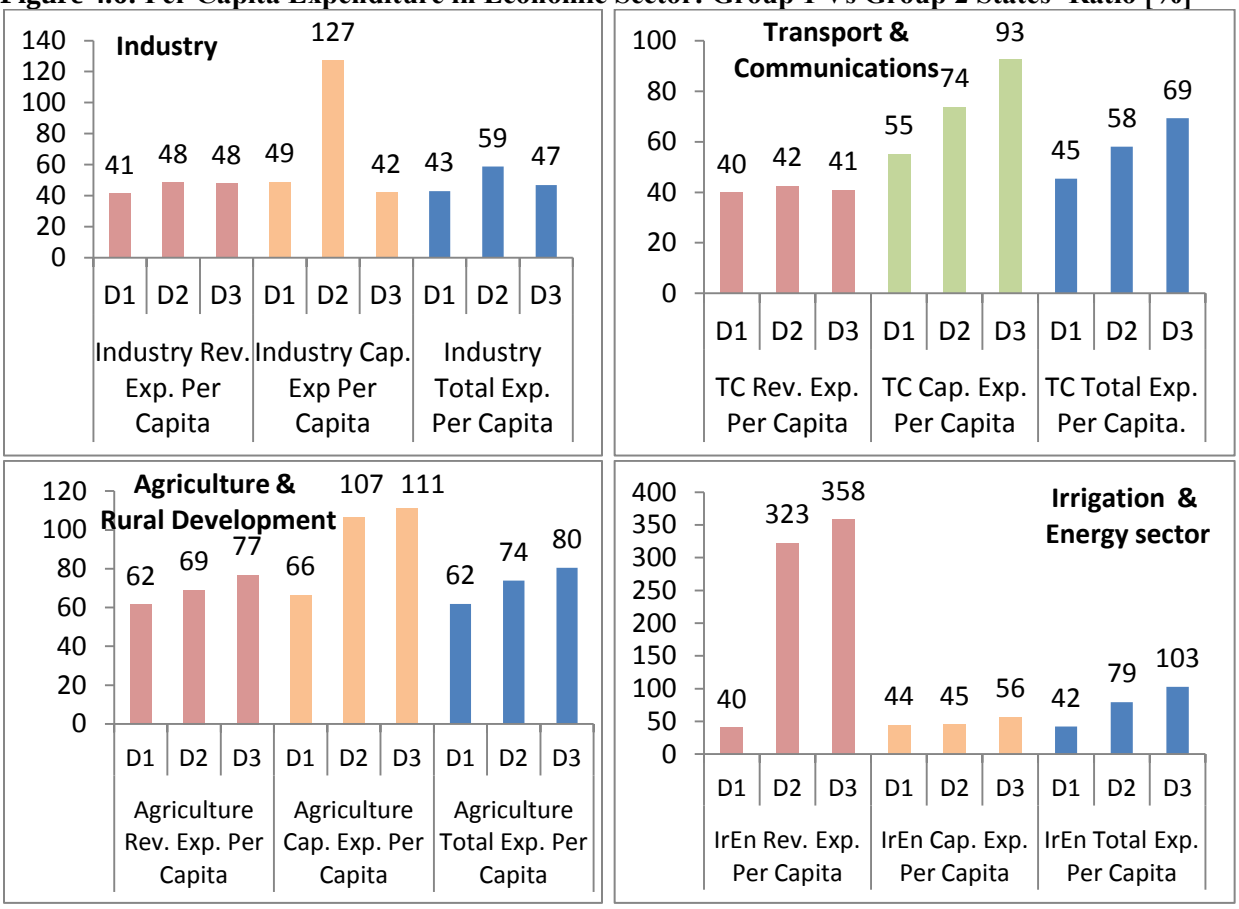
Sen and Ghosh (1993) argued that an important feature of rural job generation over 1980s was diversification of employment away from primary activities, towards secondary and service sector employment which was in general a positive feature, especially as it was accompanied by overall growth of rural jobs in most regions of the country and was also associated with a trend decline in incidence of rural poverty. However, they argued that the dynamic source of rural job generation between the mid-1970s and late 1980s was external agency of the state rather than forces internal to rural economy.

Sen and Jha (2005) quoted in Sharma and Nayyar (2005) also suggest that in general, factors largely responsible for a positive workforce diversification in rural India from farm to non-farm during the 1980s (in particular public expenditure) were considerably weakened, contributing to a deceleration in the above noted progress. They further suggest that there are serious problems in 'restoring or sustaining the above noted process without an active state willing to confront the challenge head-on'. Public policy and intervention therefore have a strong connection with the structural transformation as well as socio-economic transformation, leading to employment diversification. The rural-urban differentials in workforce diversification patterns must be studied in conjunction with GDP and investment growth in different sectors.

Figure 4.2 compares the ratio of per capita decadal expenditure in different economic and social sectors of Group 1 states as compared to Group 2 states in percentage terms. It is clearly evident that in terms of economic services, Group 1 states spend only half as much as Group 2 states on transport, communication and industry (in terms of revenue expenditure which includes maintenance and so on). However, the ratio of Group 1 states' spending on transport and communication (in terms of capital expenditure) has been catching up to that of Group 2 states. In the case of industry, Group 1 states fared much better in Decade 2 (between 2001 and 2011) in the relative ratio of their capital expenditure on industry as compared to Group 2 states, but it majorly declined again in Decade 3 (post 2011). Industrial spending is important for creation of further jobs in this sector, and the previous section revealed negative and declining employment elasticities in manufacturing sector especially for most of the Group 1 states such as Bihar, Odisha and Madhya Pradesh etc. This is a clear call for increasing capital investment in industry to avoid premature deindustrialization.

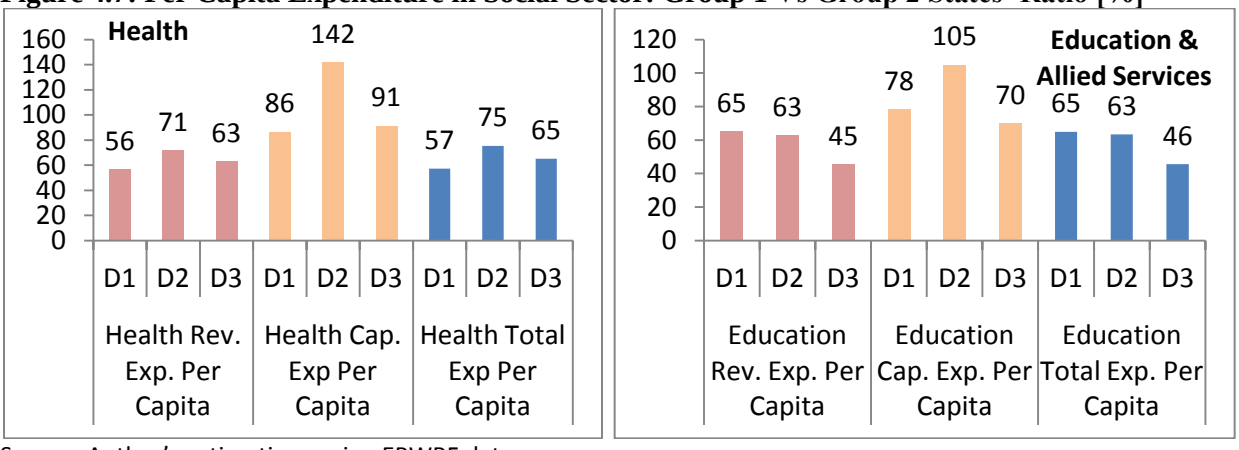
When looking at the ratios of Group 1 states to Group 2 states' per capita capital expenditure on agriculture, it is evident that Group 1 states spend relatively more than Group 2 states. On an average however, Group 1 states' per capita expenditure on economic services (apart from agriculture and irrigation) is much lower as compared to that of Group 2 states, which might explain why these states are lagging behind in growth and as a result employment.

Figure 4.6: Per Capita Expenditure in Economic Sector: Group 1 Vs Group 2 States' Ratio [%]



Source: Author's estimations using EPWRF data

Figure 4.7: Per Capita Expenditure in Social Sector: Group 1 Vs Group 2 States' Ratio [%]



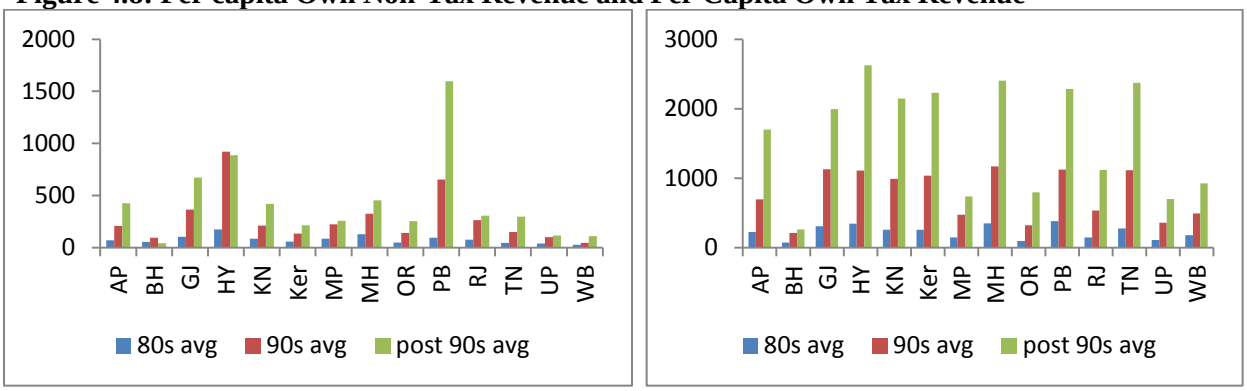
Source: Author's estimations using EPWRF data

In the case of social sector per capita spending of Group 1 states as a ratio of Group 2 states (Figure 4.6), revenue expenditure of Group 2 states on education and health (which in fact

includes doctors' and teachers' salaries) has been lagging behind that of the Group 2 states. This is true even in the case of per capita capital expenditure. Just as in the case of relative spending on industry, Group 1 states picked up in Decade 2 on per capita capital expenditure on health but declined in Decade 3 again. The last decade has seen a general trend of reversal or slowdown of the catching up process that seemed to take place in Decade 2 in the case of Group 1 states as compared to Group 2 states, thus not bridging the gap.

It should be noted here that the reform process of the 1990s led to a fiscal adjustment program (keeping Revenue Deficit & Fiscal Deficit low) and led to a decrease in public expenditure especially in rural areas. Public expenditure was hit by increased interest rates (from administrative expenses to market determined). Moreover, state governments depended more on market borrowings than loans from the Centre (see Figure 4.8). In general, there was low per capita expenditure for the Group 1 (Laggard) states, essentially due to smaller Own Source Revenues (Own Tax and Non-tax Revenue). Population growth over time has also played an important role in influencing per capita governmental expenditure; since population growth has also been significantly higher for the laggard states, expenditure in per capita terms has not amounted to much.

Figure 4.8: Per capita Own Non-Tax Revenue and Per Capita Own Tax Revenue



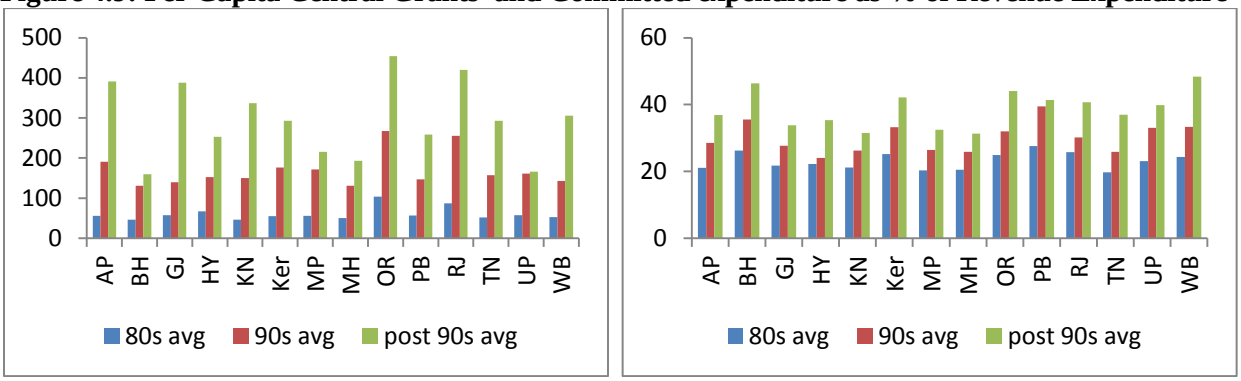
Source: RBI

Trends in Receipts and Expenditure

Data for the period post 1960s generally indicates that there had been a deceleration in growth in public expenditure (Rakshit (1986)). It was further found that Central and State Governments resorted to a cut back on their expenditure in the 90s to maintain fiscal stability, more so when revenue receipts did not grow as fast as expenditure. Moreover, committed expenditure as a

percentage of revenue receipts had been rising (see Figure 4.9). Rakshit (1986) argues that a change from administered interest rates to market determined rates also contributed to these cutbacks especially in development (capital) expenditure.

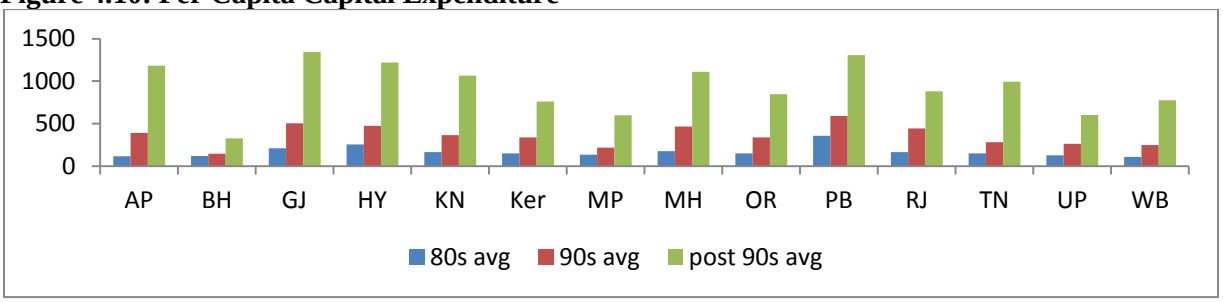
Figure 4.9: Per Capita Central Grants and Committed expenditure as % of Revenue Expenditure



Source: RBI

The laggard states (Group 1) generally had to depend on Central grants, but these were diluted due to the large population growth in these states, and the per capita expenditure still ended up lower than higher income states (Group 2). In essence, their ability to influence workforce shifts through better education and/or connectivity between rural and urban areas is limited vis-à-vis higher per capita income states. Additionally, given the wide variation in conditions across different town sizes (See Bhagat, 2005) the impact of proximity to urban area are also much lower in the Group 1 states as compared to those of Group 2 states.

Figure 4.10: Per Capita Capital Expenditure



Source: RBI

According to Sen and Ghosh (1993), the neoliberal adjustment strategy in India in the 1990s did not lead to adequate generation of employment, as the rate of employment generation was below the growth rate of output as well as increase in the labour force. They argue that visible as well as disguised unemployment rose, with a widening gap between employment growth at 0.6 per

cent per annum in rural areas, as compared to growth of 1//3rd rate of labour force in the period. An increase in agricultural self-employment was noted, which they explain was due to distress induced increase in female unpaid family work. Casualisation and decline of regular employment also rose during this period. This, as suggested by Sen and Ghosh (1993) manifested the impact of the new economic regime, which led to decline in government expenditure on infrastructure (Sen and Jha, 2005), affecting rural employment.

Further, rural development suffered due to reduction in Central Governmental transfers to State Governments which were already cutting back on spending (Rakshit, 1986). It has also been argued over the years in the literature (see Rakshit (1986), Lokesh (2011) etc) that the trends in slower overall expenditure growth had more profound impact on agriculture expenditure. As was argued by Sen and Ghosh (1993) and later by Sen and Jha (2005), real expenditure on poverty reduction as well as rural development began to decline, as well as expenditure on public infrastructure, and social expenditure. With recent focus on reducing fiscal deficit, public expenditure has taken a backseat, with reduced availability for agriculture and other priority sectors. This is true for both rural as well as urban areas. With a resulting increase in casualisation due to lesser employment generation, regular employment has been falling for both men and women. For men, regular employment has been more or less replaced by casual employment, whereas for women, both have seen a rise especially in urban areas along with an increase in casual contracts (Mitra, 2011). In fact, females are preferred due to lower wage bills and inferior working conditions.

Immediately following from this is the argument that informalisation of workforce has been increasing, also leading thereby to a large number of workers in unorganised sectors vulnerable to inflation. On the other hand, rise of population adds to the pressure on employment availability, and thus volatile employment conditions. In urban areas too, pressure is created on secondary activities to support household income (OECD, undated, Naik, 2009). Significant involvement of Governments through public works would be one solution for employment generation at least in short run. This could also help in creating and furthering physical infrastructural assets and public services. However, fiscal consolidation has been a binding constraint on this so far (Sen and Jha, 2005).

Scenario over the decades: Public Expenditure and Workforce Diversification

Since the 1980s, there could be seen diversification of employment from agriculture towards secondary and services sectors. According to Sen and Ghosh (1993), at that time this was considered to be positive as it was witnessed along with rural employment growth and decline in poverty. Later it was argued that this trend was more due to the external influence in terms of government expenditure rather than internal causes in rural areas. Agriculture however flourished under this impetus in states such as Punjab and Haryana, which had already crossed a minimum threshold level in terms of agricultural incomes and productivity. Therefore, further investment in agriculture instead of absorbing more labour led to displacement of labour due to increased productivity (Sharma and Nayyar, 2005).

The decade of 1980s saw increase in subsidies and transfers from the Central and State Governments to households, with a large focus on rural development which subsequently declined over the years. Rural employment thus flourished and more non-agricultural employment sprang up. As observed by Sen and Ghosh (1993), "nearly 60% of new government jobs created during the decade accrued to rural areas. Moreover, by 1987-88, nearly 2/3rd of regular non-agricultural employees in rural areas were employed by government, accounting for upto four-fifths of such regular job creation over that decade." The authors further argued that expansion of rural development schemes continued, in the form of IRDP and other redistributive schemes targeted at reducing poverty. Despite the success of these programmes being limited and struck by bureaucracy issues, they did have a favourable impact. The benefits of such schemes easily trickled to the rural areas because of the increase in rural infrastructure and expenditure on transportation and communication, leading to better connectivity. However, these benefits were not evenly spread even within the rural areas. However, with social schemes leading to higher demand and increasing connectivity, these led to widespread opportunities for self-employed workers to diversify towards non-agricultural jobs.

The 1990s saw a landmark change in economic policy in India, and the very public policies which were starting to contribute to the development of agriculture as well as rural development to enable non-agricultural job growth, were discontinued or lost priority. As per Sen (undated), "rural employment programmes of the government declined in scope and number of work days

generated". Due to balance of payments crisis and reserve requirements and debts, fiscal consolidation became the new priority of the government. This had an adverse impact on employment generation in different sectors, as well as a cut-back on rural development expenditure and public infrastructure.

Further on, with the advent of fall of public expenditure in the 1990s, the trend continued in the following decade. In the 2000s, although total expenditure by the government as a share of GDP showed an increase, developmental expenditure as a share of GDP saw a continuous decline. It has been stipulated that this trend saw its origins from the crises in State finances after the decade of the 1980s. Ramakumar (2008) argues that towards the end of the 1908s, state governments' surpluses turned to deficits. Moreover, as pointed out by Rakshit (1986), at this point low and administered interest rates were also witnessed, which shot up later on. However, Chaudhary (2000) argues that these trends failed to be captured due to the already pre-existing cheap debt that the States had availed. The impact of rising interest rates was later felt when State governments continued to borrow post 1990s, leading to huge debts (Chaudhary, 2000). Even interest rates on short term borrowing by the State governments rose to above 14 per cent in the latter half of the 1990s, which was greater than the GDP growth of the states (Isaac and Ramakumar, 2006). The authors claim that "as a share of the total revenue receipts, interest payments amounted to 13 percent in 1990-91, 16 percent in 1995-96 and 24 percent in 2001-02". Compared to the interest rated faced by State governments, Central government had to pay lower interests on its borrowings (Chandrasekhar & Ghosh, 2005); this gap continued till the 2000s.

Developmental expenditure by state governments thus could survive only at the mercy of the Central government, which had its own issues (see Jha and Acharya (2011) and Sen (undated)). The FRBM Act as a neo-liberal policy in the tight fiscal scenario emerged in the late 1990s. The finance commissions also reduced the practice of cancelling part of states' debts (Rao 2002; EPWRF 2004). It has been argued by Rakshit (1986) that the Government's drive to reduce costs on subsidies will hamper development as well as widen inequalities in the society. This is also related to India's financial repression and monetisation of debt. Fiscal issues depend on the kind of deficit, as a proportion of GDP, its composition in terms of whether revenue deficit is incurred to finance current consumption of government as opposed to developmental outlays. If it adds to debt, which is further aggravated by high interest payments, developmental and social

expenditure suffer. By the end of the 1980s a 'fiscal-monetary-inflation nexus became evident whereby excessive monetary expansion on account of monetization of fiscal deficit fuelled inflation' (Mohan, 2006). Moreover, monetising fiscal deficit through RBI has over the period increased committed expenditure of Central Government 51 times since 1980s, which has adversely affected development expenditure (Lahiri and Kannan, 2002).

Livelihood Diversification: The Case of Indian States

The general trend across major states is analysed here. It has been argued that the reform process of the 1990s adversely influenced public spending on "essential" services through tight control on expenditure, higher interest rate(s) on Government borrowings and low buoyancy in revenue (tax revenue) receipts (see Ramakumar (2008), Chakraborty (1999), Rakshit (1986) and Sen & Ghosh (1993)). Broadly, the 50 year period since 1960s can be divided into 5 sub periods (see Raut (undated)). Till the mid-1980s, revenue expenditure growth was exceeded by revenue receipts growth (1960s & first half of 1970s). But post 1986-87 and till 2001-02, Revenue Expenditure grew faster than Revenue Receipts, which led to high Revenue Deficits, reversing the earlier trends of revenue surplus (Raut (undated)).

In fact, as argued more recently by Sen (2016), despite the existence of large manufacturing units, the existence of a large informal economy with lack of jobs became evident, which according to him is dependent on the nature of these manufacturing firms. It has also been argued that social and economic barriers to informal enterprises exist, and this leads to their lagging behind. It has also been argued that 'government programmes are needed to address the issues that socially disadvantaged groups and female entrepreneurs face in the informal manufacturing sector' (Sen, 2016). Government expenditure focused around socio-economic transition would directly or indirectly impact workforce diversification and development.

In this context, Moser (undated) has looked at the Sustainable Livelihoods Framework, since the root cause of workforce diversification comes from the need for sustainable livelihoods for the population. The movement of capital facilitated by urbanisation and public expenditure on development can be seen in terms of the following[29]:

[29]These definitions have been described by Moser (undated), and also widely discussed in literature by Portes (1998), Narayan (1997) and so on.

1. Physical Capital, which is the stock of plant, equipment or infrastructure, which are also called man-made capital;
2. Financial Capital, which includes credit availability, savings and other sources of finance;
3. Human Capital, which is the basis for the socio-economic transition (see Jayaraj, 2004). This includes public (and/or private) investment in health, education and other such factors which directly impact on the quality and productivity of labour;
4. Social Capital, which includes the social systems and relations in place in society at community and household levels, forming the civic society as a whole with its norms along with the political setting;
5. Natural Capital- includes stocks of environmental assets- soil quality, water, forests etc.

As suggested by Jayaraj (2004) and Moser (undated), public policy with the aim of development should be focused around asset-building in order to impact workforce choices and employment availabilities. Moser (undated) further describes three ways in which public policies should be designed keeping these points in mind:

• Public interventions that increase access to assets (*asset accession*)
• Public investments that increase the returns from assets (*asset valorization*)
• Public policies that transform the status and value of assets (*asset transformation*)

Moser (undated) has also suggested stages in this policy framework: first generation consists of policies on social and economic infrastructure for building the asset pentagon. Second generation consists of public policies to maintain the assets so created. The importance of these has also been stressed by Dani and de Haan (2008).

4.8 Rural versus Urban Public Expenditure Trends

As mentioned earlier, a separate and detailed analysis of rural and urban public expenditure trends has not yet been carried out in the literature, with the exception of Jha and Acharya (2011) and Patnaik (2003), who have looked at rural patterns. These studies have included more detailed heads of rural expenditure, consisting of agriculture and allied activities, rural development, fertilizer subsidy, irrigation, and cooperation, compiled since the 1950s. Such expenditure is essential for the structural transformation process.

In this study, using data from the Economic and Political Weekly Research Foundation (EPWRF), the percentage distribution of expenditure has been presented, for rural and urban

areas for the major states under select heads. There is an inherent problem in the classification of such data for the purpose of research. Public expenditure data by rural and urban region is also not provided by any government agencies. Public expenditure data can be accessed via Ministry of Finance, and Comptroller and Auditor General of India website, but it provides a greater disaggregated level of detailed data for recent time period. To classify public expenditure data under different heads without a suitable framework is itself a challenge. However, classifying 50-60 per cent of the data can be taken up for a meaningful study. In this section however using basic expenditure data by EPWRF itself gives an insight into the quantum of uneven expenditure patterns for states across select heads. Rural expenditure in the present study includes investment on agriculture, irrigation, village industries and rural development.

Table 4.30, gives the percentage distribution of rural expenditure across states for select expenditure ends. In case of agricultural capital expenditure, Maharashtra has the highest share in recent time, while Uttar Pradesh and Uttarakhand combined, also entail substantial agricultural capital expenditure which was highest in 2004-05 to 2011-12; it has significantly come down in the recent period. Agricultural revenue expenditure is marginally better distributed than capital expenditure since even states like Madhya Pradesh and Chhattisgarh have high shares. Overall, agricultural investment for states such as Bihar and Jharkhand is just a fraction of investment done by developed states. So to have structural transformations in developing states, it is pertinent that there is boost in agricultural investment, otherwise both agricultural growth and non-agricultural growth could be adversely affected. In case of Irrigation, Andhra Pradesh accounts for one-fourth of the total investment done by major states in irrigation. Maharashtra, Gujarat and Uttar Pradesh also account for major chunk of investment; this leaves out other states with relatively low levels of investment in irrigation. Since the Indian subcontinent is monsoon dependent, irrigation is of utmost importance in securing livelihood for farmers. Investment done by Punjab in irrigation is very low, which may be the case since irrigation network in Punjab is already well developed. Overall, given the level of disparity in investment in agriculture and irrigation, it could accentuate regional economic disparity.

In case of overall expenditure in village industries, there is more investment in group 2 states than in group 1 states, while the paradox is that group 2 states are industrially developed. When it comes to capital investment in village industries, Maharashtra and Chhattisgarh have nearly 40

percent of investment share in the recent decade. In rural development, for states from group 1, Bihar has the highest share. Above all, since the states in group 2 are more urbanised than group 1 states, level of expenditure in rural development ought to be higher in group 1 states.

Table 4.30: Percentage Distribution of Rural Expenditure across States: Select Expenditure Heads

		Group 2 States								Group 1 States						
States	Time	AP	GJ	HR	KR	KL	MH	PB	TN	UPUK	WB	BHJH	MPCH	OR	RJ	
Agriculture Capital	D1	5	11	1	3	5	28	3	9	13	4	8	10	4	3	100
	D2	2	11	2	2	4	33	2	8	20	2	1	5	3	7	100
	D3	1	5	5	1	3	22	0	22	30	2	1	3	2	3	100
	D4	3	9	2	3	5	29	1	9	19	6	5	4	2	4	100
Agriculture Revenue	D1	7	5	3	7	4	19	3	12	10	6	6	11	4	4	100
	D2	6	5	3	9	5	19	3	11	10	6	5	11	4	4	100
	D3	7	6	3	12	5	15	2	7	10	4	6	13	5	4	100
	D4	10	5	2	11	5	12	4	8	11	3	5	15	5	4	100
Agriculture Total	D1	6	6	3	6	4	20	2	11	10	6	6	11	4	4	100
	D2	6	6	3	8	5	20	3	11	11	5	4	11	4	4	100
	D3	7	6	3	11	4	16	2	9	13	4	6	12	4	4	100
	D4	9	5	2	10	5	14	4	8	11	3	5	14	5	4	100
Irrigation Capital	D1	11	9	3	9	2	15	4	2	11	2	9	12	6	6	100
	D2	11	11	3	12	2	20	4	2	7	2	6	8	5	6	100
	D3	25	11	2	11	1	22	1	1	7	1	4	8	3	3	100
	D4	25	12	2	12	1	13	1	2	7	2	5	12	6	2	100
Irrigation Revenue	D1	11	12	4	7	2	16	4	3	19	4	5	4	2	7	100
	D2	14	15	4	5	2	17	3	4	15	5	4	4	2	7	100
	D3	27	4	4	2	2	11	4	4	17	4	6	4	3	7	100
	D4	25	4	5	4	2	9	4	4	20	3	5	4	5	6	100
Irrigation Total	D1	11	11	4	8	2	16	4	3	15	3	7	8	4	7	100
	D2	12	12	3	9	2	19	4	3	11	3	5	6	4	6	100
	D3	25	9	3	8	1	19	2	2	10	2	5	7	3	4	100
	D4	25	9	2	9	1	12	2	3	11	2	5	9	6	3	100
Village industries Capital	D1	5	2	1	20	7	5	8	6	8	7	2	24	5	1	100
	D2	2	2	0	15	24	11	6	3	13	11	0	12	1	1	100
	D3	1	1	0	11	10	7	5	2	2	14	0	42	4	1	100
	D4	0	1	0	9	7	1	1	1	8	9	5	57	0	1	100
Village Industries Revenue	D1	8	11	2	14	5	4	2	18	12	6	4	5	6	2	100
	D2	9	12	1	18	9	3	2	18	7	7	4	6	4	1	100
	D3	10	10	2	17	7	3	1	17	8	7	5	8	4	1	100
	D4	10	14	2	13	6	4	1	17	8	7	4	9	4	1	100
Village Industries Total	D1	8	10	2	15	5	4	3	17	11	6	4	7	6	2	100
	D2	8	11	1	18	10	3	2	17	8	7	4	6	4	1	100
	D3	9	9	2	17	7	3	2	17	8	7	4	10	4	1	100
	D4	9	13	1	13	7	4	1	15	8	8	4	14	3	1	100
Rural Dev. Total	D1	11	5	1	5	3	14	1	6	17	7	12	8	4	6	100
	D2	12	5	1	4	6	11	1	6	15	7	15	10	4	5	100
	D3	10	4	2	4	2	9	1	7	17	6	16	12	3	7	100
	D4	10	4	2	4	2	7	1	5	13	10	16	11	5	10	100

*D1: 1983-84 to 1992-93; D2: 1993-94 to 2003-04; D3= 2004-05 to 2010-11; D4=2011-12 to 2017-18
Source: Author's estimations using EPWRF data

Table 4.31: Percentage Distribution of Urban Expenditure across States: Select Expenditure Heads

		Group 2 States								Group 1 States						
States		AP	GJ	HR	KR	KL	MH	PB	TN	UPUK	WB	BHJH	MPCH	OR	RJ	
Industry Capital	D1	11	9	2	4	6	3	7	6	28	7	3	3	7	6	100
	D2	24	13	1	6	13	1	1	5	7	25	0	1	2	3	100
	D3	4	8	2	9	15	2	0	3	7	19	16	8	5	2	100
	D4	3	28	0	20	21	2	0	1	3	10	8	2	0	2	100
Industry Revenue	D1	7	5	1	18	2	11	1	7	8	5	9	10	3	12	100
	D2	8	11	2	10	4	14	2	8	6	7	8	5	4	11	100
	D3	5	11	1	3	3	25	2	6	9	11	10	9	2	3	100
	D4	9	9	1	3	1	25	0	10	7	4	8	20	2	2	100
Industry Total	D1	9	7	2	10	4	6	4	6	19	6	6	6	5	9	100
	D2	14	12	2	9	7	10	1	7	6	13	6	3	3	8	100
	D3	5	10	2	5	6	18	2	5	9	14	11	9	3	3	100
	D4	8	11	1	5	4	22	0	8	7	5	8	18	2	2	100
Urban Dev. Capital	D1	0	16	0	0	0	18	15	0	1	2	7	33	8	1	100
	D2	0	3	0	1	0	3	7	36	1	0	14	16	1	19	100
	D3	0	2	2	9	0	6	8	9	25	1	11	6	0	23	100
	D4	5	7	5	8	0	5	3	22	16	9	1	8	1	9	100
Urban Dev. Revenue	D1	10	6	2	4	1	17	3	12	4	25	4	7	3	3	100
	D2	9	9	2	5	5	14	1	6	5	25	3	5	2	11	100
	D3	12	20	2	5	2	16	0	6	9	14	4	5	1	5	100
	D4	9	17	6	3	1	16	0	3	9	11	8	9	2	8	100
Urban Dev. Total	D1	10	6	2	4	1	17	4	11	3	24	4	8	3	3	100
	D2	8	8	2	4	4	13	1	10	5	22	4	6	2	12	100
	D3	10	16	2	6	2	15	2	6	12	11	5	5	1	8	100
	D4	8	15	6	4	1	14	1	6	10	11	6	9	2	8	100

*D1: 1983-84 to 1992-93; D2: 1993-94 to 2003-04; D3= 2004-05 to 2010-11; D4=2011-12 to 2017-18
Source: Author's estimations using EPWRF data

As can be seen from Table 4.31, the main heads under urban expenditure are industry (excluding village industries) and urban development (capital as well as revenue). Industrial investment in group 1 states is far less than the investment made by group 2 states especially in case of capital investment in industries, where more than three-fourth of such investment is undertaken by states from group 2, whereas it is in group 1 states where higher capital investment in industries is desperately required. It is seen that in Investment in Industry, both in capital expenditure and revenue expenditure, the share of expenditure of Maharashtra, Madhya Pradesh is significantly higher than others. Also, in case of urban development, Gujarat and Maharashtra together account for nearly 33 percent of the investment undertaken for urban development. While Uttar Pradesh serves as an exception to group 1, having investment share of greater than 10 percent, it is a wake-up call for other states in both group 1 and group 2 to revamp urban centers so as to serve as a catalyst for economic growth. Overall for balanced economic growth and sustainability, it is pertinent that there should be a rise in public expenditure in developing states, both rural as well as urban.

In this context of spending on industry, Figures 4.11 and 4.12 present a brief overview from Economic Census as well as Annual Survey of Industries (for the case of organized sector in particular), suggesting that increase in number of establishments (both agricultural as well as non-agricultural) has been higher for developed states as compared to the developing states. The performance of developing states in terms of growth of units as well as persons has been lagging behind considerably. This is not surprising, given the trends studied earlier, with per capita expenditure over the decades for the developing countries on both social and economic sector lagging behind. It was also found that despite existence and growth of such units, a large informal economy with lack of jobs is still evident, which Sen (2016) argues is dependent on the nature of these units due to existence of social and economic barriers. He thus stresses on the need for government programmes and expenditure towards such issues by focusing on development expenditure.

Figure 4.11: Growth of Enterprises (Economic Census various years)

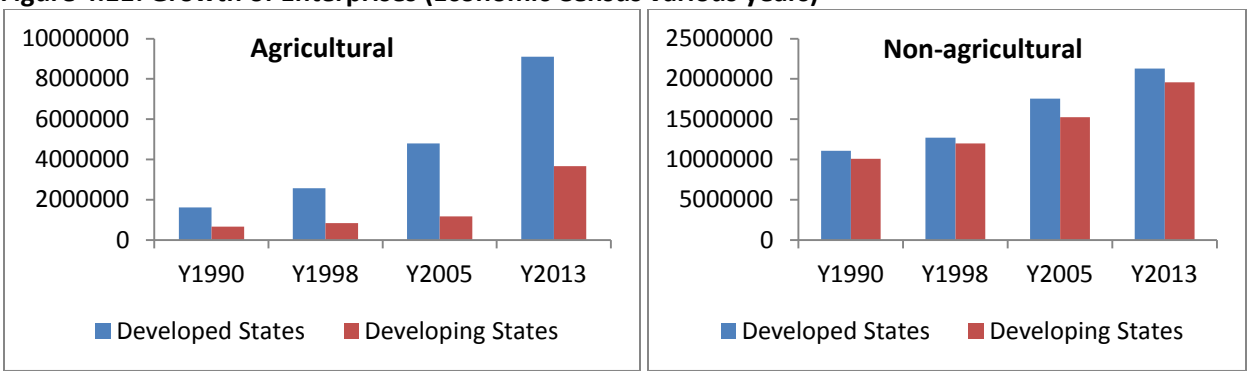
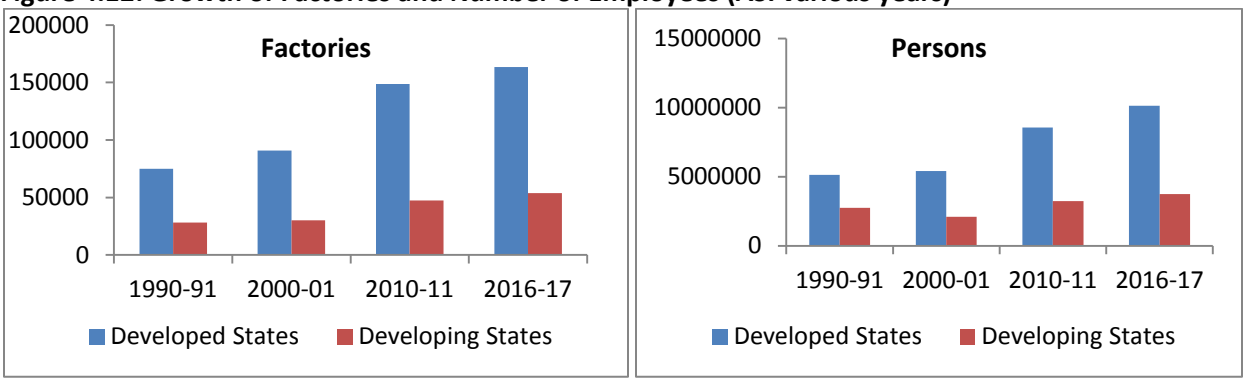


Figure 4.12: Growth of Factories and Number of Employees (ASI various years)



Public expenditure/ investment in different sectors since 1980s

Capital Expenditure (as % share in development expenditure)- (Figure4.13)

Share of Expenditure on Agriculture and allied activities is falling generally across states. Expenditure on Water, Industry and Energy fluctuates over the years. Transport has been gaining importance, which forms one of the main components of economic services, which have been seeing an increasing trend as well. Expenditure on rural development has been consistently falling across all the major states over the years, a point also argued in the early 1990s by Sen and Ghosh (1993), and the trend still continues.

The share of (development) expenditure in Andhra Pradesh since 1980s shows the following trends. Share of expenditure on social services has been fluctuating, while that on economic service has been falling surprisingly due to a large fall in energy expenditure (which became negative). Transportation, which saw momentum in expenditure in 1990s, saw a decline in 2000s, similar to Industry & Minerals. Expenditure on agriculture and allied activities has been falling. There has been significant but fluctuating expenditure on irrigation & flood control. Bihar has been witnessing fluctuating share of expenditure on social services. Spending on economic services has been on the rise owing majorly to the increased spending on Transport. Expenditure on rural development has risen in Bihar, a trend not seen in most other states. Irrigation and flood control have significant shares. However, Energy and Industry and Minerals seem to lag in terms of capital expenditure. The trends in Gujarat show an increase in social services expenditure. But, share of developmental expenditure on economic services has been falling sharply, as for Agriculture & allied activities. Flood control & Irrigation form an important component of expenditure, while Energy & Industry have low shares. Transport has had a consistently fair share in expenditure.

In Haryana, which was a major beneficiary of the Green Revolution, expenditure on Agriculture has fallen sharply (is negative). Expenditure on social services has increased, while that on economic service has been slowing down rapidly. Irrigation and flood control, as well as Water and Power development have significant expenditure in Haryana. Energy & Transportation have also seen a rise in spending. However, Industry remains at a backseat. Surprisingly, share of expenditure on social services has been falling in Kerala. Expenditure on economic services has

remained stable, as also has the expenditure on Agriculture & allied activities. There has been fluctuating but significant expenditure on Irrigation. There is very little spending on Energy. However, Industry & Minerals have a fair share of expenditure, while Transportation remains the sector with major expenditure over the decades.

In Karnataka on the other hand, expenditure on social services has been rising over the decades, although slowly. Expenditure on economic services including on Agriculture and allied activities has been falling. There has been very little spending on rural development. Irrigation and flood control spending is high. Spending on Transportation has been increasing post 1990s. Maharashtra seems to show a more stable trend in spending in aggregate terms on social and economic services. Spending on Agriculture and allied activities as in other states has been declining, while that on Irrigation and flood control has been rising sharply. Industry has a very low share in the total development expenditure. However, Energy and Transportation have seen some expenditure, although a little fluctuating over the decades.

In Madhya Pradesh, expenditure on social services has been more or less stable. However, spending on economic services has been falling, as in the case of Agriculture and allied activities. Irrigation seems an important sector for spending, although it has come down in the 2000s. Spending on Energy and Transportation has been rising over the decades. Industry however continues to have a lower share of the spending. Odisha has been witnessing an increase in the social services spending. However, spending on economic services has been falling. The spending on Agriculture and allied activities has been fluctuating although it still remains on the lower side. With Structural Adjustment Programmes and different schemes, rural development has seen a boost post 1990s. Spending on Irrigation and flood control has been constantly increasing, while that on Energy and Industry and Minerals has been falling. Spending on Transportation has picked up post 1990s.

Punjab has been and continues to be the hotbed of agriculture in India. However, spending on Agriculture and allied activities has been falling in Punjab (and even become negative post 1990s). Spending on social services has also been falling, as has spending on Industry and Energy. Spending on Irrigation and flood control continues to be significant. However, the slight rise in economic service spending may be attributes to the increased spending on Transportation.

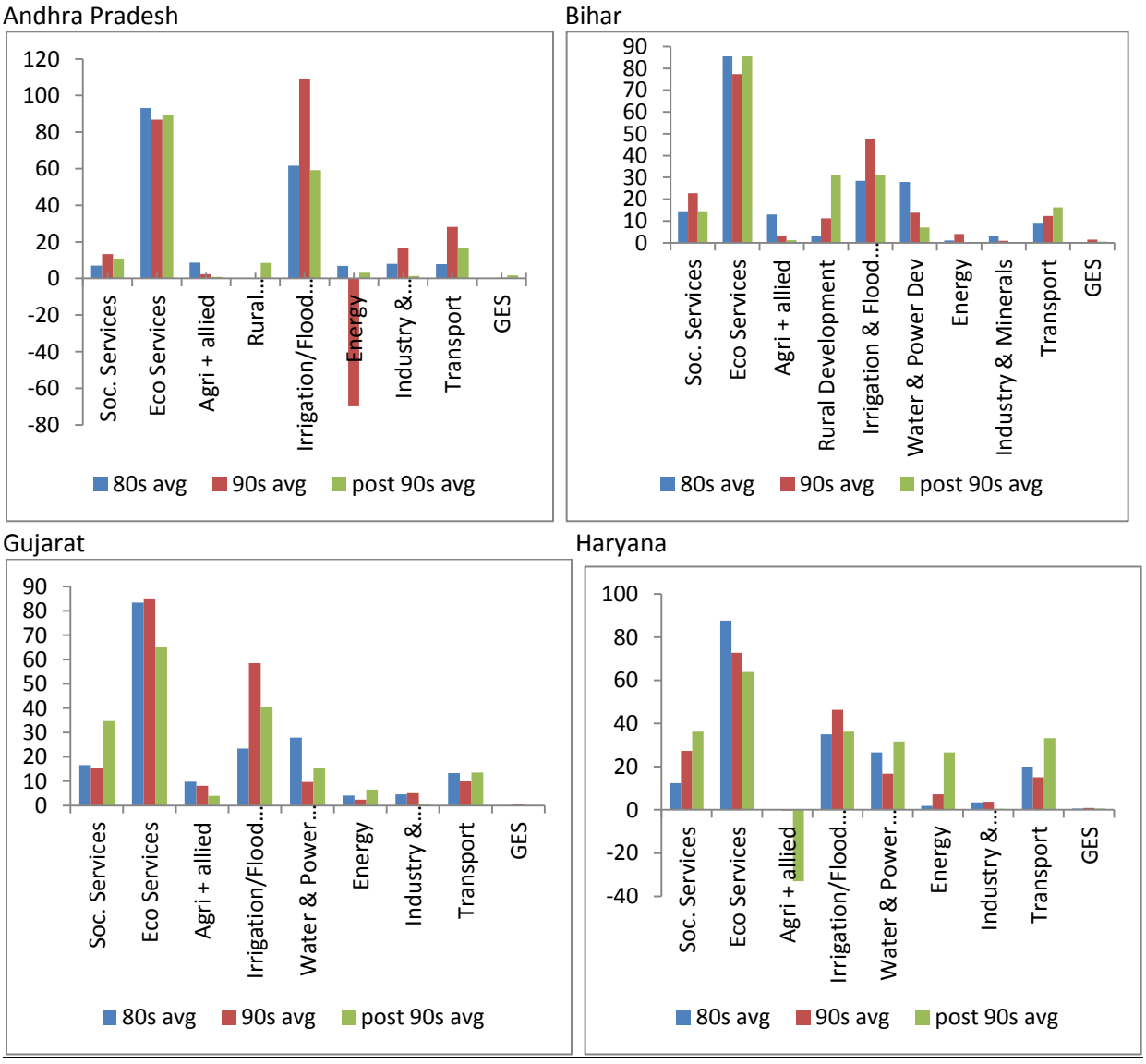
Hill area expenditure in Tamil Nadu is not large. Rather, Agriculture and allied activities and Water and sanitation have become important in mid 2000s. Energy has become important for West Bengal but whether it is for rural or urban areas is difficult to tell. Rajasthan and Tamil Nadu have increased spending on Water and Sanitation post 1990s. Transport is emerging as an important sector for Development Capital Outlay in most states.

Gujarat shows significant variations over time with Economic services playing a major role in recent years. However, Economic Services are more important because of Energy and Transport Communication. Urban Development (within social sector) is also high in the mid- 2000s. Share of Economic& Social sectors fluctuate - not surprisingly- given Haryana's agrarian orientation as also need to improve social indicators. Urban development (unlike Gujarat & Maharashtra) is not so important in Haryana possibly because urban growth is more due to proximity to Delhi and Chandigarh rather than emergence of smaller towns near rural areas (Palwal is a good example of how a rural area remains rural unless certain other socio- economic conditions are favourable). Energy and to a lesser extent Transport & Communication are emerging as important sectors attracting more public fund/investment. Even though Agriculture and allied activities together with rural development is important for Public expenditure even in mid 2000s, their combined share is lower than those in the 1980s. All told, Haryana's data suggest a broad trend and pattern similar to other similar States.

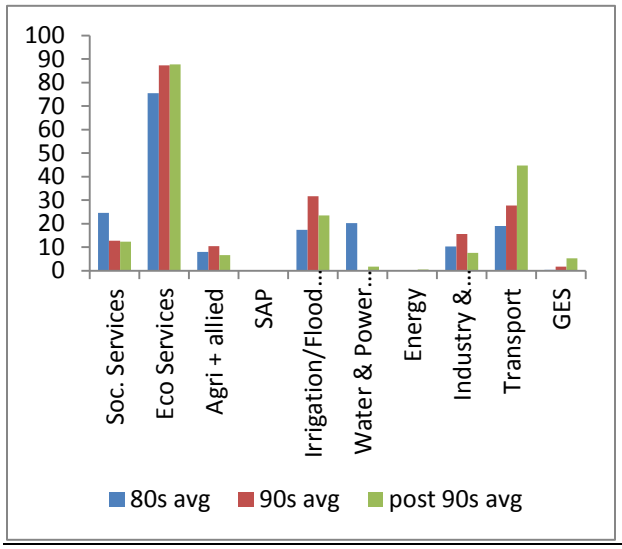
As in Maharashtra, Karnataka also shows changes in spending within Economic Services though share between social & economic services roughly remain same though it fluctuates from year to year. Changes in 2000s are more striking (especially Energy, Urban Development and Irrigation). In Rajasthan, there has been change in share spending on Energy; a feature common to many other States. Data shows similar trends as for earlier States. A surprising trend is the rise in share of urban development (given that Census towns are large in Bengal. Perhaps the urban development expenditure reflects the dominance of Kolkata in Urbanisation in West Bengal. Social security, education are fairly important and reflect "inclusive" policy vis-à-vis other State(s). General Economic service's share is fairly low. Punjab, Maharashtra & Tamil Nadu have high share of General Economic services.

Role of General Economic services in total revenue expenditure may be useful for detailed analysis. General economic services' share in Uttar Pradesh is small suggesting that administration is not getting enough attention (though expenditure alone cannot be relied to draw this conclusion). Social security and General Economic Services (administration or Secretariat) are important components of Tamil Nadu's revenue expenditure. Though urban development is a small component, its importance is on the rise. Energy is the big gainer in Punjab: whether because of power subsidies to agriculture or investment in power projects. Trends for Odisha are broadly in line with other States except that share of General economic services and transport (fluctuating) has risen in recent years.

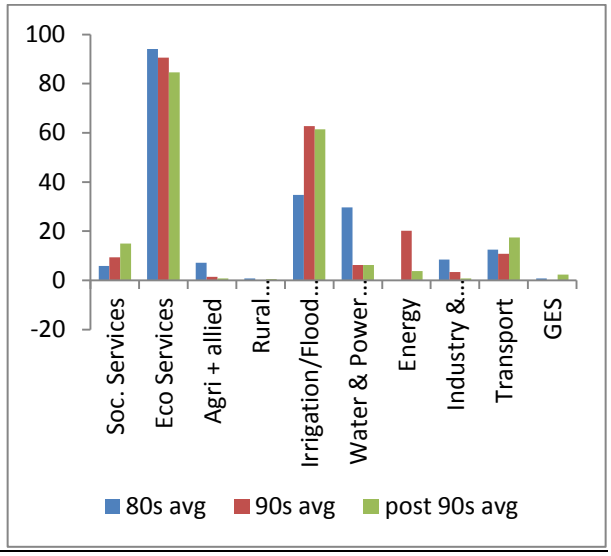
Figure 4.13: Share of Capital expenditure in Development expenditure



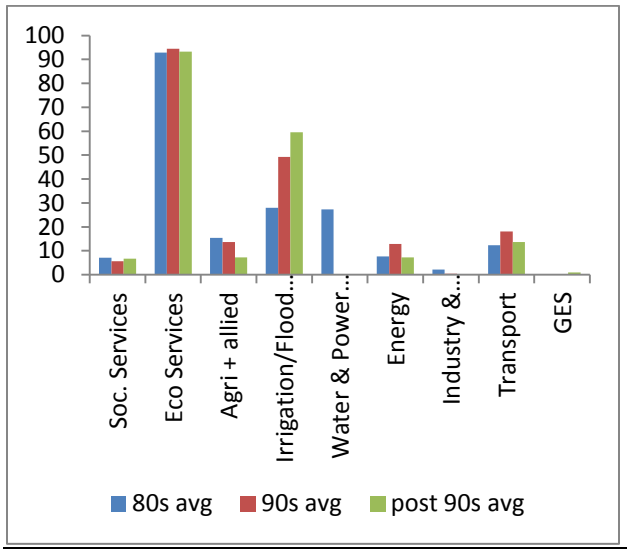
Kerala



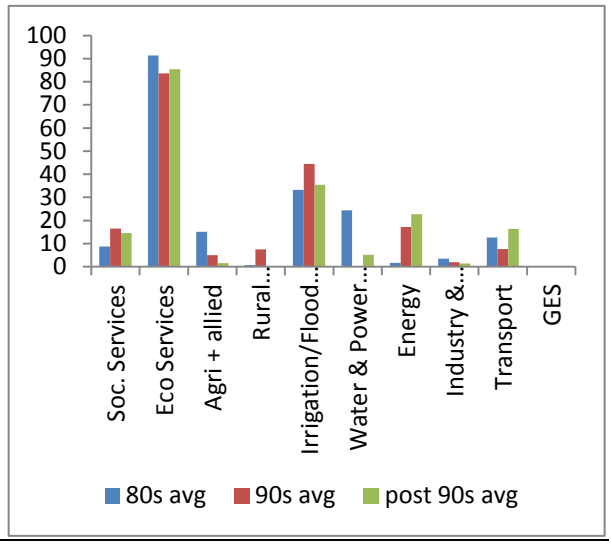
Karnataka



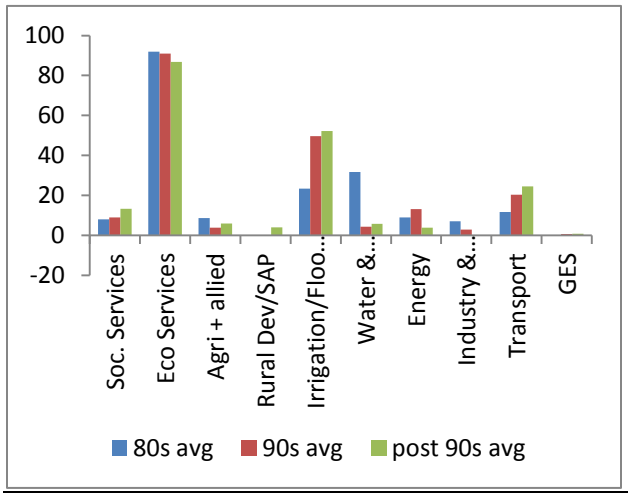
Maharashtra



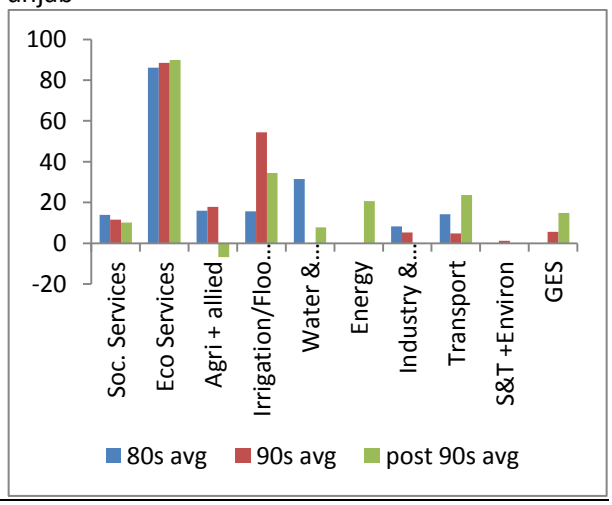
Madhya Pradesh

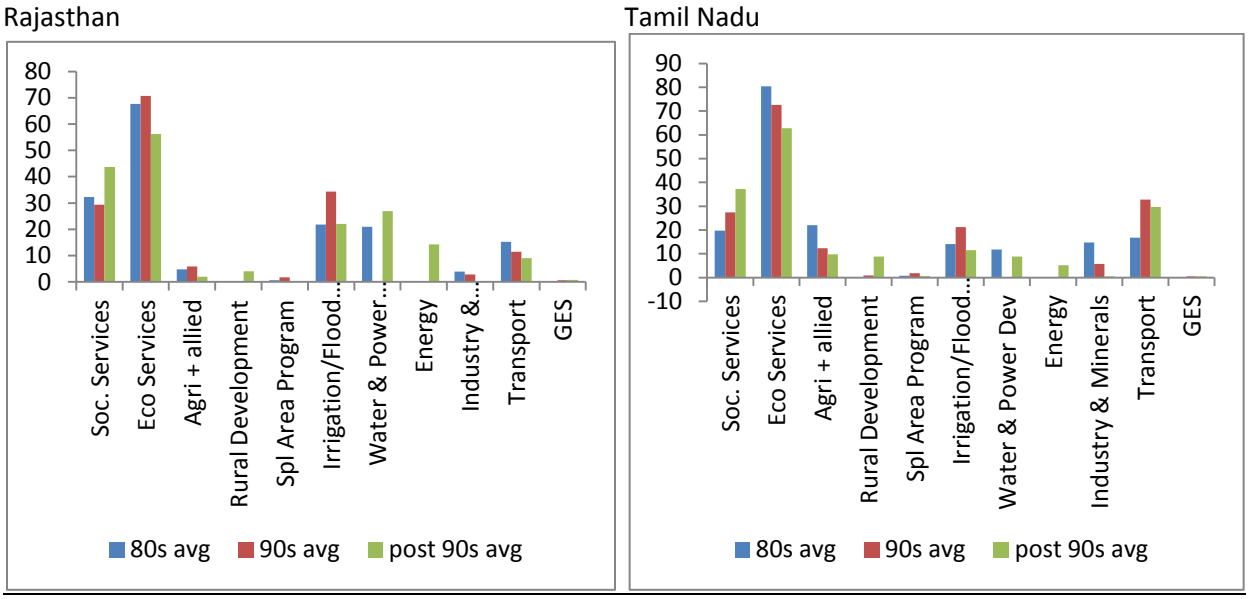


Odisha



Punjab





Concluding Remarks and Outlook of the Following Chapter

In this chapter, a comprehensive effort is made to discuss the state level dimensions in the study of workforce diversification. There has been a case of declining Work Force Participation Rate (WFPR), with states from low income categories also showing lower WFPR, the lowest being in Bihar in 2011-12. While in the decade immediately post reforms there was increase in employment elasticity, but during the second phase i.e. 2004-05 to 2011-12, there was negative employment elasticity, or for many of the states employment elasticity was insignificant. One of the major concerns was also that structural transformation has not enabled robust employment growth in the manufacturing sector. The level of industrialization in rural areas is still low; the maximum rural workforce engaged in industry was found in Tamil Nadu, followed by West Bengal. The importance of infrastructure development has been stressed throughout in the literature. However, public investment plays a dominant role in taking up the economy on a pre-determined growth path, but a crisis in public investment is evident at present. Further on, with the advent of fall of public expenditure in the 1990s, the trend continued in the following decade. In the 2000s, although total expenditure by the government as a share of GDP showed an increase, developmental expenditure as a share of GDP saw a continuous decline. It has been stipulated that this trend saw its origins from the crises in State finances after the decade of the 1980s. It is also evident that in almost all heads, per capita investment done by developing states is far below the level of developed states, and the gap in public investment will eventually result

in widening socio-economic disparity among developed and developing states. At the same time, rural and urban investment has also been shown to mark out the differentials in developing state and developed states. These differences manifest in regional divide in employment outcomes and diversification, which is also shown at regional level using NSS data. In sum, the declining employment elasticities overall call for serious public intervention, especially in industry.

Chapter 5: Examining the Correlates of Workforce Diversification

'.....majority of the world's poor are not employed in factories; they are self-employed - as peasant farmers, rural peddlers, urban hawkers, and small producers, usually involved in agriculture and small trade in the worlds vast "informal" economy…..' David Bornstein

Recapitulation

The previous chapter gave an overall account of the household, individual as well as state level workforce diversification scenario over the past four decades. These trends and patterns as well as analysis of the pathways of such diversification revealed a somewhat dismal picture of the structural transformation of the Indian economy in terms of employment. It is evident that dependence on less sustainable sectors of work continues to dominate, with increasing informalisation and non-agricultural work essentially dominant in the form of own-account work. This chapter deals further with these issues to determine the correlates and associated factors with such trends and outcomes.

Outline of this chapter

This chapter delves further into the dynamics of workforce diversification in the major states of India, with a focus on understanding the correlates of diversification such as levels of education, age-group, gender, social and religious groups and so on. It further engages into systematic econometric analysis to determine the significance of correlates in explaining the choice of participation in a particular sector of work over others through a multinomial logistic regression. It further decomposes these correlates to understand the exact extent of workforce diversification explained by these. In addition, a dynamic model is applied to understand the push and pull dynamics in rural areas.

5.1. Objectives of the chapter

As mentioned above, this chapter seeks to further delve deeper into the correlates and determinants of workforce diversification in the rural as well as urban areas, and to understand the extent to which different kinds of factors may impact such a structural transformation. The basic questions that this chapter attempts to seek answers for are listed below:

- What are the major individual and household attributes that influence the decisions to diversify livelihood patterns?
- What are the dynamics in rural and urban areas, and how far are they comparable?
- To what extent have these attributes been relevant over time and space?
- Is rural non-farm employment a distress or a prosperity induced phenomenon?

These and other related issues are discussed in detail in this chapter with a view to gaining insights into the reasons and driving factors behind the trends witnessed in the previous chapter.

5.2. Proximate Correlates and Hypotheses

The general trend found in developing countries as opposed to the stylized facts in the developed world, is that of a slower transformation of employment structure. Boosting rural non-farm employment is one way of speeding up the process of workforce diversification, given that rural transformation from agriculture secondary and tertiary sectors for work is the initial step of 'diversification' (Bhalla, 1997 for instance). To be able to initiate the enabling conditions for such a transformation however, the proximate correlates for such a structural change must be understood. This is where the earlier discussions on Davis and Bezemer's (2004) argument on the motivation and ability of households to diversify depending on the barriers and come into a broader perspective. More importantly, the endowments and ability to move to other sectors for work include factors such as skills, social capital and so on, and the resulting livelihood shifts range between distress-push and demand-pull motivations.

Therefore, the first section in this chapter examines the basic hypotheses based on the expected proximate correlates of workforce diversification can be summarised in the following manner. Since education levels, age and social standing have been considered important 'determinants' of workforce diversification in the literature, the following section investigates and analyses the trends and patterns of workforce diversification with respect to these correlates. As the 'assumptions' in the literature predict, higher education levels would help in transition to more productive sectors. Moreover, the upcoming youth would be less interested in working in the primary sector. It is also generally hypothesized that those in the upper social stratifications find it easier to move to better jobs. The trends over forty years since the 1980s are presented below.

This section looks at the trends and patterns in workforce 'diversification', and the structure of employment across sectors on the basis of different correlates since the 1980s; the first quinquennial round in each decade, i.e. 38th round (1983), 50th round (1993-94), 61st round (2004-05) and 68th round (2011-12) are presented for long-term trends. The correlates include educational attainment, age-cohorts, gender, religion and caste; for agriculture and for non-agriculture separately as a break-up within non-agricultural sectors. In addition, these trends are analysed separately for those workers who are **only employed in principal status (Only PS) within the Usual Principal Status workers**, as well as **those (within UPS workers category) who also have some subsidiary activity along with their principal activity (PS with SS)** and **those who have no principal status employment but are only employed in the subsidiary category (Only SS).** As mentioned earlier in Chapter 3, each of these sections of workers depicts the increasing levels of vulnerability of workers, and such a disaggregated analysis would provide more insights into workforce diversification patterns.

Level of Educational Attainment

The literature on education as an important facilitator of workforce diversification is extensive. It has been argued by a number of studies that literacy and educational attainment, especially at the primary and secondary levels, has a significant influence on the growth of non-farm activities especially in the rural areas and small towns (for instance, see Basant, 1993; Eapen, 1994; Jayaraj, 1994; Islam, 1997; Samal, 1997 Lanjouw and Shariff, 2002; Micevska and Rahut, 2008). Households where educations levels were generally low (especially for the head of the household), have been found to remain in low earning farm work or low productive non-farm work in general as compared to households with higher levels of education[30] (Hossain, 2004; Abdulai and Delgado, 1999). Similarly, individuals with primary and secondary education are likelier to participate in more productive non-farm activities (Newman and Canagarajah, 1999).

It is therefore clear that human capital (an important component of the asset pentagon as discussed earlier) including education levels, skills and so on improve and broaden the opportunities for diversification in a positive sense. In fact, it was estimated by Dev (2007) that the percentage of rural non-farm workers is over 40 per cent for those educated upto secondary

[30] Meanwhile, schooling of household members could also result in ideas and suggestion transfers for household members engaged in self-employment, an indirect impact of education in general.

level or above while for illiterates it was below 20 per cent. It is to be expected that education would positively impact non-farm participation. However, this trend in rural areas specifically has been found to be weakening in the 2000s, with workforce diversification in rural areas benefitting those with low or no education (Vaidyanathan, 2001; Kashyap and Mehta, 2007).

This leads to the question of *effectiveness* of formal education; but this should be investigated with the caveat that in most cases, access to education in itself biased towards better endowed sections. This being said however, it was found that in Uttar Pradesh, education at primary and middle levels did not seem to have any impact on skills required for non-farm work (Ranjan, undated). It has also often been argued that education imparted at the school level is not satisfactory (for instance, Drèze and Gazdar, 1996). At the same time, many skills required for non-farm activities may be acquired outside schools on the job, rendering the notion that higher education levels would always guarantee better paying higher productive jobs to further enquiry.

Education no doubt leads to an easing of socio-economic constraints of the workers; higher education improves skills for more productive jobs in manufacturing and services (Islam, 1997). While primary education is hypothesized to enhance worker productivity, secondary and higher education hone entrepreneurial skills, and capabilities to adapt to changing demand patterns while at the same time improving and expanding the aspirations for work (Davis, 2003). Srivastava and Sachdev (undated), Dev (2003), and Srivastava and Srivastava (2010) have argued that education can explain wage and productivity growth across sectors, including the primary sector which continues to be the dominant employer in rural areas in general (FAO and UNESCO, 2003). In general, better paid jobs tend to require secondary schooling and beyond (Ferrerra and Lanjouw, 2001). At the same time, diversification through migration is likelier to be more fruitful for the more educated, failing which informal service sector jobs tend to rise.

On the flip side, it has been found that a decline in work participation is evident due to pursuit of higher education by a larger share of workers as compared to population growth; this in itself is not an issue compared to the creation of enough jobs to absorb these workers once they acquire higher education levels and re-enter the job market. The most concerning issue is the growing fear of growing unemployment with growing levels of education, while lower education levels

face lower unemployment due to availability of informal work options (for instance, see Mehrotra et al, 2012).

The differentials between rural and urban areas can also be explained by the education and skill differentials; rural areas lag much behind urban areas on these fronts, leaving serious implications for development of rural primary sector on one hand and absorption of rural workforce in productive on-farm jobs. Any policy to boost workforce diversification, beginning with rural transformation, must first focus on improving education and skill levels (Chand and Shrivastava, 2014). In this context, Srivastava and Srivastava (2010) argue that although education might only marginally impact women's workforce participation, education is an important factor for women already in workforce to be able to gain better productive jobs. Education therefore directly or indirectly impacts workforce diversification.

Table 5.1 shows the distribution of agricultural and non-agricultural workers with respect to different educational attainment levels (below primary, primary or middle and above secondary). For instance, in 1983, for workers only working in the principal status, 75 per cent of those educated below primary level were in agriculture while 25 per cent were in non-agriculture, while in 2011-12, for those educated below primary level, 61 per cent were in agriculture and 39 per cent worked in non-agriculture in the only PS category. Similar trends are shown for the principal activity of those who have a subsidiary activity along with their principal activity (PS with SS) and for rural and urban areas as well. In general, for those with Only PS as well as those who have a principal as well as subsidiary activity, larger share of those who have a higher education level are engaged in non-agriculture. However in rural areas, the share of the higher educated groups is almost equal between those in agricultural and non-agriculture, suggesting that rural non-agricultural activities might not be very skill-intensive/ might not require high education levels and might not be highly productive. For those employed only in the Subsidiary capacity (Only SS), still over 70 per cent of each education level are engaged in agriculture in rural areas, while a large section of workers in each education level in urban areas are engaged in different non-agricultural activities, with less educated workers majorly in (informal) service sector activities and more educated workers in more productive sectors, as has been argued in the literature.

Table 5.1: Education levels: Agriculture and Non-Agriculture(%)

Education levels		1983			1993-94			2004-05			2011-12			
		BPE	PME	ASE	BPE	PME	ASE	BPE	PME	ASE	BPE	PME	ASE	
Total	Ps Only	75	48	19	72	48	23	68	47	25	61	43	25	Agri
		25	52	81	28	52	77	32	53	75	39	57	75	Non-agri
	PS with SS[31]	82	67	35	82	67	41	77	66	46	68	58	43	Agri
		18	33	65	18	33	59	23	34	54	32	42	57	Non-agri
	SS Only	89	80	69	88	77	69	87	75	61	74	69	57	Agri
		11	20	31	12	23	31	13	25	39	26	31	43	Non-agri
Rural	Ps Only	85	70	46	83	68	51	79	64	49	72	59	48	Agri
		15	30	54	17	32	49	21	36	51	28	41	52	Non-agri
	PS with SS	84	71	41	84	70	47	78	69	51	70	60	48	Agri
		16	29	59	16	30	53	22	31	49	30	40	52	Non-agri
	SS Only	92	88	84	91	85	83	91	84	78	77	76	70	Agri
		8	12	16	9	15	17	9	16	22	23	24	30	Non-agri
Urban	Ps Only	19	7	3	17	8	3	14	6	3	11	6	3	Agri
		81	93	97	83	92	97	86	94	97	89	94	97	Non-agri
	PS with SS	44	27	10	44	27	11	33	22	10	29	20	11	Agri
		56	73	90	56	73	89	67	78	90	71	80	89	Non-agri
	SS Only	54	42	31	50	35	26	43	27	14	33	19	14	Agri
		46	58	69	50	65	74	57	73	86	67	81	86	Non-agri

*BPE: Educated below primary level; PME: Primary and middle level education; ASE: Secondary and above level
Source: Author's computations from various NSSO surveys

With this distribution in mind, the following tables show the distribution of educational groups in the agricultural sector as well as the distribution within the non-farm sector[32] for each educational attainment level. The distribution of educational groups within agricultural sector is given in Table 5.2. The general trend over time has been similar for those with only PS and those with both PS and SS, in rural and urban areas. Higher shares of those in agriculture have education levels below primary, although this trend has been declining gradually over time with increasing literacy rates. While in 1983, around 80 per cent of those in agriculture were educated below primary level, this declined to 50 per cent on an average, with educational attainment increasing in primary and middle levels. For those with only SS, the trends remain similar.

Table 5.2: Distribution of Educational Groups within Agricultural Sector (%)

Education levels		1983			1993-94			2004-05			2011-12		
		BPE	PME	ASE	BPE	PME	ASE	BPE	PME	ASE	BPE	PME	ASE
Total	Only PS	80	17	3	72	21	7	62	27	11	52	29	19
	PS with SS	82	16	2	77	19	4	65	27	8	59	30	11
	Only SS	76	19	5	75	18	7	65	24	10	59	26	15
Rural	Only PS	80	17	3	72	20	7	62	27	11	53	29	18
	PS with SS	82	16	2	77	19	4	65	27	8	59	29	11
	Only SS	77	18	4	75	18	7	66	24	10	60	26	14
Urban	Only PS	73	21	7	66	24	11	54	28	19	42	29	29
	PS with SS	70	25	6	66	26	9	54	32	14	46	34	21
	Only SS	60	30	11	64	23	13	55	30	15	53	24	23

*BPE: Educated below primary level; PME: Primary and middle level education; ASE: Secondary and above level

[31] PS with SS includes workers in the principal status who may also have some subsidiary activity along with their principal activity. This chapter uses this notation throughout.

[32] This is excluding agriculture, to capture the trends and workforce diversification patterns within non-farm sector based on educational attainment level

The ***distribution within the non-farm sector*** for each educational attainment level shows workforce diversification within the non-farm sector based on educational attainment levels. In general, for those with Only PS (Table 5.3) and educated upto middle levels, the concentration of workers in manufacturing[33] and construction sectors is high (in fact, the compositional share of construction work for those with below primary level education has been rising), followed by THR and CSP. Meanwhile, for those with secondary education and above, a higher share was seen in CSP (which include government jobs and jobs as teachers etc.), but this composition has declined over time and a rise in composition share in TSC (including the ICT sector) is seen. For those who have both principal and subsidiary activity (Table 5.4) and educated below primary level a very high composition of work in construction is visible, as is the case for those with primary and middle level education. For those with secondary education and above, the high dependence on CSP has declined and shifted to construction (for the vulnerable population) and TSC. In case of workers with only SS (Table 5.5) and educated below primary level, the share of work in manufacturing which was 62 per cent in 1983, fell to 41 per cent in 2012, suggesting that even short-term (contractual/ informal) work in the manufacturing sector especially at the lower end requiring fewer skills have declined, while it was stable at roughly around the range of 55 for those with middle level education and around 30 per cent for those with higher education, while share of construction has been growing rapidly.

Table 5.3: Workforce Diversification of Groups based on Educational Attainment (Within non-farm) : Only PS-Total (%)

Education levels	Years	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP	Total
Below Primary	1983	3	38	0	10	19	8	1	21	100
	1993-94	3	34	1	12	21	8	0	21	100
	2004-05	2	31	0	18	24	9	1	15	100
	2011-12	2	28	1	29	19	8	1	11	100
Primary/ Middle	1983	1	35	1	6	24	10	2	22	100
	1993-94	1	31	1	8	24	10	1	23	100
	2004-05	1	32	1	14	28	11	2	12	100
	2011-12	1	29	1	21	24	11	2	12	100
Secondary/ Above	1983	1	19	2	2	16	8	7	45	100
	1993-94	1	20	2	3	19	7	8	40	100
	2004-05	1	20	1	4	25	10	8	30	100
	2011-12	1	19	1	8	24	11	9	27	100

[33] The less educated workers are concentrated in low skill jobs in factories.

Table 5.4: Workforce Diversification of Groups based on Educational Attainment (within non-farm): PS with SS – Total(%)

Education levels	Years	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP	Total
Below Primary	1983	4	38	0	16	18	6	0	17	100
	1993-94	5	33	0	19	19	7	0	16	100
	2004-05	3	30	0	32	17	8	0	9	100
	2011-12	1	22	0	51	12	6	1	7	100
Primary/ Middle	1983	2	33	1	9	25	7	1	22	100
	1993-94	2	27	1	14	25	7	1	22	100
	2004-05	2	29	1	23	25	9	2	10	100
	2011-12	1	21	0	42	19	8	2	8	100
Secondary/ Above	1983	0	13	1	3	13	5	5	60	100
	1993-94	1	14	1	4	19	6	5	50	100
	2004-05	1	16	1	9	26	9	6	33	100
	2011-12	0	15	1	19	23	9	7	26	100

Table 5.5: Workforce Diversification of Groups based on Educational Attainment (within non-farm): Only SS – Total(%)

Education levels		MIN	MFG	UTL	CNS	THR	TSC	FBR	CSP	Total
Below Primary	1983	1	62	0	3	17	1	0	15	100
	1993-94	1	58	0	4	16	1	0	19	100
	2004-05	1	64	0	8	14	2	0	12	100
	2011-12	1	41	0	45	7	1	0	5	100
Primary/ Middle	1983	0	55	0	3	24	3	1	13	100
	1993-94	1	46	0	3	23	2	0	24	100
	2004-05	0	65	0	4	19	2	1	9	100
	2011-12	0	57	0	21	12	1	2	8	100
Secondary/ Above	1983	1	28	0	4	25	2	2	38	100
	1993-94	1	21	1	2	25	4	4	42	100
	2004-05	0	31	0	3	19	3	5	39	100
	2011-12	0	29	0	14	20	2	5	30	100

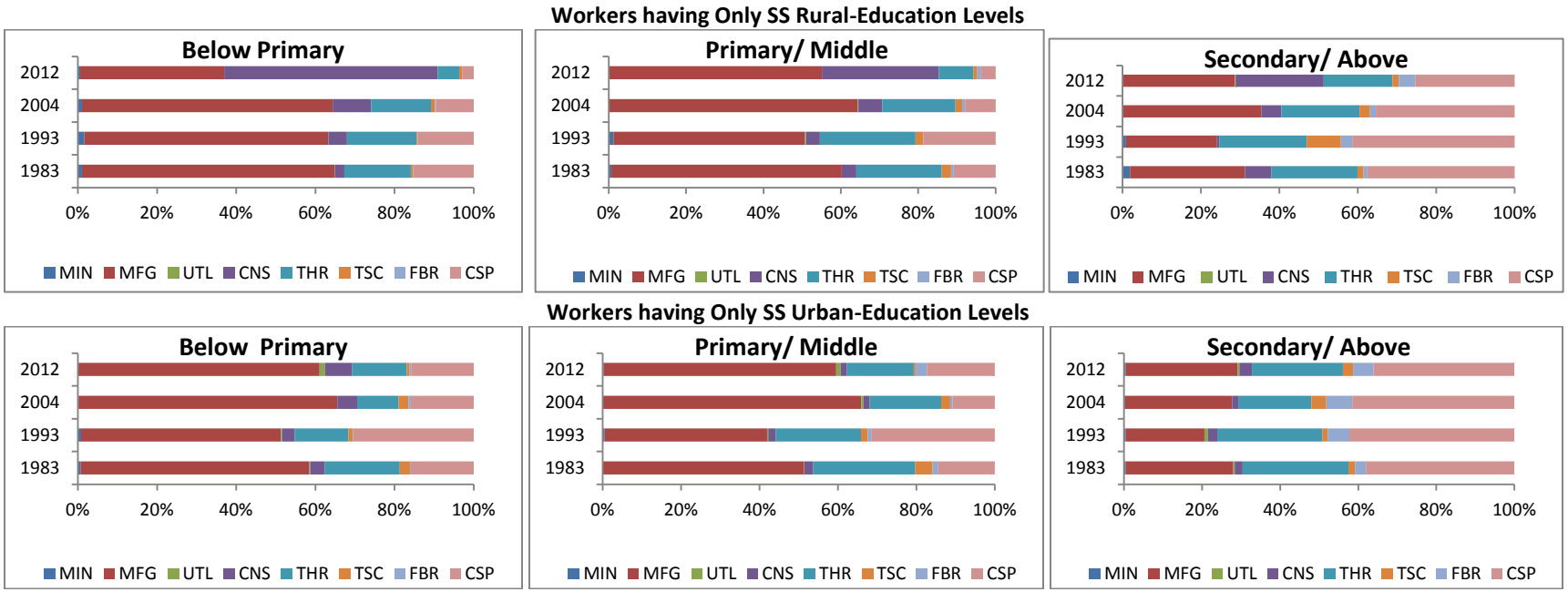
**MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's computations from various NSSO surveys

Trends in rural and urban areas are given in Figure 5.1. In rural areas, for those with only PS, a higher concentration of those educated below primary can be seen in manufacturing, but this share has been declining, owing to an increase in construction. Those with primary and middle level education have also been moving towards construction sector. For those with secondary education and above, CSP was a major choice for work, but this composition share has also been falling, and a sudden rise in share in construction work was seen in 2011-12, suggesting precarity of work for even higher levels of education. A steady decline in participation in manufacturing is noticeable over time for those educated upto middle levels suggesting that rural manufacturing is declining and a major chunk of rural non-farm employment is due to construction. Even within non-agricultural sector, the composition of work in manufacturing sector for each level of education has been declining rapidly, for those with below primary level of education, , the composition share of manufacturing fell from 41 per cent in 1983 to just 26 per cent in 2011-12. Similarly for middle level education groups it fell from 35 per cent in 1983 to 26 per cent in

2011-12. Among higher educated levels, there was only a slight increase, but the share remains at below 20 per cent. This shows a steady decline in manufacturing jobs over time, especially when looking at workers with only principal status of work. Those who have both PS and SS or only SS are becoming even more vulnerable. In rural areas, for those with PS and SS, dependence on construction for work has grown tremendously, which is attributable to the MGNREGA which provided a boost to construction activities in rural areas. In case of workers only in SS category in rural areas, those with middle or below primary levels of education have seen opportunities in construction sector, while the more educated found work in THR or CSP (these would include those with education as main activity and doing part-time work as well). Workforce composition in manufacturing meanwhile has been continuously declining throughout (despite a few fluctuations), a sign of premature deindustrialization. In urban areas meanwhile, for those with Only PS, while the trends for those with education levels upto middle level are similar to those in rural areas, those with secondary education or above have been shifting towards TSC and FBR. THR remains a significant sector of work for most education groups and its composition in non-agricultural work is more or less stable over time. In urban areas too, the signs of premature deindustrialization are glaring, while THR has been a more or less constant source of work. For those with secondary and above education, CSP share has also been declining, and an increase in TSC and FBR is visible. For those with Only SS in urban areas, share of manufacturing, THR and CSP remain significant. The distribution of educational attainment by industrial sectors is given in Table 5.6. Although agriculture used to be dominated by less educated workers, increasing education levels have led to a decline in this trend. Manufacturing sector is equally spread out among all education levels, with different activities available for different levels of education. Construction is dominated by the less educated and those with education till middle levels. All the services meanwhile were dominated by middle level educated workers, but are gradually being dominated by the more educated groups. In rural areas (appendix table A5.1), THR is more equally spread between all education groups, while construction is predominantly pursued by the less educated groups. CSP is increasingly dominated by higher educated groups. The trends in urban areas (appendix table A5.2) show that manufacturing and CSP are becoming dominated by the more educated groups, while construction also sees a fair share of middle and higher educated levels working in it.

Figure 5.1: Workforce Diversification of Groups based on Educational Attainment within non-farm sectors since 1980s, Rural and Urban areas



**MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's computations from various NSSO surveys

Table 5.6: Percentage Distribution of educational attainment by industrial sectors: Total

	1983				2004-05				2011-12			
Total	BPE	PME	ASE	Total	BPE	PME	ASE	Total	BPE	PME	ASE	Total
AGRI	80	17	3	100	63	27	10	100	54	29	17	100
MIN	72	19	9	100	56	26	18	100	41	27	33	100
MGF	55	32	12	100	38	38	24	100	32	36	32	100
UTL	23	42	35	100	12	27	60	100	27	30	42	100
CNS	68	25	7	100	51	37	12	100	47	36	17	100
THR	45	38	17	100	29	36	35	100	23	32	45	100
TSC	45	35	20	100	29	36	35	100	23	33	45	100
FRB	10	23	67	100	7	18	76	100	5	14	81	100
CSP	36	25	39	100	24	20	56	100	17	20	63	100
Total	69	22	9	100	50	30	21	100	40	30	30	100

*BPE: Educated below primary level; PME: Primary and middle level education; ASE: Secondary and above level

**MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's computations from various NSSO surveys

Age-groups and Cohorts- What the Youth want

Age is another important characteristic that often defines the sector or rather, the *choice* of sector of work. As Bennel (2007) and Sundaram (2007) argue, the rural youth generally grow increasingly disinterested in participating in farm activities, and are generally more mobile and accepting to work across regions and sectors. Given the vast size of youth currently burgeoning in the Indian labour market, the structural transformation process will be even more important.

In fact, a similar analysis was undertaken by Rawal and Usami (2018) recently, who have looked at smaller groups of age-cohorts between 2005-05 and 2011-12, and found that rural male workforce increased by 14.7 million between 2004–05 and 2011–12, and was mainly employed by construction sector. They also found that among the youth between ages 15 and 21 in 2004-05 who attained education, '*workers with education up to higher secondary level moved into agriculture as both cultivators and agricultural workers, persons with technical diplomas cornered manufacturing sector jobs, whereas workers with college degrees came to be employed in household enterprises (as cultivators) or in the service sector as regular wage workers'* (see Rawal and Usami, 2018).

Age-Cohort Analysis

The age-cohort analysis in this section analyses workers (based on the UPSS criterion), who were in the age-group of between 21 and 30 years[34] in the year 1983 (Table 5.7). This cohort may be compared with corresponding cohorts (with age increases according to the time gap between each round) to roughly track the working patterns across different industrial sectors over time with increasing age[35]. Since the time gap between 1983 and 1993-94 is 10 years, the age cohort of 21-30 years in 1983 becomes 31-40 during 1993-94; similarly, since the difference between 1993-94 and 2004-05 is of 11 years, this age cohort becomes 42-51 in 2004-05 and since the difference between 2004-05 and 2011-12 is of 7 years, this age cohort grows to the age group of 49-58 year old workers. Therefore, the workers who were between 21 and 30 years in 1983 are between 49 and 58 years old in 2011-12 and form a representative sample of analysis[36].

[34] Youth workers past their teenage, possibly with some education and/ or work experience
[35] See Rawal and Usami, 2018
[36] Some of these might have exited the labour market, or died; new migrants in middle ages might have joined and so on.

Table 5.7: Tracking Age-Cohorts since 1983 (in % shares)

Year	Time gap	Age Cohort	Agri	Min	Mfg	Util	Cons	THR	TSC	FBR	CSP	
			Rural Female									
1983		21-30	87.5	0.4	6.8	0.0	0.9	1.6	0.1	0.0	2.6	100
1993-94	10 years	31-40	85.9	0.4	6.3	0.1	0.8	2.5	0.1	0.1	3.8	100
2004-05	11 years	42-51	86.0	0.2	6.0	0.0	1.1	2.7	0.2	0.1	3.8	100
2011-12	7 years	49-58	79.0	0.1	6.0	0.1	6.0	3.2	0.1	0.2	5.3	100
			Rural Male									
1983		21-30	74.9	0.7	7.7	0.3	3.1	4.9	2.3	0.4	5.8	100
1993-94	10 years	31-40	69.8	0.9	7.4	0.4	3.8	6.3	2.9	0.6	8.0	100
2004-05	11 years	42-51	67.7	0.8	6.8	0.5	5.6	7.8	3.4	0.8	6.5	100
2011-12	7 years	49-58	64.4	0.4	5.8	0.5	9.9	7.7	3.0	0.9	7.4	100
			Urban Female									
1983		21-30	27.1	0.4	29.0	0.4	3.5	7.0	1.8	1.7	28.9	100
1993-94	10 years	31-40	22.9	0.7	22.1	0.3	4.8	9.8	1.5	2.3	35.5	100
2004-05	11 years	42-51	19.5	0.2	19.3	0.4	4.5	14.2	1.6	3.0	37.2	100
2011-12	7 years	49-58	15.1	0.9	20.3	1.3	3.8	15.8	1.4	3.8	37.7	100
			Urban Male									
1983		21-30	8.2	1.1	28.3	1.0	5.5	20.8	10.8	3.7	20.5	100
1993-94	10 years	31-40	6.5	1.7	23.1	1.6	6.9	19.8	11.6	5.0	23.8	100
2004-05	11 years	42-51	5.8	1.7	20.2	1.7	7.7	24.4	12.1	6.3	20.1	100
2011-12	7 years	49-58	6.5	1.5	18.6	2.4	7.3	24.0	11.2	9.1	19.4	100

**MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's computations from various NSSO surveys

In case of rural females in the 21-30 age-cohort in 1983, 87.5 percent females were engaged in agriculture followed by 6.8 per cent in manufacturing, 2.6 per cent in CSP and 1.6 per cent in THR. The share of work in agriculture and manufacturing declined from 87.5 per cent to 79 per cent and from 6.8 per cent to 6 per cent respectively, while an increase in work in construction and CSP activities from 0.9 per cent over time was noted when they reached age 49-58 in 2011-12. For rural males in the 21-30 years in 1983 meanwhile who aged over the rounds and reached the 49-58 age-group, share in agricultural work fell from 74.9 per cent in 1983 to 64.4 per cent in 2011-12 when they aged, and an increase was noted in construction, which employed 9.9 per cent of rural male workers in 2011-12. In the case of urban females, out of those in the 21-30 age-group in 1983, 29 per cent were engaged in manufacturing, 7 per cent in THR and 28.9 per cent in CSP. While this cohort moved to the 49-58 years age-group in 2011-12, urban females moved from manufacturing sector (which declined to 20.3 per cent) more towards THR (the share of which increased to 15.8 per cent), FBR (3.8 per cent share in 2011-12 from 1.7 per cent in 1983) and CSP (the share if which increased to 37.7 per cent for urban women in 2011-12). For urban males in the cohort analysis, a gradual shift of the workers from 1983 to 2011-12 was noted in the form of decline in manufacturing share in employment (from around 28 per cent in

1983 to 18.6 per cent in 20111-2) and a corresponding increase in construction and THR. Therefore these 'youth' workers in 1983 shifted between different sectors over time.

Transition of workers across sectors and age-groups

The age composition of workforce (here, youth: 15-29 years of age, middle age: 30 to 60; elder: over 60 years of age), and the shifting trends in these age-cohorts is another matter of great importance in the context of the burgeoning demographic dividend in India. It is clear that the share of youth in agriculture has come down remarkably; in the Only PS category of workers, share of youth in agriculture fell from 62 per cent in 1983 to 38 per cent 2011-12, while in the case of workers who have PS with SS, the share of youth in agriculture remains at 60 per cent. In the case of workers only engaged in SS as well, share of work in agriculture has been declining, though it still remains relatively higher.

The situation is similar in rural areas, as youth are turning away from agriculture as the only main activity, but those who are vulnerable to some extent and need a subsidiary activity as well often resort to agriculture. The middle and elder age groups in rural areas especially still show some dependence on agriculture, possibly due to non-availability of other options at this age. The share of primary and middle age groups in agriculture is low in urban areas (below 20 per cent), essentially also as agricultural share itself is low in urban areas. In case of only SS workers, a large decline in agricultural work is seen especially for the younger age groups. More importantly, the table should also be analysed in the following manner. For instance in rural areas, those with only PS, the youth in 1983 gradually become middle age and elder in 2004-05 and 2011-12 respectively. Therefore, the youth's share in agriculture in 1983 (79 per cent) is roughly comparable with the middle age in 2004-05 and elder in 2011-12[37], which shows that they have been dependent on agriculture as their only main activity throughout, a case of path dependency.

[37] Some of these might have exited the labour market, or died; new migrants in middle ages might have joined and so on.

Table 5.8: Age-Groups: Agriculture and Non-Agriculture(%)

Age groups		1983			1993-94			2004-05			2011-12			
		Y	M	E	Y	M	E	Y	M	E	Y	M	E	
Total	PS Only	62	60	72	56	54	76	47	51	74	38	44	68	Agri
		38	40	28	44	46	24	53	49	26	62	56	32	Non-agri
	PS with SS	80	75	76	78	74	79	70	69	75	59	61	65	Agri
		20	25	24	22	26	21	30	31	25	41	39	35	Non-agri
	Only SS	88	83	88	83	82	85	76	77	83	67	67	71	Agri
		12	17	12	17	18	15	24	23	17	33	33	29	Non-agri
Rural	PS Only	79	79	84	74	76	87	65	71	85	55	63	80	Agri
		21	21	16	26	24	13	35	29	15	45	37	20	Non-agri
	PS with SS	82	78	78	80	77	81	73	72	78	62	64	66	Agri
		18	22	22	20	23	19	27	28	22	38	36	34	Non-agri
	Only SS	92	89	92	88	88	90	83	85	90	76	74	77	Agri
		8	11	8	12	12	10	17	15	10	24	26	23	Non-agri
Urban	PS Only	11	10	21	9	8	22	5	7	19	4	6	17	Agri
		89	90	79	91	92	78	95	93	81	96	94	83	Non-agri
	PS with SS	35	30	43	9	8	22	22	22	30	16	20	36	Agri
		65	70	57	91	92	78	78	78	70	84	80	64	Non-agri
	Only SS	42	41	54	33	33	47	18	23	33	15	16	26	Agri
		58	59	46	67	67	53	82	77	67	85	84	74	Non-agri

*Y: Youth, 15-29 years of age, M: Middle age, 30-60 years of age; E: Elder, over 60 years of age
Source: Author's computations from various NSSO surveys

The distribution of age-groups within agriculture in Table 5.9 shows (for Only PS workers, those with both PS and SS and Only SS) the declining share in agriculture, while the major share in agriculture is of middle age workers. Child labour within agriculture (9 per cent overall in 1983) has come down.

Table 5.8: Distribution of Age Groups within Agricultural Sector(%)

Age groups		1983					1993-94					2004-05					2011-12				
		C	Y	M	E		C	Y	M	E		C	Y	M	E		C	Y	M	E	
Total	Only PS	9	37	47	8	100	4	35	51	10	100	2	30	57	11	100	1	25	62	13	100
	PS with SS	5	36	54	5	100	2	34	58	6	100	1	32	62	5	100	0	26	68	7	100
	Only SS	15	39	40	6	100	7	41	47	6	100	5	39	51	6	100	2	35	55	7	100
Rural	Only PS	9	37	46	8	100	4	35	50	10	100	2	31	57	11	100	1	25	62	13	100
	PS with SS	5	36	54	5	100	2	34	58	6	100	1	32	62	5	100	0	26	67	7	100
	Only SS	15	39	40	6	100	7	41	46	5	100	5	39	51	6	100	2	36	55	7	100
Urban	Only PS	6	36	48	10	100	3	33	53	11	100	1	24	63	12	100	1	20	64	15	100
	PS with SS	3	35	55	7	100	3	33	53	11	100	1	28	64	6	100	1	23	70	7	100
	Only SS	10	41	42	7	100	5	33	54	8	100	3	35	53	10	100	2	28	61	9	100

*C:Child worker, below age 15; Y:Youth, 15-29 years of age, M:Middle age, 30-60 years of age; E:Elder, over age 60
Source: Author's computations from various NSSO surveys

The distribution within the non-farm sector for each age-group, showing the workforce diversification within the non-farm sector for each age-cohort is given in the tables 5.9, 5.10 and 5.11 for those with Only PS, those with both PS and SS, and those with Only SS respectively. For youth with Only PS, the composition within non-agriculture has shown a declining trend in manufacturing as well as CSP and an increase in construction. A similar trend is seen for middle and elder ages but the share of THR is higher. Manufacturing has been losing workers continuously. Again, 36 per cent of youth engaged in manufacturing within the non-agriculture

sectors, is comparable with the middle age group in 2004-05, where only 22 per cent share in manufacturing is seen. The scenario is much the same for those having both PS and SS, with the only point being a higher fall in manufacturing share and larger increase in dependence on construction as the major activity. In case of Only SS workers, across all ages of workers, fall in share of composition of manufacturing and CSP is seen with huge rise in construction activities.

Table 5.9: Workforce Diversification of Groups based on Age-Groups (Within non-farm): Only PS-Total (%)

Age Groups	Years	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP	TOTAL
Youth	1983	2	36	1	8	21	9	2	22	100
	1993-94	2	33	1	9	22	8	2	23	100
	2004-05	1	32	0	14	26	11	3	13	100
	2011-12	1	28	1	21	21	10	4	14	100
Middle age	1983	2	29	1	6	19	9	3	31	100
	1993-94	2	25	2	7	20	9	4	31	100
	2004-05	2	24	1	11	25	11	4	23	100
	2011-12	1	22	1	16	23	11	5	21	100
Elder	1983	1	33	0	5	31	4	3	24	100
	1993-94	1	29	0	6	34	4	2	25	100
	2004-05	1	27	0	10	35	5	3	20	100
	2011-12	0	26	0	14	34	5	5	16	100

Table 5.10: Workforce Diversification of Groups based on Age-Groups (Within non-farm): PS with SS-Total (%)

Age Groups	Years	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP	TOTAL
Youth	1983	4	37	1	16	18	7	1	17	100
	1993-94	4	31	0	19	18	8	1	19	100
	2004-05	3	28	0	29	20	9	2	10	100
	2011-12	1	20	0	46	15	7	3	8	100
Middle age	1983	3	31	1	11	19	6	1	28	100
	1993-94	3	25	1	13	21	7	2	28	100
	2004-05	2	25	1	22	22	8	2	17	100
	2011-12	1	20	1	39	17	8	3	13	100
Elder	1983	1	38	0	7	25	3	1	25	100
	1993-94	1	36	0	9	30	3	2	19	100
	2004-05	1	32	0	14	32	3	2	16	100
	2011-12	0	20	0	38	19	3	3	15	100

Table 5.11: Workforce Diversification of Groups based on Age-Groups (Within non-farm): Only SS-Total (%)

Total	Years	MIN	MFG	UTL	CNS	THR	TSC	FBR	CSP	TOTAL
Youth	1983	1	55	0	3	19	3	1	18	100
	1993-94	1	45	0	4	20	3	1	26	100
	2004-05	0	51	0	6	17	2	2	22	100
	2011-12	1	45	1	21	13	2	2	17	100
Middle age	1983	1	59	0	2	19	1	1	18	100
	1993-94	1	51	0	3	19	1	1	25	100
	2004-05	1	58	0	5	17	2	1	16	100
	2011-12	0	41	0	37	10	1	1	10	100
Elder	1983	0	48	0	4	19	1	1	27	100
	1993-94	1	42	1	5	24	0	1	26	100
	2004-05	0	48	0	8	22	3	3	16	100
	2011-12	0	24	0	53	12	0	1	9	100

**MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

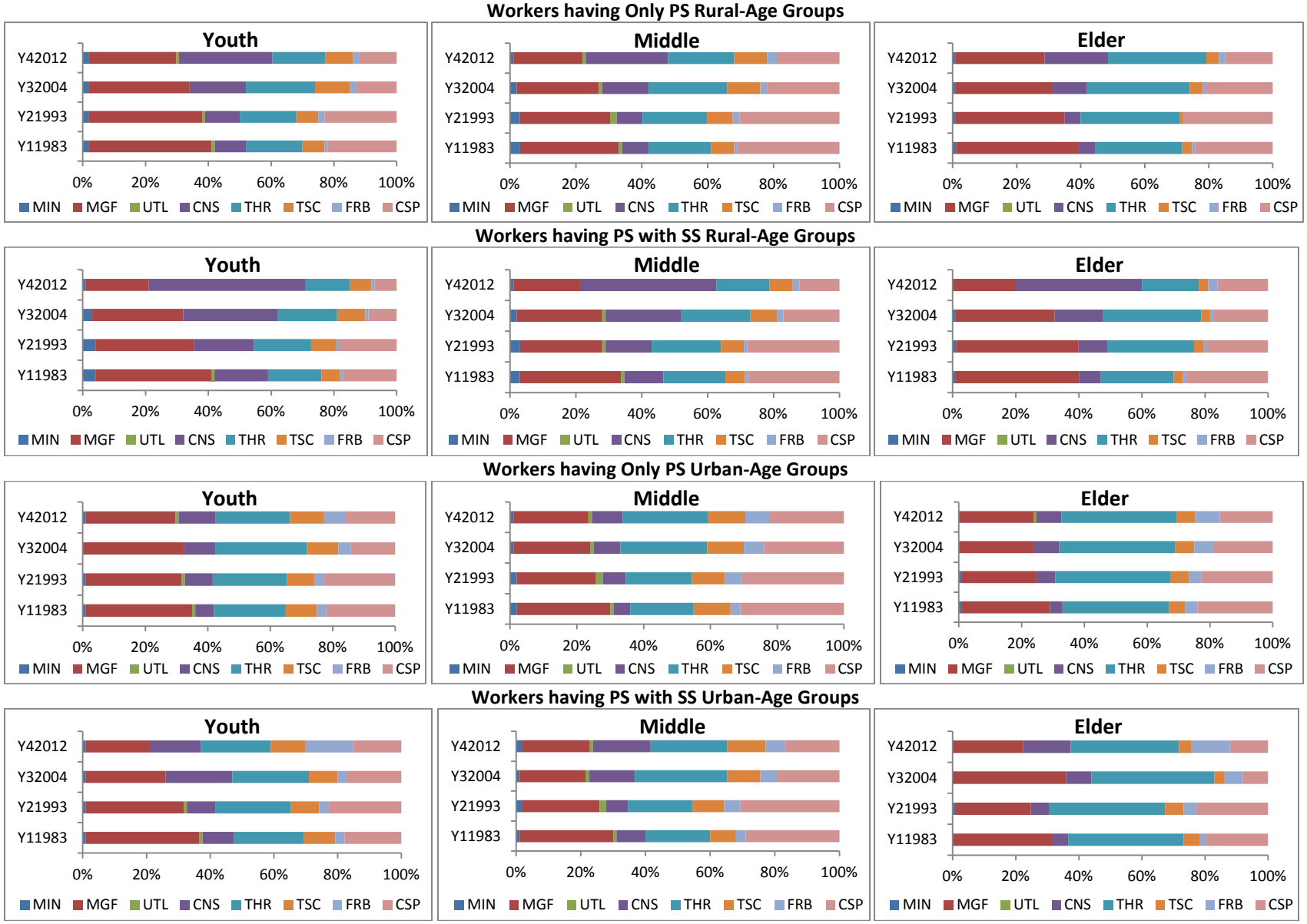
Source: Author's computations from various NSSO surveys

The trends in rural are urban areas are given in Figure 5.2. The distribution in rural areas shows the following trends. For those youth with only PS the composition within non-agricultural sector has been changing over time; which steady decline in composition share of manufacturing and increase in construction, a trend which exacerbates for those with an SS along with PS. For the middle aged and elder workers, share of manufacturing as well as CSP in composition within non-agriculture has declined sharply over the years (from 30 per cent to 20 percent on an average) for those with Only PS as well as those with SS along with PS, and the increase in construction has filled the gap in composition. Interestingly, for those with Only PS, the youth in 1983, some of whom must be the elder in 2011-12, share of THR in composition has risen. For rural workers only working in SS capacity, across all ages, share of manufacturing in work declined (lesser for youth), and increases in construction are clearly visible (lower for youth).

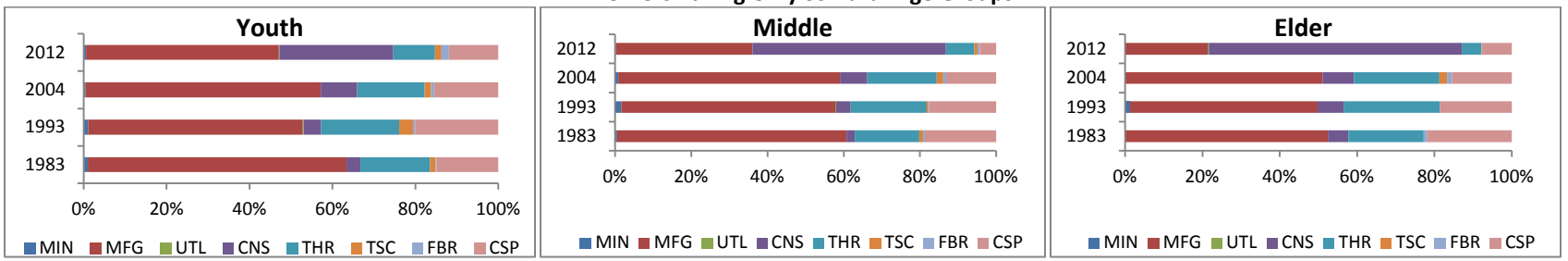
Meanwhile in urban areas, in the case of youth, the composition within non-agriculture for those with Only PS has been changing, with decrease in share of manufacturing complemented by increase in share of construction, TSC, CSP and THR in 2011-12 as compared to 1983 with fluctuating compositions in the periods between. The composition for middle and elder shows higher share of THR relatively for those with Only PS as well as those with both PS and SS. For urban youth with PS as well as SS, the composition has undergone a major change, with decline in manufacturing complemented by relatively equal shares in services. For urban youth and mid age workers in Only SS, share of employment in manufacturing has been more or less constant while it has declined post 2004 for elder workers, as did the share of work in CSP, and for whom share in THR grew.

Age composition across industrial sectors is shown in Table 5.12. For instance, within agriculture, in 1983, 8 per cent child labour existed, while 36 per cent in agriculture were youth, 49 per cent middle aged and 7 per cent elder. The share of youth has fallen consistently over time in agriculture, while that of middle age has risen. Child labour at 5 per cent is also seen in manufacturing in 1983. This has however declined over the years. Across most sectors, share of youth over time is relative declining, with higher share of middle aged workers, which may be because the youth at each period are taking more time in entering the labour market due to engagement in further educational attainment. This trend is also visible consistently for rural and urban areas as well (appendix Tables A5.3 and A5.4).

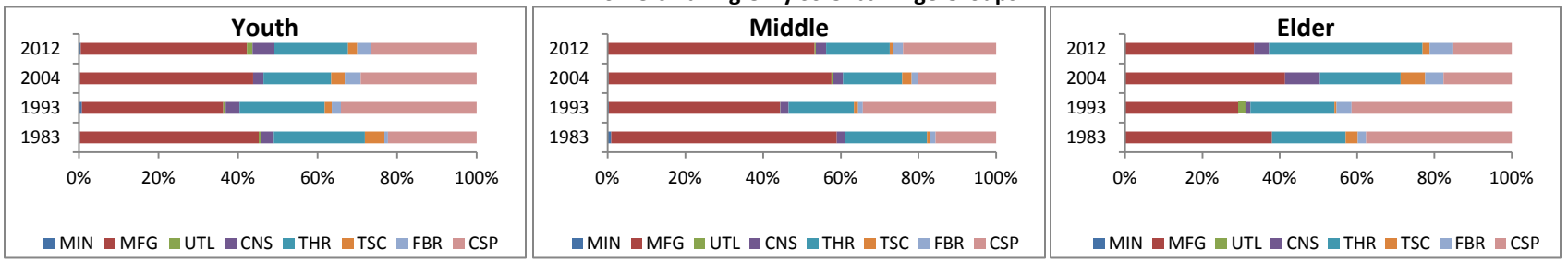
Figure 5.2: Workforce Diversification of Groups based on Age Group within non-farm sectors since 1980s, Rural and Urban areas



Workers having Only SS Rural-Age Groups



Workers having Only SS Urban-Age Groups



**MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's computations from various NSSO surveys

Table 5.11: Percentage Distribution of age-groups by industrial sectors: Total

TOTAL	1983					2004-05					2011-12				
	Child	Youth	Middle	Elder	Total	Child	Youth	Middle	Elder	Total	Child	Youth	Middle	Elder	Total
AGRI	8	36	49	7	100	2	31	58	9	100	1	25	63	11	100
MIN	2	35	60	3	100	1	29	69	2	100	0	32	67	1	100
MGF	5	42	48	5	100	2	41	52	4	100	1	36	57	5	100
UTL	0	32	66	1	100	0	10	90	1	100	1	28	70	2	100
CNS	3	43	50	4	100	1	42	55	3	100	0	36	59	4	100
THR	4	38	51	8	100	1	35	58	6	100	0	28	64	7	100
TSC	1	39	58	2	100	0	36	61	2	100	0	32	66	2	100
FRB	1	35	59	5	100	1	27	68	4	100	0	28	67	5	100
CSP	3	30	62	5	100	1	24	71	4	100	0	24	72	4	100
Total	6	37	50	7	100	2	33	59	7	100	1	28	63	8	100

*Child worker, below age 15; Youth, 15-29 years of age, Middle age, 30-60 years of age; Elder, over age 60

**MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's computations from various NSSO surveys

Social Standing and Work- Caste, Religion and Gender Dynamics

Another important aspect of workforce diversification especially in the Indian context is the social context comprising of caste, religion as well as gender dimensions. The following section describes these issues in detail and investigates workforce diversification patterns with respect to each of these features since the 1980s.

Caste Structure, Religious Affinities and Social Stratification

Social stratification based on social groups is a major constraint and entry-deterrent for workforce diversification especially in rural areas where these structures still continue to remain more rigid. It is an important issue which should be assessed with caution in case of non-farm activities, as the proportion of lower castes is often higher in general compared to higher castes.

Indian labour market and society have been traditionally divided by the caste system known as 'varna' or 'jati', with those belonging to the lower social strata being deprived and generally found in the bottom of the job pyramid (Unni, 1997; Srivastava and Sachdev, undated; and NCEUS, 2007 for instance). *Religion* at the same time, along with other cultural factors such as ethnicity and linguistic differences also influenced to some extent the determination of preferences for certain types of community members for certain kinds of farm and/or non-farm jobs. Some of the main findings in the literature regarding such issues are presented below.

The employment and occupation structure in India has been much influenced by social stratification especially at the micro level, with certain activities considered 'undesirable' for members of certain castes/ ethnic groups or groups of individuals based on age or gender and these sections remain in less remunerative farm or non-farm activities. In most cases, participation in better paying and more productive non-agricultural activities has been easier for higher castes (Rayappa, 1986; Gang et al, 2012). In terms of status of work, it has been found that most regular salaried jobs are held by upper castes. At the same time, self-employment especially in rural areas is dominated by Hindu upper castes, Other Backward Castes (OBCs) and Muslims while casual employment is where most Hindu Scheduled Castes (SCs) and Scheduled Tribes (STs) workers can be found (see Srivastava and Sachdev, undated). Even within the lower strata, Sambi Reddy (2004) found that there are differences in work patterns between SCs, STs, and OBCs as well. He found that ST and SC persons' work participation was found to be higher as compared to OBCs in the pre and post reform periods, but the status of

OBCs in the late 1990s revealed them to be a little better off in terms of lower proportion of unemployment as compared to SCs and STs. Unemployment share was higher for SCs as compared to STs especially around the reforms period, bur in general STs were found to have much lower non-farm participation as compared to SCs and OBCs (which saw some increase) especially in the post reforms period.

As mentioned earlier, lower castes also find barriers to education and have little human capital, which further deprives them of the chance to obtain remunerative non-farm jobs and tend to remain stuck in the vicious cycle of poverty (see Thorat, 2002; Lanjouw and Shariff, 2004 for instance). In this regard, many studies have argued that higher poverty among Dalits or lower caste populations essentially arises out of their concentration in manual labour and high under-employment levels because of the caste-based discrimination they face in the labour market, not being allowed to work in some non-farm activities. In general, employment days and wages for Dalits has been found to be lower compared to other social groups, and they lack also in educational attainment due to the same discrimination, leading them to work essentially as casual labour or self-employed in informal sector and only to a small extent in regular salaried jobs (Thorat, 2002; Thorat and Sabharwal, 2005; Thorat, Mahamallik and Sadana, 2010). However, some form of slow reversal to such trends has been observed by Rao and Reddy (2002) who claim that a few of the traditional caste based activities are subject to extinction while others seem to be modernising their services, and much of this expansion is especially through migration to urban areas, mostly in the tertiary sector. But this too will be limited due to the limited growth of manufacturing sector, leading to the burgeoning informal tertiary sector.

Religion

Tables 5.12, 5.13 and 5.14 show the workforce diversification of based on religion within non-farm sector. For those with Only PS, it is seen that the declining share of manufacturing in case of Hindus has been covered by an increase in construction, while the share of manufacturing remains over 30 per cent for Muslims despite declining. A similar pattern is also visible for workers only working in the Only SS category (the most vulnerable workers), where Muslim workers have large and increasing share in composition in manufacturing work[38] and other

[38] This is essentially due to lack of agricultural land among Muslims as well as a high share of self-employment (for instance, also see Srivastav and Sachdev, undated).

religions have a declining share of manufacturing especially post-reforms, while a very large rise in construction activities is seen. CSP constitutes the major sector of work in non-agriculture for Christians as a principal activity (despite decline). Meanwhile, for those with both PS and SS (the more vulnerable group which feels the need to diversify), while THR remains a major sector, decline in compositional share of manufacturing has been completely covered by construction, which has become the major activity.

Table 5.12: Workforce Diversification of Religious Groups (Within non-farm): Only PS-Total (%)

Religious Group	Years	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP	TOT
Hindu	1983	2	32	1	7	20	8	3	28	100
	1993-94	2	29	1	8	20	8	3	28	100
	2004-05	1	26	1	12	25	10	4	21	100
	2011-12	1	23	1	17	22	10	5	19	100
Muslim	1983	1	38	1	6	24	10	1	19	100
	1993-94	1	32	1	7	26	10	1	22	100
	2004-05	0	34	0	10	31	11	2	11	100
	2011-12	1	32	1	17	25	11	2	11	100
Christian	1983	3	25	1	7	11	11	2	42	100
	1993-94	1	23	2	8	15	9	4	38	100
	2004-05	1	21	1	13	21	11	4	29	100
	2011-12	1	18	1	17	19	10	6	29	100

Table 5.13: Workforce Diversification of Religious Groups (Within non-farm): PS with SS-Total (%)

Religious Group	Years	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP	TOT
Hindu	1983	3	34	1	12	18	6	1	25	100
	1993-94	4	28	1	16	19	7	1	24	100
	2004-05	2	27	0	25	21	8	2	15	100
	2011-12	1	20	0	42	15	7	3	12	100
Muslim	1983	2	30	0	13	27	8	1	19	100
	1993-94	2	22	0	10	34	8	0	24	100
	2004-05	1	26	1	19	31	10	1	11	100
	2011-12	0	20	0	33	24	10	2	10	100
Christian	1983	3	27	1	12	21	9	4	23	100
	1993-94	2	18	0	10	26	8	6	29	100
	2004-05	5	18	1	21	18	14	5	17	100
	2011-12	3	15	0	28	27	6	8	15	100

Table 5.14: Workforce Diversification of Religious Groups (Within non-farm): Only SS-Total (%)

Religious Group		MIN	MFG	UTL	CNS	THR	TSC	FBR	CSP	Total
Hindu	1983	0	7	0	0	3	0	0	3	100
	1993-94	1	48	0	3	20	2	1	24	100
	2004-05	0	52	0	6	18	2	2	20	100
	2011-12	0	34	0	36	13	1	2	14	100
Muslim	1983	0	17	0	0	4	0	0	2	100
	1993-94	0	56	0	3	15	1	0	26	100
	2004-05	0	73	0	2	13	1	1	11	100
	2011-12	0	79	1	8	7	1	1	4	100
Christian	1983	0	9	0	1	3	1	0	3	100
	1993-94	1	48	0	4	20	0	2	24	100
	2004-05	3	26	0	8	23	9	1	31	100
	2011-12	0	27	0	48	6	3	4	11	100

**MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's computations from various NSSO surveys

Rural are urban trends are given in Figure 5.3. In rural areas, for Hindus with Only PS, compositional share of manufacturing as well as CSP saw consistent decline over time, and a massive increase in share of construction is seen, along with marginal increases in shares of THR, TSC and FRB over time. In case of Muslims with Only PS in the latest round (2011-12), manufacturing, construction and THR remained the major non-agricultural activities, while for Christians, CSP also constituted significant share. For those with both PS and SS, while THR remained consistently important for all religious groups within non-agriculture, a shift of composition from manufacturing to construction is clearly evident. For rural Hindus and Christians working in Only SS, share of manufacturing work declined largely and was replaced by an increase in construction work, while share of manufacturing increased for Muslims, suggesting that short-term informal work in self-employed manufacturing units could have dominated. In urban areas meanwhile, for those with Only PS, despite falling share of manufacturing in non-agriculture, the major sectors of work for all religious groups continue to be manufacturing, THR, CSP and TSC, while an increase in FBR is witnessed (more for Hindus and Christians). For those with both PS and SS, among Hindus, share of manufacturing declined from 32 per cent in 1983 to 21 per cent in 2011-12, while share of CSP declined from 27 per cent in 1983 to 16 per cent in 2011-12, and the shift was towards construction as well as THR. Similarly for Muslims, shift from manufacturing to construction is clearly visible, while THR became the largest component with 33 per cent. In the case of Christians, construction remained constant while decline in compositional share of manufacturing was covered by increase in share of THR. In urban areas for Only SS workers, manufacturing and CSP were the main activities, while manufacturing share for Muslims was again relatively higher.

Caste

The workforce diversification patterns on the basis of caste (within non-farm) are given in Tables 5.15, 5.16 and 5.17. For the General and OBC[39] categories (with Only PS and for those with both PS and SS) gradually declining compositional share of CSP and manufacturing has been covered by construction, while increase in shares of THR, TSC, FRB is seen. In case of SCs (Only PS), share in composition of mining in non-agriculture has been declining, while that of FBR is increasing. However, the huge fall in shares of manufacturing (from 32 per cent in 1983 to 20

[39] The General and OBC categories have been combined to make comparable comparisons over the 4 decade period since the 1980s.

per cent in 2011-12) and CSP, have been offset by rise in share of construction from 12 per cent in 1983 to 30 per cent in 2011-12. TSC and THR also remained important. For SCs with both PS and SS similar trends were seen but increase in share of construction as the main activity rose from 17 per cent in 1983 to 52 per cent in 2011-12, showing a caste bias in low-productive sector for the vulnerable group needing SS with PS. The case of STs is similar except for larger share in mining activities (though declining), while construction as the main activity for STs with both PS and SS rose to 64 per cent in 2011-12. While the declining trend in composition of work in manufacturing and increase in construction for workers in the Only SS category is similar for all castes, share of construction work is much larger for STs and SCs compared to General category.

Table 5.15: Workforce Diversification of Caste Groups (Within non-farm): Only PS-Total (%)

Caste Groups	Years	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP	TOT
General	1983	1	33	1	5	22	8	3	26	100
	1993-94	1	29	1	6	23	8	3	27	100
	2004-05	1	28	1	9	28	10	4	19	100
	2011-12	1	26	1	14	25	10	5	18	100
Scheduled Caste (SC)	1983	3	32	1	12	11	10	1	30	100
	1993-94	3	26	1	16	13	10	2	30	100
	2004-05	2	25	1	21	17	11	3	21	100
	2011-12	2	20	1	30	14	10	4	19	100
Scheduled Tribe (ST)	1983	8	29	2	14	11	6	1	29	100
	1993-94	6	31	2	13	13	7	1	26	100
	2004-05	4	19	1	19	19	12	1	24	100
	2011-12	2	17	1	29	15	9	2	24	100

Table 5.16: Workforce Diversification of Caste Groups (Within non-farm): PS with SS-Total (%)

Caste Groups	Years	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP	TOT
General	1983	2	33	1	10	21	6	1	26	100
	1993-94	2	27	1	10	24	7	2	27	100
	2004-05	2	26	1	18	26	9	3	16	100
	2011-12	1	21	0	31	21	9	4	14	100
Scheduled Caste (SC)	1983	3	36	1	17	12	7	1	25	100
	1993-94	4	31	1	22	13	7	1	21	100
	2004-05	2	29	0	32	14	9	1	13	100
	2011-12	1	20	0	52	10	6	1	9	100
Scheduled Tribe (ST)	1983	12	30	1	27	14	4	0	14	100
	1993-94	10	23	0	36	11	5	0	14	100
	2004-05	5	25	1	43	10	5	1	11	100
	2011-12	2	15	0	64	10	3	0	6	100

Table 5.17: Workforce Diversification of Caste Groups (Within non-farm): Only SS-Total (%)

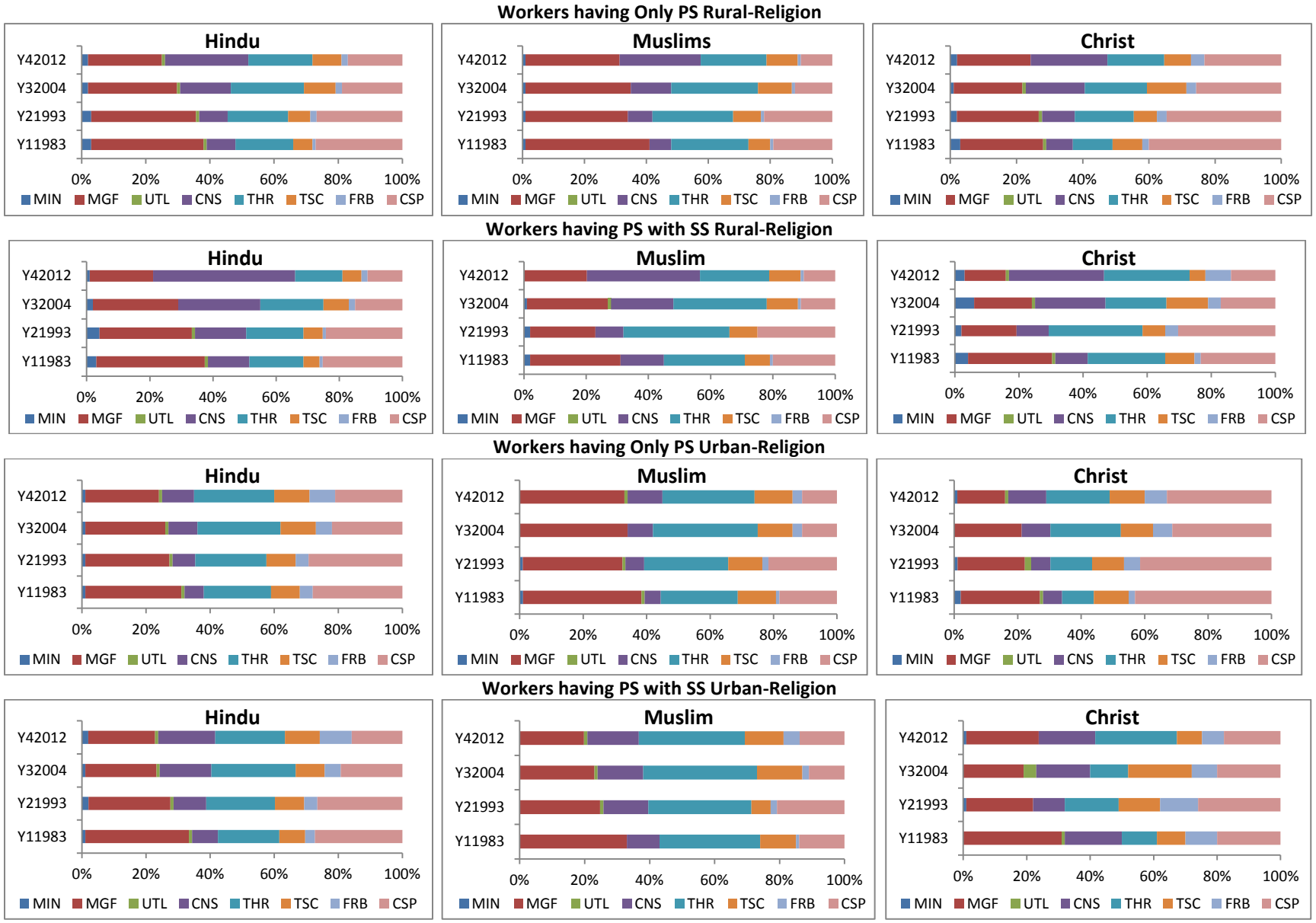
Caste Groups	Years	MIN	MFG	UTL	CNS	THR	TSC	FBR	CSP	Total
General	1983	1	57	0	2	22	2	1	15	100
	1993-94	1	46	0	3	22	2	1	25	100
	2011-12	0	46	0	25	14	1	2	12	100
Scheduled Caste (SC)	1983	1	50	0	6	13	2	0	27	100
	1993-94	2	53	0	4	13	2	0	26	100
	2011-12	1	37	0	34	7	2	2	17	100
Scheduled Tribe (ST)	1983	2	47	0	3	32	2	1	14	100
	1993-94	6	59	1	7	14	0	1	13	100
	2011-12	0	25	0	66	4	0	0	5	100

**MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services; Source: Based on NSSO surveys

Similar rural and urban area trends are given in Figure 5.4. In rural areas, the General and OBC categories (with Only PS and for those with both PS and SS) show a decline in share of CSP and manufacturing which is matched by a rise in share of construction, while increase in shares of THR, TSC, FRB is seen. In case of SCs (Only PS), share in composition of mining in non-agriculture has been declining, while that of FBR is increasing. The large decline in manufacturing share of the non-agricultural composition (from 36 per cent in 1983 to 21 per cent in 2011-12) and CSP (from 27 per cent in 1983 to 13 per cent in 2011-12), have been matched by rise in share of construction from 14 per cent in 1983 to 40 per cent in 2011-12. TSC and THR also remained important. For SCs with both PS and SS, similar trends were seen but the increase in share of construction as the main activity rose from 17 per cent in 1983 to 54 per cent in 2011-12. The case of STs is again similar except for the larger share in mining activities (though it is declining), while construction as the main activity for STs with both PS and SS rose to 64 per cent in 2011-12. For Only SS workers in rural areas, share of manufacturing work declined (more sharply for STs, who were also participating in mining till 2004-05). The highest increases were recorded in construction work (much higher for STs with share in construction work in 2011-12 within non-agriculture being almost 71 per cent). In urban areas, For the General and OBC categories (with Only PS and for those with both PS and SS) gradually declining compositional share of CSP and manufacturing has been covered by increase in shares of THR, TSC and FRB. The fall in shares of manufacturing and CSP, has been offset by rise in share of construction, THR and FBR. For SCs with both PS and SS similar trends were seen but the increase in share of construction as the main activity rose from 15 per cent in 1983 to 23 per cent in 2011-12. The case of STs is similar except for the larger share in mining activities (though it is declining), while construction as the main activity for STs with both PS and SS rose to 41 per cent in 2011-12. Among urban Only SS workers, larger decline in manufacturing was again noticed for STs, while THR was more dominated by general and OBC categories and CSP activities employed SC and ST workers increasingly.

The composition of caste groups within each industrial activity (Table 5.19; Table 5.18 shows religion) shows that general and OBC categories dominate most sectors, while STs and SCs are more generally found in mining, construction, agriculture or CSP, the most vulnerable sections. This is true for both rural and urban areas (appendix tables A5.7 and A5.8 following Tables A5.5 and A5.6 for religion)

Figure 5.3: Workforce Diversification of Religious groups within non-farm sectors since 1980s, Rural and Urban areas



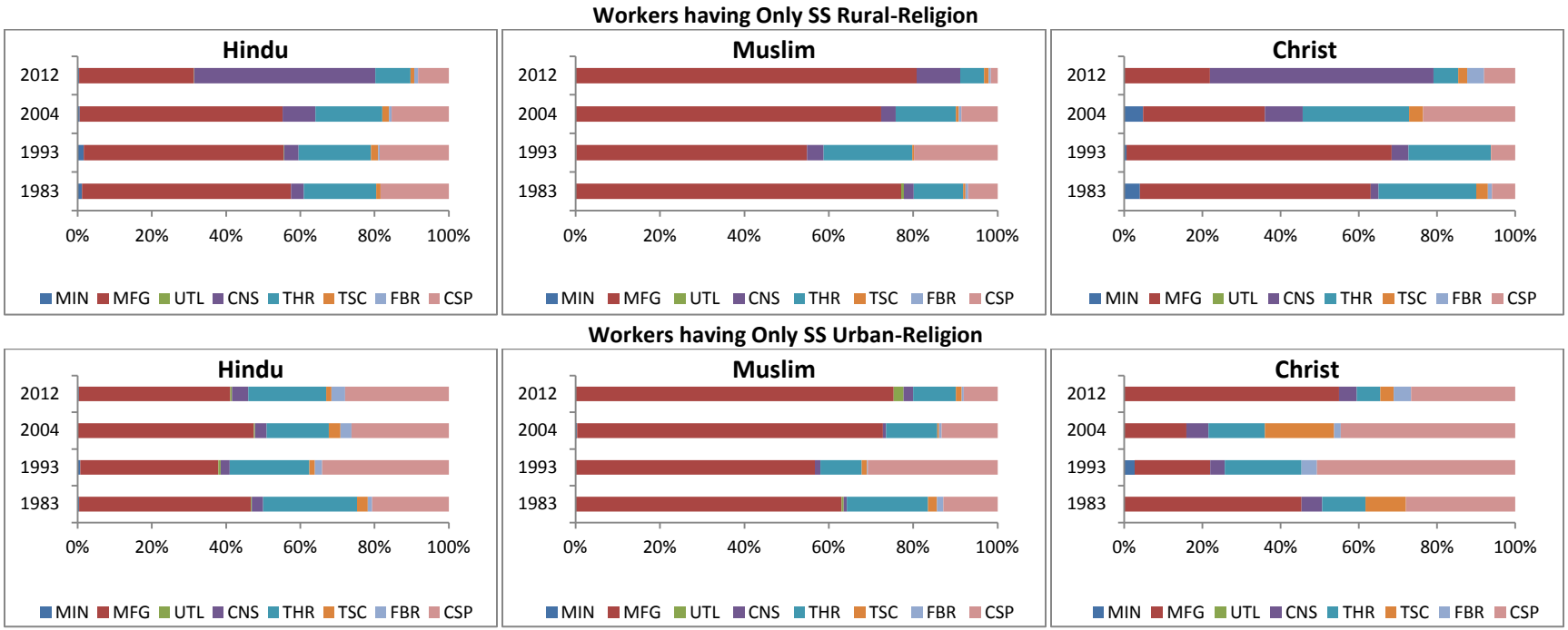
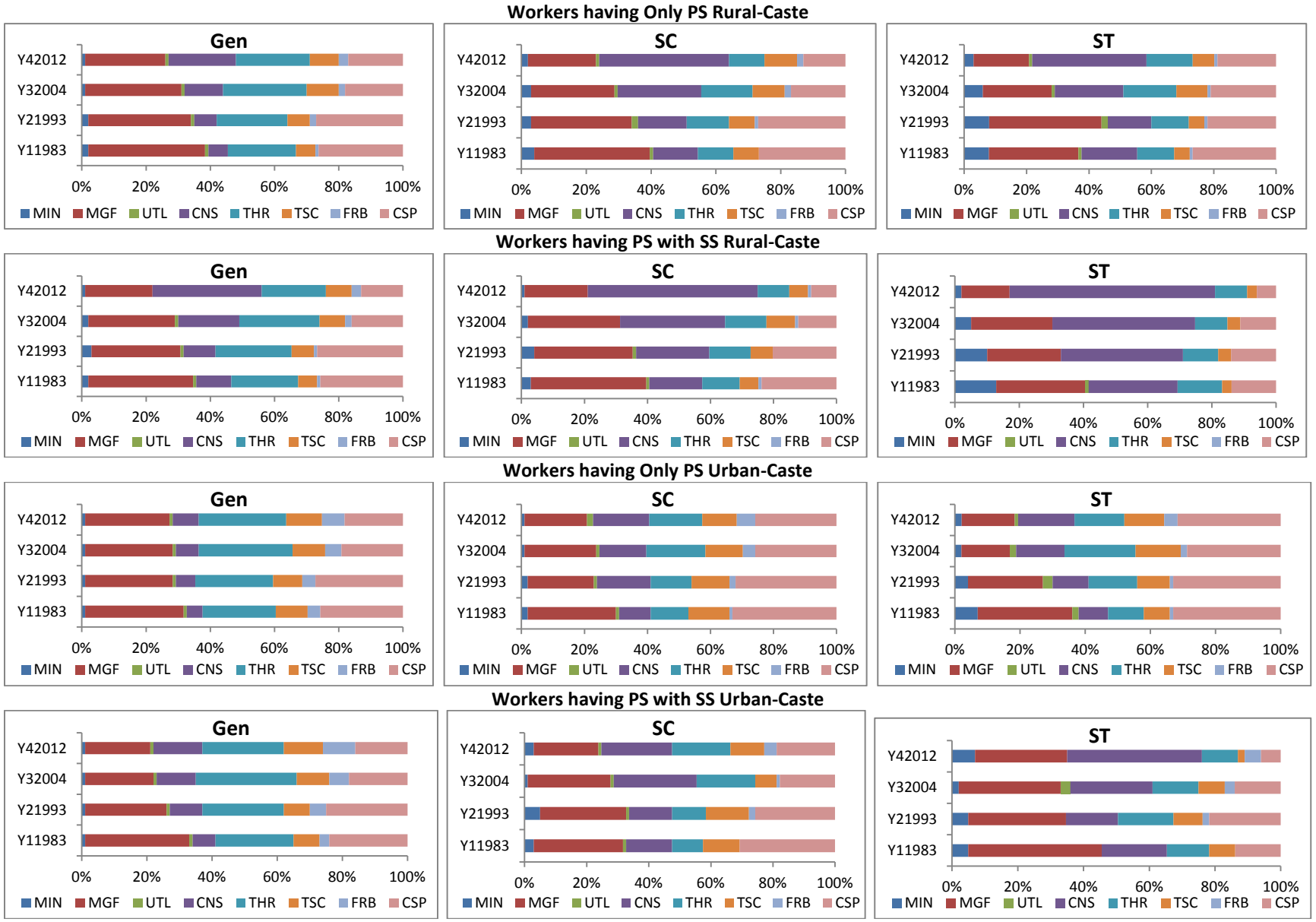


Table 5.18: Percentage Distribution of religious groups by industrial sectors: Total

	1983				2004-05				2011-12			
	Hindu	Muslim	Others	Total	Hindu	Muslim	Others	Total	Hindu	Muslim	Others	Total
AGRI	89	6	5	100	88	7	5	100	88	7	4	100
MIN	86	9	6	100	90	6	4	100	90	7	3	100
MGF	80	16	5	100	78	18	4	100	76	20	4	100
UTL	84	9	6	100	80	10	10	100	83	10	7	100
CNS	82	12	6	100	82	12	6	100	80	15	5	100
THR	77	17	6	100	76	18	6	100	77	18	5	100
TSC	75	17	8	100	78	16	6	100	77	18	5	100
FRB	86	6	8	100	85	8	8	100	85	7	8	100
CSP	83	10	8	100	84	9	7	100	83	10	7	100
Total	86	9	5	100	84	10	5	100	83	12	5	100

**MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services
Source: Author's computations from various NSSO surveys

Figure 5.4: Workforce Diversification of Caste Groups within non-farm sectors since 1980s, Rural and Urban areas



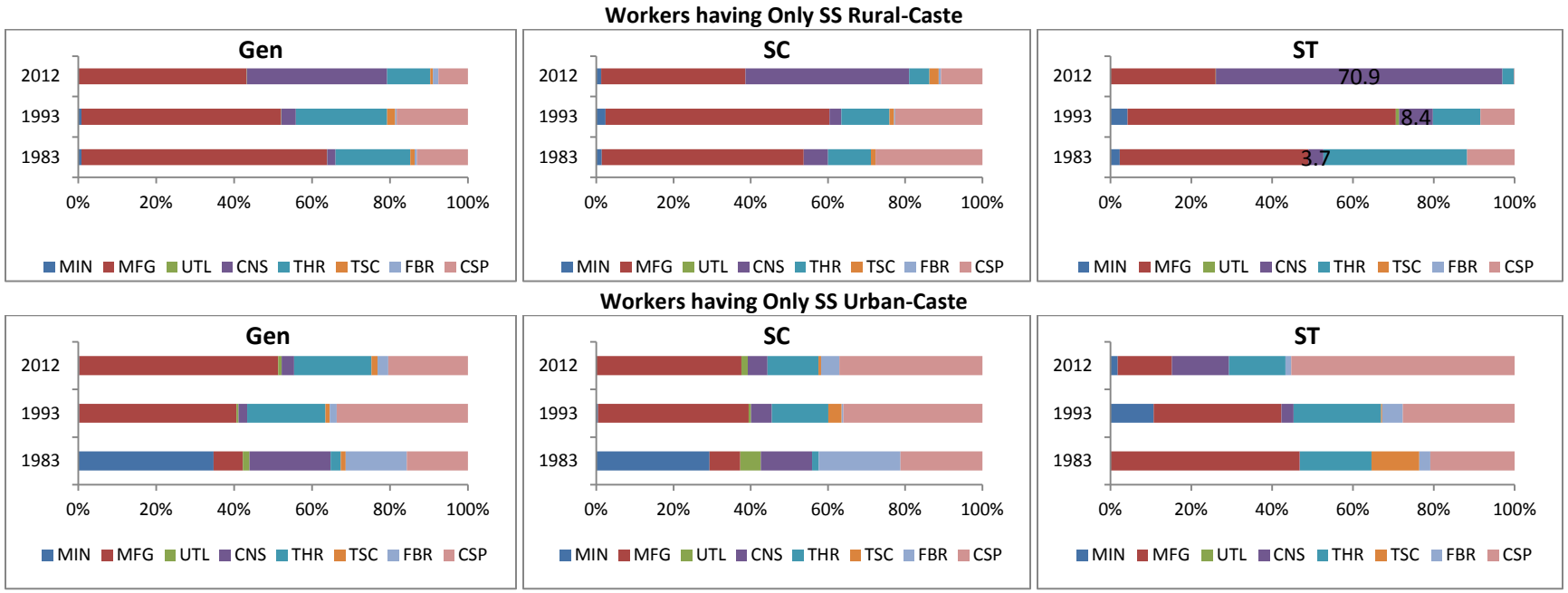


Table 5.19: Percentage Distribution of caste groups by industrial sectors: Total

	1983				2004-05				2011-12			
	ST	SC	GENERAL	Total	ST	SC	GENERAL	Total	ST	SC	GENERAL	Total
AGRI	14	19	67	100	14	21	65	100	15	19	66	100
MIN	22	21	57	100	16	26	57	100	11	27	62	100
MGF	4	16	80	100	4	18	78	100	4	16	80	100
UTL	6	11	83	100	6	21	73	100	6	20	74	100
CNS	11	26	63	100	10	31	59	100	11	32	57	100
THR	3	9	88	100	3	13	84	100	4	12	85	100
TSC	3	19	78	100	4	20	76	100	4	19	77	100
FRB	1	5	94	100	2	13	85	100	2	13	85	100
CSP	5	17	79	100	5	20	75	100	6	19	75	100
Total	11	18	71	100	10	20	70	100	10	19	71	100

**MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's computations from various NSSO surveys

Gender Dimensions of Work

Gender roles must be studied in a historical perspective in the socio-political and economic space. Gender has played a major role in influencing labour market and non-farm work patterns, but these roles tend to vary slightly in the spatial as well as temporal context. But the overall picture has not been an encouraging one in India, with non-farm work especially in the rural areas expanding more for males. In both rural and urban areas, unemployment rate among women has remained higher than that of men (see Kurian, 2005 for instance). Women still face barriers to entry in the labour market due to dual roles at home and workplace, and other sociological and cultural factors which need to be addressed to bring about any change in their status (Jayaraman and Lanjouw, 1999; Kabeer, 2012). Informalisation, casualisation and marginalisation in employment tend to be higher for women, being engaged in low productive lower-paying jobs. As many studies report, men are likelier to be in non-farm activities while women engage in agricultural work in rural areas (Lanjouw and Shariff, 2004; Kumar, 2009). Despite increase in female participation in rural non-farm work over time, their dependence on agriculture remains significant (Jha, 2006). Even in urban areas, organized government services and community, social and personal services are the major sectors employing women.

The gender distribution over time between agriculture and non-agriculture (see Table 5.20) for those with Only PS in rural areas shows a gradual decline in agriculture for both males and females but more for males; in 2011-12 while 60 per cent rural males with only PS are engaged in agriculture and 40 per cent in non-agriculture, 73 per cent females still work in agriculture. For those with a SS along with their PS, the major activity remains agriculture (although 58 per cent for males and 80 per cent for females), suggesting that insufficient agricultural incomes are driving these sections to look for alternative subsidiary income sources. In urban areas, share of agriculture work has declined rapidly since the 1980s for both males and females. For those with Only PS, the already low agricultural share of 9 per cent for males in 1980s declined to 5 per cent in 2011-12, 95 per cent being in non-agricultural activities, while it is 8 per cent for females. For those with SS along with their PS, share of agriculture declined, and accounts for 18 per cent of jobs for males, and 27 per cent for females. For those with Only SS, although shares of rural males and females in agriculture have been declining, share of rural women in agriculture remains higher.

Table 5.20: Gender Groups: Agriculture and Non-Agriculture (%)

Gender		1983		1993-94		2004-05		2011-12		
		Male	Female	Male	Female	Male	Female	Male	Female	
Total	Ps Only	58	76	53	70	46	66	41	56	Agri
		42	24	47	30	54	34	59	44	Non-agri
	PS with SS	73	87	71	88	64	84	55	78	Agri
		27	13	29	12	36	16	45	22	Non-agri
	Only SS	78	88	77	85	67	83	61	71	Agri
		22	12	23	15	33	17	39	29	Non-agri
Rural	Ps Only	78	86	74	82	66	80	60	73	Agri
		22	14	26	18	34	20	40	27	Non-agri
	PS with SS	76	88	74	89	67	86	58	80	Agri
		24	12	26	11	33	14	42	20	Non-agri
	Only SS	88	91	86	90	79	89	72	76	Agri
		12	9	14	10	21	11	28	24	Non-agri
Urban	Ps Only	9	23	7	17	5	13	5	8	Agri
		91	77	93	83	95	87	95	92	Non-agri
	PS with SS	27	55	28	46	19	36	18	27	Agri
		73	45	72	54	81	64	82	73	Non-agri
	Only SS	33	53	28	44	16	33	17	24	Agri
		67	47	72	56	84	67	83	76	Non-agri

Source: Author's computations from various NSSO surveys

The gender distribution within agriculture (see Table 5.21)generally for rural and urban areas for those with Only PS and those with SS along with PS shows over 70 per cent of males and remaining females. In 2011-12, share of males in agriculture compared to females increased to 73 per cent from 65 per cent (in Only PS category, implying that some males are moving back to agriculture). In case of Only SS workers, females' share in agriculture has been increasing.

Table 5.21: Distribution of Gender Groups within Agricultural Sector (%)

Gender		1983			1993-94			2004-05			2011-12		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Total	Only PS	66	34	100	69	32	100	65	35	100	73	27	100
	PS with SS	66	34	100	67	33	100	66	34	100	67	33	100
	Only SS	17	83	100	14	86	100	11	89	100	10	90	100
Rural	Only PS	66	34	100	69	31	100	65	35	100	73	27	100
	PS with SS	66	34	100	67	33	100	66	34	100	67	33	100
	Only SS	17	83	100	14	86	100	11	89	100	10	90	100
Urban	Only PS	63	37	100	67	33	100	63	37	100	75	25	100
	PS with SS	67	33	100	72	28	100	69	31	100	75	25	100
	Only SS	22	78	100	14	86	100	12	88	100	15	85	100

Source: Author's computations from various NSSO surveys

The composition of workforce within non-agriculture (see tables 5.23, 5.24 and 5.25) for males (Only PS) shows a declining share of manufacturing and increase in construction, while THR, TSC and CSP remain the other major sectors of work. For females, the composition (Only PS) has been more or less dependent on CSP and manufacturing (although its share in composition declined from 41 per cent in 1983 continuously to 34 per cent in 2011-12). The women who are not in agriculture, are majorly either in CSP or manufacturing sector. In terms of those who also have SS along with their PS, the principal sector of work is construction for males, and females

(the composition share of manufacturing rapidly fell over the decades), implying that those with both PS and SS are mainly engaged in construction, and therefore look for alternative work as subsidiary income source. For those only engaged in SS, the share of work in manufacturing has been steadily declining for both males and females, while share of construction has been rising.

Table 5.23: Workforce Diversification of gender Groups (Within non-farm): Only PS-Total (%)

Gender Groups	Years	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP	TOT
Males	1983	2	31	1	7	21	10	3	25	100
	1993-94	2	27	1	9	23	10	3	25	100
	2004-05	1	25	1	13	28	12	4	16	100
	2011-12	1	22	1	19	24	12	5	15	100
Females	1983	2	41	0	5	15	1	1	34	100
	1993-94	2	39	0	5	13	1	2	37	100
	2004-05	1	38	0	6	16	2	2	36	100
	2011-12	1	34	1	9	15	2	3	35	100

Table 5.24: Workforce Diversification of gender Groups (Within non-farm): PS with SS-Total (%)

Gender Groups	Years	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP	TOT
Males	1983	3	31	1	13	19	7	1	25	100
	1993-94	3	25	1	15	21	8	2	25	100
	2004-05	2	23	1	25	23	10	2	14	100
	2011-12	1	19	0	40	18	8	3	10	100
Females	1983	4	47	0	13	16	0	0	20	100
	1993-94	5	41	0	13	17	1	0	23	100
	2004-05	3	44	0	18	14	1	0	19	100
	2011-12	1	27	0	40	11	1	1	18	100

Table 5.25: Workforce Diversification of gender Groups (Within non-farm): Only SS-Total (%)

Gender Groups	Years	MIN	MFG	UTL	CNS	THR	TSC	FBR	CSP	Total
Males	1983	1	31	0	6	32	5	2	23	100
	1993-94	1	24	1	6	35	6	3	25	100
	2004-05	1	26	0	11	30	7	4	21	100
	2011-12	0	18	1	23	30	5	5	17	100
Females	1983	1	66	0	2	16	1	0	15	100
	1993-94	1	55	0	3	16	0	1	25	100
	2004-05	0	64	0	4	13	1	1	18	100
	2011-12	0	46	0	32	8	1	1	12	100

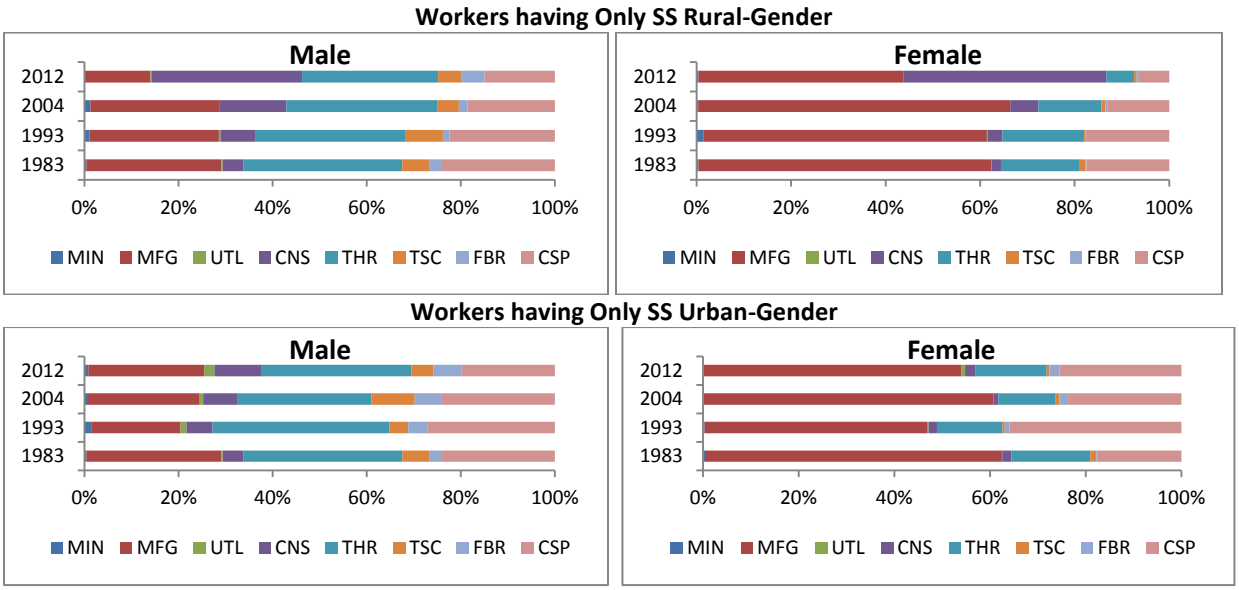
**MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's computations from various NSSO surveys

Similarly, trends in rural and urban areas are also presented in Figure 5.5. In rural areas, males with Only PS are majorly employed in construction (whose share has been rising from 9 per cent in 1983 to 29 per cent in 2011-12), THR (which has remained close to 20 per cent share with a few fluctuations), and manufacturing (the share of which has steadily declined from 31 per cent in 1983 to 21 per cent in 2011-12). A similar trend is seen for women with Only PS in rural areas, although their chare continues to be highest in manufacturing (despite a fall from 48 per cent in 1983 to 40 per cent in 2011-12), followed by CSP. For those people in rural areas who have a subsidiary activity along with PS, their principal activity has been shifting from

manufacture to construction. For males, the share of manufacturing in non-agricultural work declined from 31 per cent in 1983 to 25 per cent over the 2990s and 20002, and further fell to 19 per cent in 2011-12, matched by a rise in construction from 13 per cent in 1983 to 43 per cent in 2011-12, essentially due to the introduction of MGNREGS. In case of females, a similar trend can be seen, although their share of manufacturing in 2011-12 (27 per cent) is higher than the compositional share of 19 per cent (of males). Amongst Only SS workers in rural areas, men were found to have a larger share in construction, THR and CSP (the share of which started declining in 2011-12), and a declining share of manufacturing work, rural females in Only SS had a larger share in manufacturing (within non-farm work), but with declining shares and declining share of THR as well. Increase was noted in construction in 2011-12 for rural females in Only SS category, again following the initiation of the NREGA.

Figure 5.5: Workforce Diversification of gender Groups within non-farm sectors since 1980s, Rural and Urban



In urban areas, despite some increase in construction activities and declining trend in share of manufacturing, the composition of non-agricultural work for both males and females (Only PS) remains dependent on THR, manufacturing and CSP, while TSC has a higher share in case of males. For those with both PS and SS as well as Only SS, the decline in manufacturing has been more noticeable especially for males, while THR continues to be dominant, and an increase in TSC and FRB is noticeable (with increasing ICT sector). In the case of females with both PS and SS, manufacturing continues to have 30 per cent share of the no-agricultural composition despite declining trend, while a significant increase in compositional share of CSP and FRB is visible. High end services have been gaining importance in urban areas, while share of manufacturing employment even within the non-agriculture segment is declining. The gender composition within industrial sectors in both rural and urban shows a much higher predominance of males in workforce in general, while agriculture and CSP are the only sectors where women's compositional share is over 30 per cent (see appendix Tables A5.9 and A5.10).

Table 5.26: Percentage Distribution of gender groups by industrial sectors: Total

	1983			2004-05			2011-12		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
AGRI	66	34	100	65	35	100	72	28	100
MIN	80	20	100	84	16	100	86	14	100
MGF	77	23	100	74	26	100	77	23	100
UTL	97	3	100	95	5	100	87	13	100
CNS	85	15	100	90	10	100	90	10	100
THR	87	13	100	89	11	100	89	11	100
TSC	97	3	100	97	3	100	96	4	100
FRB	94	6	100	90	10	100	88	12	100
CSP	78	22	100	68	32	100	68	32	100
Total	72	28	100	72	28	100	78	22	100

**MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services
Source: Author's computations from various NSSO surveys

5.3. Econometric Analysis

This section digs deeper into these correlates of workforce diversification among others for the rural and urban areas, and the extent and manner in which these have been influencing the structural change of employment over the decades. This is important, as there have only been a few quantitative evaluations in this regard, mostly for the rural areas, while urban dynamics have remained mostly untouched. Given the inherently different structure of rural and urban workforce, this is important for policy discussions as well under the growing threat of jobless growth and premature deindustrialization. The following sections engage in a step-by-step critical evaluation of the demand-side as well as supply-side factors determining rural and urban workforce diversification.

Determinants of Workforce Diversification: Individual and Household Characteristics

This section looks at the individual and household factors influencing workforce diversification decisions for workers. Since the role of education levels, age composition and social stratification including caste, religion and gender have already been discussed in the previous sections in detail, a list of other important correlates is explored here.

Landholding/ Capital/ Assets

The lack of access to capital or inadequate capital, acts as a major barrier to investment and entrepreneurship in the non-farm sector for self-employment especially in rural areas. At the same time, land held by a household or inherited wealth has been found to account for variations in work participation choice to a large extent (Dil Bahadur, 2008; Jayaraj, 2004). For instance, those having land may not be tempted to leave agriculture unless non-farm options are more remunerative. Meanwhile landless households in rural areas working in the farm sector for wages may shift to non-farm work due to seasonality and uncertainty in farm work. On the other hand, as Bhalla and Chadha (1983) put it, small or marginal landholding rural households can smoothen their income stream by also participating in multiple non-farm jobs along with agricultural work and thus escaping conditions of poverty (Saith, 1992; Chadha, 2007). However, Bhaumik (2007) argued that even though small and marginal landholding rural

households may be more diversified, the socio-economically better off households had better likelihood of finding more productive and remunerative non-farm jobs.

The recent trends show a decline in public and hence private spending and investment in agriculture, irrigation and so on, and the resultant decline in capital formation in the sector has resulted in lower employment elasticity in the sector, as noted in the previous chapter. This adds to the already burgeoning stress of small and fragmented lands and a large number of small landholders, which adversely impact agrarian livelihoods with no sustainable work options in the primary sector. At the same time, the pressure of such population on land reduces productivity and wages in the primary sector, leaving no choice but to diversify.

Income Situation of the Household/ Poverty

Another important aspect determining the choice to participate in multiple or different set of activities, is the household income (or the poverty level). It is assumed that non-farm work helps in mitigating this poverty (for instance, Chadha, 1994; Bhaumik, 2007). As Papola (2008) had argued, only employment with decent income would lead to poverty alleviation. Poverty in rural areas has generally been found to be higher for casual worker households, while in the case of the self-employed, around one-fifth were found to be poor (Sundaram, 2007).

It must also be noted that during the 1990s, green revolution, de-agrarianisation and industrialization in rural areas was witnessed, but non-farm activities screened workers based on caste, class and gender (see Harriss-White and Janakarajan, 1997). Further, Yanagisawa (undated) argued that a large section of rural population may not be able to take advantage of non-agricultural job opportunities and end up staying poor, with poor living standards.

The incidence of poverty across different working groups was investigated by Dev (1990), which yielded that poverty was highest among casual labour, more so for those in agriculture. It was also found that the regular-salaried in agriculture (generally the landless households) and self-employed in non-agriculture (generally in informal sector) followed casual workers in the ranking of poverty incidence. For those self-employed in agriculture (generally households with land or inheritances etc.) and regular salaried work in non-agriculture, poverty incidence was lower. At the same time, Dev (1990) also noted that females generally experienced greater

poverty than male counterparts. Even across states, there were wide differentials; agriculture showed a higher incidence of poverty for most states than non-agriculture. Interestingly, poverty incidence was found to be highest in manufacturing in Bihar, in construction in Odisha, and in transport and trade in West Bengal; while Punjab generally shower lower incidence of poverty.

To summarise, as Unni (1996) puts it, these ***individual and household factors*** influence choice of sector of work in many ways, ranging from specializing in primary activity, or engaging in a combination of a primary and a second activity, or engaged majorly in non-agricultural activity along with a second activity in some cases. At the same time, older age workers tend to be in agriculture, while more educated and younger workers as well as landholding households in secondary and tertiary sectors. Urbanisation is also an important enabling condition (for instance, see Binswanger, 2013; World Bank, 2010; Datt and Ravallion, 2009).

Therefore, the list of associated factors considering all the above sections expands to the following: Landholding size, household size, Assets (natural, physical, human, financial & social capital), Education status, Gender, Social stratifications and age.

Multinomial Logistic Regression: Household and individual factors

The significance of the above-mentioned individual as well as household characteristics in influencing workforce diversification patterns across different sectors in rural as well as urban areas is explored in this section using a multinomial logistic regression technique. This is in some respects similar to and an extension of analyses by Jatav and Sen (2013), Yanagisawa (2013), Zeller (2005) and Srivastav and Dubey (2002). In addition, Kashyap and Mehta (2007) for instance, have also considered urbanisation and correlated it with workforce diversification. This section however deals with individual and household factors. Other aspects are covered in detail in later sections and chapters.

Model Specification: Multinomial Logit

To identify the determinants of a worker's choice to participate in a particular sector (agriculture, industry, construction or services), or a particular nature of economic activity (self-employment, casual labour or regular salaried work) in rural and urban areas, and the relative changes over

time, two models have been estimated, using the Multinomial Logistic regression. The choice of a worker can be understood as follows:

The utility choice j for i^{th} person with j choices is given by:

$$Uij = Z_{ij}\beta + \varepsilon_{ij,}$$

If j is the choice of sector/ activity made by a worker, Uij denotes the maximum among j utilities (see Green (2003) for instance), and the model is statistically built as:

Prob ($U_{ij} > U_{ik}$) for $k \neq j$

Under such a specification, the random utility error terms are assumed to follow a log weibull distribution (independently and identically).

The multinomial logit model can thus be used in this manner to understand the various characteristics (individual and household) of the worker who is to make a choice of sector/ activity of work[40], by estimating a set of coefficients with respect to each sector of work/ activity status as shown below:

$$\text{Prob } (Yi=j) = \frac{e^{\beta'_j xi}}{\sum_{k=0}^{n} e^{\beta'_j xi}}, \; j=0, \ldots, n$$

Thus, the estimated multinomial regression model gives probabilities of the choice of the worker with x_i characteristics in choosing j. In order to make the estimation of these probabilities determinate, a particular Y_i may be set as a reference category (in each model, the reference base outcome category is specified), thus yielding the probabilities as:

$$\text{Prob } (Y= j) = \frac{e^{\beta'_j xi}}{1+\sum_{k=1}^{J} e^{\beta'_k xi}} \quad `\ j =1, 2, .., J$$

$$\text{and Prob } (Y=0) = \frac{1}{1+\sum_{k=1}^{J} e^{\beta'_k xi}}$$

These equations help in deriving the probabilities for different choices.

While OLS regression requires the dependent variable to be continuous, the logistic regression takes care of binary dependent variables. The multinomial logistic regression model goes a step further and enables analysis of a dependent variable with more than two categories (a categorical variable with 3 or more categories). In this case, the dependent variable is taken as the participation in different sectors of work; agriculture, industry, construction, and services

[40] Shukla (2012) has performed a similar analysis for the case of Uttar Pradesh.

(unordered). The model has been run separately for rural and urban areas, and the results are summarised below.

Rural Workforce Diversification:

The dependent variable as mentioned above describes workforce diversification across major sectors; i.e., the act of participation in a particular economic sector/ activity, where 0=participation in agriculture, 1=participation in industry (mining/ manufacturing/ utilities), 2= participation in construction, 3=participation in services. This dependent variable is regressed on the individual and household characteristics described in the model below for each NSS round (1983, 1993-94, 2004-05, and 2011-12) for rural areas, the analysis of which is presented below. Since agriculture is still the major activity in rural areas, the base reference category for analysis is agriculture[41].

Correlates of Rural Workforce Diversification: Sectoral (Table 5.27)

The base reference category in rural areas is participation in) agriculture (code 0). Correspondingly, the multinomial logistic regression[42] yields 'response' variables which in this case are participation in) industry (code 1), construction (code 2) or services (code 3) sectors, relative to that in agriculture. This gives essentially three model scenarios comparing the following (while keeping the remaining constant):

- 'Participation' in industry as compared to agriculture

As compared to agriculture, the odds of participation in industry are higher for youth (and lower for the elder workers) relative to middle age workers. As compared to those who have no education or are educated below primary level, those with primary/ middle education have higher odds of working in industry rather than agriculture, and these odds increase with increasing levels of education. Similarly, those with technical education have much higher odds of working in industry. When it comes to more social issues, it is evident that females as compared to males

[41] When more than two categories exist in the dependent variable, the multinomial logistic regression omits/ keeps a category as base and predicts the models for the remaining categories in respect to it.

[42] The estimates are relative to the reference group, i.e., when interpreting the results from a multinomial logistic regression, the logit or the log odds of outcome (the exponent of which is the odds ratio or relative risk ratio in multinomial logistic terms) In relation to the reference category or group changes by its parameter estimate for a unit change in predictor / independent variable, keeping the other variables constant.

have lower odds of working in industry as compared to agriculture. In religious categories, Muslims (relative to Hindus) seem to have higher odds of working in industry over agriculture[43], while other religious groups relative to Hindus have lower odds of working in industry over agriculture. Some caste bias is visible, as compared to general and OBC categories, the odds of working in industry as compared to agriculture are low for SCs and STs. In the earlier two rounds, the chances of a larger household size relative to a smaller household size being in industry were higher, but this is not visible in the more recent rounds. Those with larger land ownerships have lower odds of working in industry[44]. Higher quantiles of income showed higher odds of being in industry in earlier rounds, but the trend has reversed. The household types (self-employed in non-agriculture) as compared to those self-employed in agriculture have higher odds[45] to be in industry. Those from other casual/ salaried households also have higher odds of working in industry over agriculture as compared to self-employed households in agriculture. Finally, as expected, the laggard states have lower odds of participating in industrial activities as compared to agriculture.

- 'Participation' in construction sector as compared to agriculture

Keeping other factors constant, as compared to agriculture, the odds of participating in construction activities is lower for females over males. The odds of youth in construction sector over agriculture (compared to middle age workers) is higher, as is the case with increasing levels of education and technical education. In 2011-12, the odds of Muslims, Christians and other religious groups in construction as compared to agriculture were higher over Hindus, which was earlier not the case. Those with land are less likely to work in construction as compared to agriculture. Earlier, higher income quantiles were likelier to participate in construction, but this has reversed in the more recent periods. It is clear that those from self-employed households (in non-agriculture), casual labour households and other households are much more likely to be engaged in construction as compared to agriculture. Over the recent periods, those from the laggard states have become more likely to participate in construction than agriculture.

[43] This may be because they do not possess agricultural lands and have been associated with small industries relating to weaving/ tailoring and so on.

[44] These sections have larger lands and are generally in agriculture as cultivators, or well off agricultural households.

[45] These high odds (Relative Risk Ratios) lie well within small confidence interval sizes and have small standard errors as well. When interpreting odds or relative risk ratios, increases in odds are when the ratio is greater than 1 and decline in odds when the ratio is less than 1.

- ‘Participation’ in services sector as compared to agriculture

Participation in service sector activities as compared to agriculture (keeping other things constant), is likelier for those with higher levels of education and technical education. Other things constant, as compared to Hindus, Muslims are more likely to be engaged in service sector activities than in agriculture. As the case above, those with larger landholdings are likelier to remain in agriculture. Those from the highest income quantiles are likelier to participate in service sector. Those belonging to self-employed households (in non-agriculture), casual labour households and other households are much likelier (compared to agricultural households) to participate in service sector, which is to be expected. In case of services, middle aged workers are likelier to work as compared to youth.

Correlates of Rural Workforce Diversification: Status (Table 5.28)

In a similar manner, diversification and changes in work patterns in terms of nature/ status of work has also been seen. The base reference category in rural areas is participation in self-employed status of work. Correspondingly, the multinomial logistic regression yields ‘response’ variables which in this case are participation in regular wage/ salaried job, or casual status of work, relative to self-employed status. The independent variables are the same as in case of the previous section on sectoral diversification. This gives essentially two model scenarios comparing the following (while keeping the remaining constant):

- ‘Participation’ in regular salaried job as compared to self-employed status

As compared to self-employed status, the odds of participation in regular salaried work for females are lower than men. Younger age group workers are likelier to get a regular salaried job as compared to self-employed job as compared to middle aged workers, while elderly workers are less likely (which is intuitive as they are already approaching retirement). In terms of education levels, those with at least middle level or higher levels of education as compared to those below primary level of education are much likelier to get regular salaried jobs. In terms of religion, as compared to Hindus (who are likelier to own lands and hence be self-employed in farm and/ or non-farm activities due to wealth holding), Muslims and Christians (and in the post-reform 1993-94 period, others as well) were found to have higher likelihoods of getting regular

salaried jobs in rural areas. In terms of caste, as compared to general (and OBC) categories, who tend to be wealthier in rural areas (generally being the landholding class), SCs are likelier (than STs) to get regular jobs. It is also evident as well as intuitive, that those with higher land holdings as compared to none have a lower likelihood of entering a regular salaried job (unless it pays more), a trend evident across almost all rounds. While income level of the household also impacts likelihood of participation in regular job over self-employment with increasing income, an analysis of the household type shows that those individuals who belong to households whose major income does not come from self-employment are likelier to be in regular salaried jobs.

- 'Participation' in casual work as compared to self-employed status

On the other hand, when comparing the likelihood of working as casual labourer instead of being self-employed, females in 1983 as compared to males in rural areas had higher likelihood of being in casual work, a trend which reversed in later rounds. While younger age workers have a higher likelihood of entering casual work as compared to middle age workers and the elderly. It is also visible that those with higher education as compared to below primary levels are less likely to enter casual work. As compared to Hindus, Muslims and Christians seem to have higher odds of working as casual labour, as are STs and SCs as compared to upper castes. Increasing wealth (income or land ownership) reduces the risk of working in casual work, but non self-employed households in rural areas were highly likely to enter into casual work.

Table 5.27: Multinomial Logistic Regression Results: Correlates of Rural Workforce Diversification: Sectoral

		1983 Rural			1993-94 Rural			2004-05 Rural			2011-12 Rural		
		Industry	Constr-uction	Services	Industry	Constr-uction	Services	Industry	Constr-uction	Services	Industry	Constr-uction	Services
	Female	-0.274***	-1.280***	-0.650***	-0.339***	-1.639***	-0.725***	-0.680***	-2.266***	-1.165***	-0.953***	-2.163***	-1.204***
		(7.860)	(20.330)	(18.410)	(9.070)	(23.450)	(19.510)	(22.670)	(47.190)	(42.350)	(24.380)	(44.140)	(34.430)
Gender		**0.760**	**0.278**	**0.522**	**0.713**	**0.194**	**0.484**	**0.507**	**0.104**	**0.312**	**0.385**	**0.115**	**0.300**
	Youth	0.142***	0.125*	-0.293***	0.187***	0.200***	-0.170***	0.184***	0.146***	-0.161***	0.147***	0.127**	-0.266***
		(4.500)	(2.460)	(9.740)	(5.700)	(3.950)	(5.750)	(6.570)	(4.000)	(6.320)	(3.920)	(3.140)	(7.870)
		1.152	**1.133**	**0.746**	**1.206**	**1.221**	**0.843**	**1.201**	**1.157**	**0.852**	**1.158**	**1.135**	**0.767**
	Elder	-0.112**	0.432***	0.007	-0.363***	-0.591***	-0.210***	-0.473***	-0.790***	-0.384***	-0.497***	-0.634***	-0.403***
		(2.930)	(6.140)	(0.200)	(9.100)	(8.510)	(6.410)	(15.400)	(17.640)	(15.320)	(13.960)	(15.730)	(14.040)
Age group		**0.894**	**0.649**	**1.007**	**0.696**	**0.554**	**0.811**	**0.623**	**0.454**	**0.681**	**0.608**	**0.531**	**0.668**
	Prim/ Mid	0.733***	0.301***	1.019***	0.517***	0.301***	0.966***	0.462***	0.238***	0.682***	0.359***	0.176***	0.596***
		(20.340)	(5.110)	(30.790)	(13.790)	(5.250)	(28.850)	(15.840)	(6.270)	(26.070)	(9.740)	(4.490)	(18.160)
		2.082	**1.352**	**2.770**	**1.677**	**1.351**	**2.626**	**1.587**	**1.268**	**1.977**	**1.432**	**1.193**	**1.814**
	Sec/Above	1.348***	0.982***	2.617***	0.917***	0.637***	2.172***	0.687***	0.232***	1.688***	0.518***	0.171**	1.474***
General Education		(20.750)	(7.780)	(53.590)	(17.890)	(6.970)	(54.600)	(17.270)	(4.000)	(52.310)	(12.030)	(3.460)	(40.930)
Level		**3.849**	**2.669**	**13.700**	**2.502**	**1.892**	**8.774**	**1.987**	**1.261**	**5.409**	**1.678**	**1.187**	**4.367**
	Tech Edu	1.384***	0.840**	1.691***	1.330***	1.247***	1.339***	1.211***	1.237***	1.153***	1.597***	1.580***	1.461***
		(10.410)	(2.940)	(15.770)	(12.710)	(6.650)	(15.900)	(13.020)	(8.310)	(15.190)	(12.560)	(9.910)	(12.790)
Technical Education		**3.992**	**2.316**	**5.423**	**3.782**	**3.481**	**3.816**	**3.358**	**3.446**	**3.167**	**4.938**	**4.855**	**4.312**
	Muslim	0.259***	0.225**	0.378***	0.234***	0.290**	0.604***	0.494***	0.412***	0.587***	0.602***	0.578***	0.589***
		(5.220)	(2.610)	(8.250)	(4.360)	(3.360)	(13.430)	(11.140)	(6.970)	(15.150)	(11.390)	(9.850)	(12.580)
		1.296	**1.252**	**1.459**	**1.264**	**1.337**	**1.830**	**1.638**	**1.510**	**1.798**	**1.825**	**1.783**	**1.803**
	Christian	-0.158	-0.003	0.073	-0.074	0.141	0.101	-0.006	0.516***	0.145’	0.089	0.313*	0.322**
		(1.640)	(0.020)	(0.870)	(0.670)	(0.890)	(1.110)	(0.060)	(4.540)	(1.940)	(0.770)	(2.460)	(3.330)
		0.854	**0.997**	**1.075**	**0.928**	**1.151**	**1.106**	**0.994**	**1.675**	**1.156**	**1.093**	**1.367**	**1.380**
	Others	-0.571***	-0.129	-0.396***	-0.392***	-0.252’	-0.391***	-0.168**	0.041	-0.100’	0.068	0.481***	-0.053
		(6.850)	(1.090)	(5.510)	(4.750)	(1.830)	(5.670)	(2.610)	(0.510)	(1.860)	(0.800)	(5.400)	(0.740)
Religion		**0.565**	**0.879**	**0.673**	**0.676**	**0.778**	**0.677**	**0.845**	**1.041**	**0.905**	**1.070**	**1.618**	**0.948**
	ST	-0.330***	0.203**	-0.483***	-0.348***	0.377***	-0.615***	-0.430***	0.090’	-0.353***	-0.396***	0.086	-0.341***
		(6.050)	(2.660)	(8.610)	(6.540)	(5.440)	(11.390)	(9.550)	(1.650)	(8.980)	(7.470)	(1.610)	(7.570)
		0.719	**1.225**	**0.617**	**0.706**	**1.458**	**0.540**	**0.650**	**1.094**	**0.703**	**0.673**	**1.090**	**0.711**
	SC	-0.078*	0.376***	-0.093*	-0.175***	0.437***	-0.137***	0.011	0.444***	-0.012	-0.012	0.533***	-0.037
		(2.090)	(6.360)	(2.550)	(4.310)	(7.400)	(3.670)	(0.340)	(11.240)	(0.430)	(0.290)	(12.750)	(1.050)
Caste		**0.925**	**1.457**	**0.911**	**0.840**	**1.548**	**0.872**	**1.011**	**1.559**	**0.988**	**0.989**	**1.705**	**0.963**
Household Size	6-10	0.160***	0.282***	0.114***	0.121***	0.254***	0.140***	-0.111***	-0.075*	-0.358***	-0.251***	-0.179***	-0.404***

		(5.300)	(5.580)	(4.040)	(3.810)	(5.170)	(5.060)	(3.950)	(1.990)	(14.740)	(7.090)	(4.610)	(13.480)
		1.174	**1.326**	**1.121**	**1.129**	**1.290**	**1.151**	**0.895**	**0.928**	**0.699**	**0.778**	**0.836**	**0.667**
	>=11	0.337***	0.510***	0.381***	0.169*	0.277*	0.307***	-0.172**	0.297**	-0.312***	-0.361***	-0.344**	-0.670***
		(5.330)	(5.020)	(6.830)	(2.460)	(2.350)	(5.570)	(2.720)	(3.500)	(5.900)	(4.160)	(3.290)	(8.870)
		1.401	**1.665**	**1.464**	**1.184**	**1.319**	**1.360**	**0.842**	**1.346**	**0.732**	**0.697**	**0.709**	**0.512**
	>1 & <=2 ha	-0.650***	-0.395***	-0.669***	-0.464***	-0.350***	-0.315***	-0.666***	-0.545***	-0.550***	-0.915***	-0.843***	-0.665***
		(13.780)	(4.920)	(15.120)	(8.370)	(4.020)	(7.190)	(14.580)	(8.440)	(15.370)	(15.680)	(12.360)	(15.650)
		0.522	**0.674**	**0.512**	**0.629**	**0.704**	**0.729**	**0.514**	**0.580**	**0.577**	**0.400**	**0.430**	**0.514**
	>2 ha	-1.278***	-0.333***	-1.217***	-0.227***	-0.440***	-0.240***	-0.521***	-0.797***	-0.433***	-0.492***	-0.764***	-0.510***
		(30.580)	(4.960)	(33.650)	(5.880)	(6.780)	(7.230)	(14.220)	(14.060)	(14.620)	(10.880)	(13.280)	(14.020)
Land Owning		**0.279**	**0.717**	**0.296**	**0.797**	**0.644**	**0.787**	**0.594**	**0.451**	**0.649**	**0.611**	**0.466**	**0.601**
	MPCE Quartile 2	0.149***	0.151*	0.021	0.287***	0.164**	0.264***	-0.222***	-0.110**	-0.065*	-0.177***	-0.222***	-0.159***
		(3.680)	(2.330)	(0.520)	(6.790)	(2.600)	(6.560)	(6.990)	(2.640)	(2.300)	(4.410)	(5.150)	(4.550)
		1.161	**1.163**	**1.021**	**1.333**	**1.179**	**1.302**	**0.801**	**0.896**	**0.937**	**0.838**	**0.801**	**0.853**
	MPCE Quartile 3	0.306***	0.175*	0.056	0.363***	0.191**	0.438***	-0.270***	-0.176***	-0.030	-0.316***	-0.230***	-0.085*
		(7.380)	(2.510)	(1.390)	(8.370)	(2.830)	(10.920)	(7.300)	(3.530)	(0.950)	(7.020)	(4.600)	(2.240)
		1.358	**1.191**	**1.058**	**1.438**	**1.210**	**1.550**	**0.763**	**0.839**	**0.970**	**0.729**	**0.794**	**0.918**
	MPCE Quartile 4	0.384***	0.245**	0.326***	0.394***	0.278***	0.640***	-0.234***	-0.353***	0.091*	-0.180**	-0.288***	0.110*
		(8.810)	(3.340)	(8.040)	(8.270)	(3.720)	(15.130)	(5.190)	(5.240)	(2.390)	(3.440)	(4.550)	(2.520)
Rural MPCE Quartiles		**1.468**	**1.278**	**1.385**	**1.483**	**1.320**	**1.896**	**0.792**	**0.703**	**1.095**	**0.835**	**0.750**	**1.117**
	Self-emp in non-agri	4.531***	3.988***	4.356***	4.632***	3.872***	4.609***	4.020***	3.332***	4.079***	4.192***	3.296***	4.252***
		(89.660)	(39.340)	(99.240)	(90.520)	(38.740)	(107.390)	(96.260)	(51.960)	(125.850)	(73.150)	(51.030)	(105.470)
		92.868	**53.937**	**77.941**	**102.679**	**48.027**	**100.383**	**55.693**	**27.993**	**59.115**	**66.159**	**26.996**	**70.255**
	Casual agri lab	-0.064	0.894***	-0.350***	0.372***	0.787***	0.122*	0.065	0.057	-0.338***	0.131	0.184*	-0.529***
		(1.050)	(7.800)	(6.400)	(5.730)	(7.060)	(2.250)	(1.100)	(0.660)	(6.570)	(1.470)	(2.040)	(6.850)
		0.938	**2.444**	**0.705**	**1.451**	**2.196**	**1.129**	**1.067**	**1.058**	**0.713**	**1.139**	**1.202**	**0.589**
	Other casual lab	4.081***	5.369***	3.369***	4.466***	5.409***	3.612***	3.719***	5.081***	3.086***	3.858***	5.378***	2.825***
		(73.590)	(54.170)	(64.650)	(79.930)	(58.250)	(70.170)	(78.760)	(81.070)	(77.480)	(60.270)	(83.210)	(54.180)
		59.212	**214.754**	**29.061**	**87.008**	**223.481**	**37.049**	**41.222**	**160.916**	**21.898**	**47.358**	**216.548**	**16.853**
	Other (salaried/ remittance)	2.450***	1.990***	2.875***	2.848***	2.635***	3.176***	2.770***	1.983***	3.388***	3.522***	2.437***	3.667***
		(42.460)	(14.540)	(67.160)	(50.880)	(23.770)	(80.500)	(54.810)	(21.450)	(97.000)	(58.740)	(32.970)	(89.020)
Rural Household Type		**11.584**	**7.314**	**17.728**	**17.261**	**13.949**	**23.953**	**15.965**	**7.263**	**29.620**	**33.836**	**11.436**	**39.116**
State Group	Group 2	-0.023	-0.158**	-0.072*	-0.202***	-0.231***	-0.139***	-0.150***	0.226***	-0.133***	-0.188***	0.233***	-0.027

		(0.790)	(3.170)	(2.550)	(6.360)	(4.730)	(4.990)	(5.810)	(6.390)	(5.910)	(5.900)	(6.520)	(0.980)
		0.977	**0.854**	**0.931**	**0.817**	**0.793**	**0.870**	**0.861**	**1.254**	**0.876**	**0.828**	**1.263**	**0.973**
		-3.909***	-5.647***	-3.339***	-4.353***	-5.483***	-4.092***	-3.265***	-4.115***	-2.827***	-3.184***	-3.369***	-2.688***
		(59.810)	(45.720)	(57.280)	(64.900)	(47.380)	(71.250)	(66.070)	(57.090)	(70.840)	(47.380)	(45.020)	(53.030)
_cons		**0.020**	**0.004**	**0.035**	**0.013**	**0.004**	**0.017**	**0.038**	**0.016**	**0.059**	**0.041**	**0.034**	**0.068**
Statistics		1983 Rural			1993 Rural			2005 Rural			2012 Rural		
chi2		38482.42			35089.99			50071.61			37748.87		
N		120137			102423			113055			73697		
Log-Lik Full Model:		-47871.4			-46522.6			-73135.5			-54971.2		
LR(69):		69213.74			61556.24			87492.5			70139.96		
McFadden's Adj R2:		0.418			0.396			0.373			0.388		
Cragg & Uhler's R2:		0.587			0.58			0.617			0.672		
Adj Count R2:		0.147			0.081			0.081			0.082		
AIC*n:		96022.82			93325.11			146551			110222.5		
BIC':		-68406.7			-60760.2			-86689.6			-69366.6		

Note: p-value: 'p<0.10; *p<0.05; **p<0.01; ***p<0.001, Legends: coefficients, absolute value of z statistic in parentheses), relative risk ratios in bold

*Agriculture is the base/ reference category (dependent variable)

**Here, males, middle age-group, below primary education level, no technical education, Hindu, General/ OBC, small household size, small landholding by household, developed states, household type self-employed in agriculture (for rural) and household type self-employed (for urban) and the first MPCE quartile are reference categories for independent variables.

***'Group 1' states include Tamil Nadu, Gujarat, Maharashtra, Karnataka, Kerala, Andhra Pradesh, Punjab and Haryana while 'Group 2' states include Bihar (and Jharkhand), Madhya Pradesh (and Chattisgarh), Uttar Pradesh (and Uttarakhand), Rajasthan, Odisha, and West Bengal; the two groups are divided on the basis of per capita incomes.

Table 5.28: Multinomial Logistic Regression Results: Correlates of Rural Workforce Diversification: Status

		1983 Rural		1993 Rural		2005 Rural		2012 Rural	
		Regular salaried	Casual Labour	Regular salaried	Casual Labour	Regular salaried	Casual Labour	Regular salaried	Casual Labour
	Female	-0.820***	0.124***	-0.615***	-0.139***	-0.510***	-0.393***	-0.212***	-0.212***
		(20.920)	(4.480)	(13.100)	(4.260)	(13.450)	(12.990)	(4.310)	(5.200)
Gender		**0.440**	**1.132**	**0.541**	**0.870**	**0.601**	**0.675**	**0.809**	**0.809**
	Youth	0.138***	0.414***	-0.243***	0.412***	-0.088**	0.573***	0.129**	0.631***
		(4.360)	(15.470)	(6.520)	(13.440)	(2.690)	(20.070)	(3.080)	(17.630)
		1.148	**1.512**	**0.785**	**1.510**	**0.916**	**1.773**	**1.138**	**1.879**
	Elder	-0.529***	-0.606***	-0.361***	-0.626***	-0.174***	-0.571***	-0.331***	-0.462***
		(13.770)	(19.610)	(9.460)	(18.250)	(5.730)	(18.590)	(9.120)	(13.410)
Age group		**0.589**	**0.546**	**0.697**	**0.535**	**0.840**	**0.565**	**0.718**	**0.630**
	Prim/ Mid	0.356***	-0.241***	0.473***	-0.380***	0.741***	-0.232***	0.661***	-0.273***
		(9.880)	(7.530)	(11.130)	(11.310)	(20.090)	(7.970)	(14.110)	(8.030)
		1.428	**0.786**	**1.604**	**0.684**	**2.097**	**0.793**	**1.937**	**0.761**
	Sec/Above	1.876***	-0.374***	1.639***	-0.785***	1.588***	-0.782***	1.484***	-0.768***
		(38.230)	(5.680)	(35.220)	(14.550)	(39.610)	(18.590)	(31.980)	(18.620)
General Education Level		**6.526**	**0.688**	**5.151**	**0.456**	**4.892**	**0.458**	**4.409**	**0.464**

	Tech Edu	1.500***	0.319*	1.012***	-0.268’	0.713***	-0.198	0.999***	0.037
		(15.550)	(2.110)	(12.140)	(1.700)	(10.480)	(1.500)	(10.420)	(0.270)
Technical Education		**4.480**	**1.376**	**2.750**	**0.765**	**2.039**	**0.821**	**2.716**	**1.038**
	Muslim	0.032	0.202***	0.043	0.100*	0.003	0.204***	0.249***	0.090’
		(0.560)	(4.370)	(0.700)	(2.020)	(0.050)	(4.640)	(4.310)	(1.790)
		1.033	**1.224**	**1.044**	**1.105**	**1.003**	**1.226**	**1.283**	**1.094**
	Christian	0.219*	0.047	0.050	0.180’	0.116	0.115	0.232*	0.284**
		(2.560)	(0.540)	(0.500)	(1.830)	(1.450)	(1.280)	(2.170)	(2.730)
		1.245	**1.048**	**1.052**	**1.198**	**1.123**	**1.122**	**1.261**	**1.329**
	Others	-0.036	-0.651***	0.149*	-0.069	0.231***	-0.077	0.271**	-0.088
		(0.530)	(8.960)	(1.980)	(0.920)	(3.620)	(1.180)	(3.250)	(1.000)
Religion		**0.965**	**0.521**	**1.160**	**0.934**	**1.260**	**0.926**	**1.311**	**0.916**
	ST	0.454***	0.307***	-0.029	0.187***	0.027	0.116**	-0.142*	0.034
		(9.570)	(8.320)	(0.490)	(4.270)	(0.570)	(2.840)	(2.460)	(0.710)
		1.575	**1.359**	**0.972**	**1.206**	**1.027**	**1.123**	**0.868**	**1.035**
	SC	0.379***	0.446***	0.341***	0.677***	0.301***	0.545***	0.320***	0.571***
		(9.860)	(14.060)	(7.660)	(19.380)	(8.550)	(18.070)	(7.280)	(15.160)
Caste		**1.460**	**1.562**	**1.407**	**1.968**	**1.351**	**1.725**	**1.377**	**1.771**
	6-10	0.108***	-0.164***	-0.021	-0.359***	-0.292***	0.116***	-0.304***	0.131***
		(3.600)	(6.460)	(0.620)	(12.360)	(9.500)	(4.000)	(7.860)	(3.750)
		1.114	**0.849**	**0.980**	**0.699**	**0.747**	**1.123**	**0.738**	**1.140**
	>=11	0.269***	-0.218***	-0.038	-0.650***	-0.284***	0.623***	-0.526***	0.293**
		(4.640)	(3.910)	(0.560)	(8.820)	(4.330)	(8.790)	(5.090)	(3.110)
Household Size		**1.309**	**0.804**	**0.963**	**0.522**	**0.753**	**1.865**	**0.591**	**1.340**
	>1 & <=2 ha	-0.794***	-0.542***	-0.222***	-0.761***	-0.404***	-0.699***	-0.456***	-0.844***
		(16.580)	(14.110)	(4.490)	(16.330)	(9.170)	(15.020)	(8.310)	(14.550)
		0.452	**0.582**	**0.801**	**0.467**	**0.667**	**0.497**	**0.634**	**0.430**
	>2 ha	-1.087***	-1.147***	0.043	-0.627***	-0.059’	-0.892***	-0.283***	-0.787***
		(29.980)	(36.400)	(1.140)	(19.280)	(1.680)	(22.980)	(6.350)	(16.930)
Land Owning		**0.337**	**0.318**	**1.044**	**0.534**	**0.943**	**0.410**	**0.753**	**0.455**
	MPCE Quartile 2	0.014	-0.201***	0.116*	-0.319***	-0.065’	-0.317***	-0.022	-0.316***
		(0.340)	(6.260)	(2.200)	(8.750)	(1.770)	(10.320)	(0.500)	(8.460)
		1.015	**0.818**	**1.123**	**0.727**	**0.937**	**0.729**	**0.979**	**0.729**
	MPCE Quartile 3	0.098*	-0.360***	0.240***	-0.587***	0.062	-0.551***	-0.045	-0.525***
		(2.230)	(10.600)	(4.660)	(15.450)	(1.580)	(14.550)	(0.960)	(12.180)
		1.103	**0.698**	**1.271**	**0.556**	**1.064**	**0.577**	**0.956**	**0.592**
	MPCE Quartile 4	0.395***	-0.490***	0.463***	-0.889***	0.101*	-1.075***	-0.010	-0.982***
		(9.000)	(13.280)	(8.810)	(20.590)	(2.270)	(20.570)	(0.180)	(18.410)
Rural MPCE Quartile		**1.485**	**0.613**	**1.589**	**0.411**	**1.106**	**0.341**	**0.990**	**0.375**
	Self-emp in non-agri	-0.650***	0.239***	0.002	0.802***	0.137**	0.717***	0.116*	0.600***
		(9.890)	(5.390)	(0.030)	(17.510)	(3.050)	(17.590)	(2.190)	(13.230)
		0.522	**1.270**	**1.002**	**2.230**	**1.147**	**2.048**	**1.123**	**1.822**
	Casual agri lab	3.286***	5.148***	3.167***	5.699***	3.035***	5.460***	2.368***	5.172***
		(75.400)	(149.420)	(57.740)	(143.890)	(54.250)	(128.680)	(24.690)	(86.360)
Rural Household Type		**26.729**	**172.035**	**23.726**	**298.523**	**20.802**	**235.185**	**10.675**	**176.220**

	Other casual lab	3.504***	4.147***	3.856***	4.688***	3.576***	4.646***	2.176***	4.801***
		(64.810)	(89.060)	(68.510)	(97.860)	(79.270)	(111.840)	(30.810)	(99.320)
		33.254	**63.272**	**47.289**	**108.621**	**35.732**	**104.193**	**8.808**	**121.595**
	Other (salaried/ remittance)	3.021***	1.468***	3.733***	2.986***	3.780***	2.047***	4.328***	2.297***
		(75.010)	(27.160)	(88.430)	(64.020)	(100.130)	(38.120)	(95.240)	(44.460)
		20.509	**4.343**	**41.806**	**19.814**	**43.824**	**7.742**	**75.829**	**9.941**
	Group 2	-0.284***	-0.517***	-0.220***	-0.340***	-0.364***	-0.596***	-0.318***	-0.683***
		(9.410)	(20.480)	(6.480)	(11.690)	(12.920)	(23.110)	(9.260)	(22.260)
State Group		**0.753**	**0.596**	**0.803**	**0.712**	**0.695**	**0.551**	**0.728**	**0.505**
		-2.969***	-1.905***	-3.849***	-2.199***	-3.614***	-2.390***	-3.602***	-1.886***
		(51.050)	(40.500)	(57.410)	(43.160)	(68.680)	(53.160)	(55.120)	(35.000)
_cons		**0.051**	**0.149**	**0.021**	**0.111**	**0.027**	**0.092**	**0.027**	**0.152**

Statistics	1983 Rural	1993 Rural	2005 Rural	2012 Rural
chi2	57406.52	48566.2	56366.51	40849.31
N	120299	102675	113055	73854
Log-Lik Full Model:	-46921.7	-36831.4	-46219.3	-31827.2
LR(69):	119076.4	106378.9	107487.6	76898.75
McFadden's Adj R2:	0.558	0.59	0.537	0.546
Cragg & Uhler's R2:	0.757	0.78	0.74	0.76
Adj Count R2:	0.071	0.076	0.122	0.196
AIC*n:	94053.31	73872.89	92648.64	63864.49
BIC':	-118538	-105848	-106952	-76383.1

Note: p-value: 'p<0.10; *p<0.05; **p<0.01; ***p<0.001, Legends: coefficients, absolute value of z statistic in parentheses), relative risk ratios in bold

*Self-employment is the base/ reference category (dependent variable)

**Here, males, middle age-group, below primary education level, no technical education, Hindu, General/ OBC, small household size, small landholding by household, developed states, household type self-employed in agriculture (for rural) and household type self-employed (for urban) and the first MPCE quartile are reference categories for independent variables.

***'Group 1' states include Tamil Nadu, Gujarat, Maharashtra, Karnataka, Kerala, Andhra Pradesh, Punjab and Haryana while 'Group 2' states include Bihar (and Jharkhand), Madhya Pradesh (and Chattisgarh), Uttar Pradesh (and Uttarakhand), Rajasthan, Odisha, and West Bengal; the two groups are divided on the basis of per capita incomes.

Urban Workforce Diversification:

It is also important to understand and recognize that agriculture only accounts for a very small proportion of urban workforce, where services are the dominant sector. This necessitates a separate study of urban diversification patterns as the following segment engages in. It is also important to note that till the mid-2000s, services were also dominant in rural areas, and were quickly overtaken by construction sector post the NREGA; construction activities have been growing although their share is higher in rural areas.

The model run for rural areas is therefore also run for urban areas separately, with the same dependent variable and independent variables over the 4 time periods (excluding land ownership). The point to note here is that since the major activity pursued in urban areas is not agriculture but services, the base category for reference becomes the service sector. The results from these regressions are presented below.

Correlates of Urban Workforce Diversification: Sectoral (Table 5.29)

The base reference category in urban areas is participation in) the services sector (code 3). Correspondingly, the multinomial logistic regression yields 'response' variables which in this case are (participation in) agriculture (code 0), industry (code 1) or construction (code 2), relative to that in the services sector. This gives essentially three model scenarios comparing the following:

- 'Participation' in agriculture as compared to services sector

As compared to males, females are likelier to work in agriculture as compared to services, as are older workers. With increasing levels of general and technical education, odds of working in agriculture are lower. STs are likelier to remain in agriculture, a trend also noticed in earlier analysis. Some level of caste bias does seem to still exist.

- 'Participation' in industry as compared to services sector

Keeping other things constant, females as compared to males were found to be likelier to be employed in industry as compared to services than males, as were the youth and those with technical education. SCs and STs are less likely to be in industry as compared to general and OBC categories. In urban areas, those from casual labour households and those from regular salaried households are likelier to be engaged in industrial activities than services (as compared

to self-employed households). Those from laggard states are less likely to be engaged in industry.

- 'Participation' in construction as compared to services sector

In urban areas, as compared to service sector activities, youth are likelier than middle age workers to be engaged in construction sector. Those with higher education are less likely to be in construction activities, while those with technical education are likelier to be in construction (these may be engineers and architects, or foremen, masons and so on). SCs and STs are likelier as compared to general and OBC categories to be in construction activities as compared to service sector jobs. Casual labour households in urban areas are much likelier to be engaged in construction than in service sector activities.

Correlates of Urban Workforce Diversification: Status (Table 5.30)

Again, diversification and changes in work patterns in terms of nature/ status of work has also been seen for urban areas over time. The base reference category in urban areas is participation in self-employed status of work (except for 1983, where regular salaried jobs were the reference category). Correspondingly, the multinomial logistic regression yields 'response' variables which in this case are participation in the two remaining status of work. The independent variables are the same as in case of the previous section on sectoral diversification.

In 1983, it was observed that as compared to a regular salaried job, the likelihood of being self-employed was higher for females as compared males, as it was for the youth and elderly population of workers as compared to middle age workers. As expected, those with higher general and technical education were less likely to work as self-employed as compared to regular salaried work. With increasing household size, likelihood of self-employment seemed to be higher, while higher income quantiles showed less risk of being self-employed rather than in a regular salaried job in urban areas. On the other hand, working in casual labour as compared to a regular salaried job seemed to be likelier for youth and females in 1983. Again, those with higher general and technical education were less likely to work as casual workers. As compared to Hindus, Muslims and Christians (as well as STs and SCs) were likelier to be engaged in casual work even in urban areas in 1983. Increasing income levels led to lower odds of working as casual labour. For the remaining rounds in the post-reform period, the reference category is the

self-employed work. The two model scenarios (while keeping the remaining constant) are explained below:

- 'Participation' in regular salaried job as compared to self-employed status

In comparison to self-employed status of work, likelihood of being in a regular salaried job was lower for youth and females in the post-reform period of 1993-94, but it increased in 2004-05. Those with higher education levels as well as technical education were likelier to find regular jobs. While Muslims compared to Hindus were less likely to get regular jobs over self-employment, Christians were much more likely to get regular jobs. Increasing income levels led to higher odds of working as regular salaried worker. As compared to self-employed households, an individual from all remaining household types has higher odds of working in a regular job. In addition, as compared to the more developed states, laggard states were less likely to work as a regular employee.

- 'Participation' in casual work as compared to self-employed status

When compared to self-employed status, participation in casual work across post-reform rounds showed a higher likelihood for females, youth and lower caste workers, and lower likelihood for those who are more educated as compared to those educated below primary level. While higher income groups on the basis of per capita monthly expenditure showed less likelihood of being casual labour, those individuals belonging to households with major income from casual labour have higher likelihood of being casual labour (path-dependence).

In sum, higher educational attainment and household types are major determinants of sector of work participation in both rural as well as urban areas. In addition, there seems to exist some caste bias in terms of work participation of Scheduled castes and Scheduled tribes in non-agricultural sectors.

Table 5.29: Multinomial Logistic Regression Results: Correlates of Urban Workforce Diversification: Sectoral

		1983 Urban			1993 Urban			2005 Urban			2012 Urban		
		Agri-culture	Industry	Constr-uction	Agri-culture	Industry	Constr-uction	Agri-culture	Industry	Constr-uction	Agri-culture	Industry	Constr-uction
	Female	0.742***	0.066*	-0.561***	0.419***	-0.033	-0.788***	0.518***	0.113***	-1.123***	0.202***	0.065*	-1.348***
		(22.270)	(2.270)	(8.730)	(11.280)	(1.160)	(13.770)	(13.710)	(4.130)	(21.270)	(4.330)	(2.080)	(22.150)
Gender		**2.101**	**1.068**	**0.571**	**1.521**	**0.968**	**0.455**	**1.678**	**1.120**	**0.325**	**1.224**	**1.067**	**0.260**
	Youth	0.228***	0.195***	0.256***	0.106**	0.178***	0.101*	-0.063	0.199***	0.125**	-0.021	0.244***	0.246***
		(6.880)	(8.520)	(5.290)	(2.900)	(7.610)	(2.320)	(1.550)	(8.200)	(3.200)	(0.420)	(8.480)	(5.720)
		1.257	**1.215**	**1.291**	**1.112**	**1.195**	**1.107**	**0.939**	**1.220**	**1.133**	**0.979**	**1.276**	**1.279**
	Elder	0.185***	-0.173***	-0.307***	0.374***	-0.081**	-0.320***	0.490***	-0.087**	-0.348***	0.389***	-0.043	-0.259***
		(4.850)	(5.960)	(4.720)	(9.270)	(2.890)	(5.500)	(12.180)	(3.010)	(6.750)	(8.720)	(1.410)	(5.320)
Age group		**1.203**	**0.841**	**0.736**	**1.453**	**0.922**	**0.726**	**1.632**	**0.916**	**0.706**	**1.476**	**0.958**	**0.771**
	Prim/ Mid	-0.982***	-0.210***	-0.808***	-0.630***	-0.138***	-0.484***	-0.488***	0.075*	-0.275***	-0.547***	-0.038	-0.385***
		(27.680)	(8.170)	(15.330)	(16.130)	(4.990)	(9.930)	(11.830)	(2.580)	(6.530)	(10.920)	(1.090)	(8.170)
		0.374	**0.811**	**0.446**	**0.532**	**0.871**	**0.616**	**0.614**	**1.077**	**0.760**	**0.578**	**0.962**	**0.681**
	Sec/Above	-2.090***	-0.896***	-1.640***	-1.329***	-0.692***	-1.048***	-1.120***	-0.521***	-0.906***	-1.144***	-0.715***	-1.068***
		(37.140)	(28.960)	(21.780)	(25.050)	(22.730)	(16.480)	(21.020)	(15.790)	(16.100)	(20.800)	(19.550)	(19.920)
General Education level		**0.124**	**0.408**	**0.194**	**0.265**	**0.501**	**0.351**	**0.326**	**0.594**	**0.404**	**0.318**	**0.489**	**0.344**
	Tech Edu	-1.034***	0.167***	0.187	-0.580***	0.333***	0.798***	-0.782***	0.209***	0.500***	-0.872***	0.467***	0.680***
		(6.600)	(3.560)	(1.500)	(4.200)	(8.170)	(8.370)	(5.620)	(4.670)	(5.180)	(5.250)	(9.640)	(7.170)
Technical Education		**0.356**	**1.181**	**1.206**	**0.560**	**1.396**	**2.220**	**0.457**	**1.232**	**1.649**	**0.418**	**1.595**	**1.974**
	Muslim	-0.823***	0.144***	-0.138*	-0.946***	0.047	-0.258***	-1.080***	0.219***	-0.226***	-1.149***	0.149***	-0.178**
		(17.410)	(5.040)	(2.080)	(17.950)	(1.590)	(4.280)	(17.430)	(7.430)	(4.230)	(16.610)	(4.430)	(3.240)
		0.439	**1.155**	**0.871**	**0.388**	**1.048**	**0.773**	**0.340**	**1.245**	**0.798**	**0.317**	**1.160**	**0.837**
	Christian	-0.021	-0.124'	0.464***	0.264**	-0.199**	0.092	0.390***	-0.248**	0.345**	0.151	-0.282**	0.242*
		(0.220)	(1.940)	(3.920)	(2.680)	(3.070)	(0.750)	(3.840)	(3.300)	(3.250)	(1.280)	(3.360)	(2.090)
		0.979	**0.884**	**1.590**	**1.302**	**0.820**	**1.096**	**1.477**	**0.781**	**1.412**	**1.163**	**0.754**	**1.274**
	Others	-0.051	-0.280***	-0.170	0.007	-0.267***	-0.064	0.023	-0.163**	0.149	0.329**	-0.052	0.184*
		(0.660)	(4.940)	(1.410)	(0.080)	(4.660)	(0.600)	(0.250)	(2.670)	(1.570)	(3.490)	(0.740)	(1.900)
Religion		0.951	0.756	0.844	1.007	0.766	0.938	1.023	0.849	1.161	1.390	0.949	1.202
	ST	0.506***	0.220***	0.694***	0.198*	-0.011	0.424***	0.353***	-0.316***	0.636***	0.672***	-0.312***	0.506***
		(7.390)	(3.610)	(6.990)	(2.330)	(0.160)	(4.300)	(4.470)	(4.560)	(7.690)	(8.120)	(4.230)	(5.980)
		1.659	**1.247**	**2.002**	**1.219**	**0.989**	**1.529**	**1.423**	**0.729**	**1.889**	**1.958**	**0.732**	**1.659**
	SC	-0.217***	-0.196***	0.477***	-0.041	-0.323***	0.282***	-0.171***	-0.250***	0.309***	-0.367***	-0.154***	0.466***
		(5.110)	(5.760)	(8.200)	(0.930)	(8.890)	(5.190)	(3.830)	(7.620)	(6.810)	(6.220)	(4.150)	(9.630)
Caste		**0.805**	**0.822**	**1.611**	**0.960**	**0.724**	**1.326**	**0.843**	**0.778**	**1.362**	**0.693**	**0.857**	**1.593**
	6-10	0.170***	0.031	-0.159**	0.087*	0.039'	0.005	0.401***	0.089***	0.133**	0.259***	0.118***	0.105*
		(5.360)	(1.390)	(3.370)	(2.510)	(1.690)	(0.120)	(10.470)	(3.580)	(3.220)	(5.820)	(4.110)	(2.380)
		1.185	**1.032**	**0.853**	**1.091**	**1.040**	**1.005**	**1.493**	**1.093**	**1.142**	**1.296**	**1.126**	**1.110**
	>=11	0.281***	0.050	-0.316**	0.482***	-0.026	0.167	0.853***	0.150**	0.299**	0.502***	0.149*	0.040
		(4.830)	(1.200)	(3.180)	(6.720)	(0.450)	(1.580)	(11.480)	(2.910)	(3.370)	(5.060)	(2.210)	(0.370)
Household Size		**1.324**	**1.051**	**0.729**	**1.619**	**0.974**	**1.182**	**2.346**	**1.162**	**1.349**	**1.652**	**1.160**	**1.041**
Urban MPCE Quartiles	MPCE Quartile 2	-0.267***	-0.001	-0.345***	-0.321***	0.066*	0.072	-0.081'	0.091**	-0.046	-0.012	0.035	0.004

		(7.090)	(0.030)	(5.920)	(8.020)	(2.140)	(1.380)	(1.830)	(3.000)	(1.000)	(0.230)	(1.040)	(0.090)
		0.766	**0.999**	**0.708**	**0.726**	**1.068**	**1.074**	**0.922**	**1.095**	**0.955**	**0.988**	**1.036**	**1.004**
	MPCE Quartile 2	-0.366***	-0.002	-0.425***	-0.547***	0.027	-0.037	-0.264***	-0.047	-0.172**	-0.104'	-0.062'	-0.070
		(8.940)	(0.060)	(6.800)	(11.580)	(0.840)	(0.610)	(5.030)	(1.390)	(3.020)	(1.740)	(1.680)	(1.230)
		0.693	**0.998**	**0.654**	**0.579**	**1.028**	**0.964**	**0.768**	**0.954**	**0.842**	**0.902**	**0.940**	**0.932**
	MPCE Quartile 2	-0.664***	-0.027	-0.652***	-0.792***	0.000	0.004	-0.407***	-0.126**	-0.272***	-0.211**	-0.139**	-0.150*
		(13.750)	(0.840)	(9.620)	(13.180)	(0.010)	(0.060)	(6.410)	(3.360)	(3.790)	(3.040)	(3.430)	(2.200)
		0.515	**0.973**	**0.521**	**0.453**	**1.000**	**1.004**	**0.666**	**0.882**	**0.762**	**0.810**	**0.870**	**0.860**
	Casual labour	-0.152***	0.394***	0.623***	1.046***	0.732***	2.329***	1.043***	0.659***	2.611***	0.860***	0.740***	2.745***
		(5.050)	(17.840)	(12.290)	(26.080)	(19.430)	(45.260)	(24.430)	(17.410)	(58.980)	(17.190)	(17.240)	(57.560)
		0.859	**1.482**	**1.865**	**2.845**	**2.080**	**10.264**	**2.839**	**1.933**	**13.619**	**2.362**	**2.097**	**15.570**
	Regular wage/ salaried				-1.138***	0.521***	-0.309***	-1.106***	0.286***	-0.467***	-1.738***	0.304***	-0.295***
					(24.050)	(22.260)	(5.110)	(22.380)	(12.050)	(8.530)	(27.500)	(11.320)	(5.430)
					0.321	**1.683**	**0.734**	**0.331**	**1.331**	**0.627**	**0.176**	**1.356**	**0.745**
	Other				1.120***	-0.457***	0.181	1.393***	-0.457**	0.238	-0.140	-0.319'	0.891***
					(11.980)	(3.750)	(0.900)	(15.410)	(3.490)	(1.290)	(0.680)	(1.880)	(5.120)
Urban Household Type					**3.065**	**0.633**	**1.198**	**4.028**	**0.633**	**1.269**	**0.870**	**0.727**	**2.439**
	Group 2	-0.219***	-0.069**	-0.157**	0.068*	-0.088***	-0.143**	0.033	-0.152***	-0.131**	-0.166***	-0.216***	-0.110**
		(7.270)	(3.230)	(3.500)	(2.070)	(4.050)	(3.360)	(0.940)	(6.670)	(3.480)	(4.030)	(8.410)	(2.770)
State Group		**0.804**	**0.933**	**0.855**	**1.071**	**0.915**	**0.867**	**1.033**	**0.859**	**0.878**	**0.847**	**0.806**	**0.896**
		-0.560***	-0.603***	-1.865***	-0.943***	-0.862***	-2.239***	-1.481***	-0.960***	-1.990***	-1.047***	-0.817***	-1.796***
		(11.720)	(15.890)	(25.160)	(18.670)	(22.690)	(32.260)	(30.410)	(26.730)	(35.570)	(17.020)	(18.950)	(28.890)
_cons		**0.571**	**0.547**	**0.155**	**0.390**	**0.422**	**0.107**	**0.227**	**0.383**	**0.137**	**0.351**	**0.442**	**0.166**
Statistics		1983 Urban			1993 Urban			2005 Urban			2012 Urban		
chi2		7023.557			11009.11			12403.06			10385.28		
N		52943			54745			54124			43793		
Log-Lik Full Model:		-53552.9			-52016.9			-51286			-40988.2		
LR(54):		7991.532			12399.04			14174.59			12592.8		
McFadden's Adj R2:		0.067			0.104			0.119			0.131		
Cragg & Uhler's R2:		0.158			0.23			0.261			0.282		
Adj Count R2:		0.017			0.026			0.018			0.007		
AIC*n:		107337.9			104281.7			102819.9			82224.49		
BIC':		-7404.18			-11744.4			-13520.7			-11951.6		

Note: p-value: 'p<0.10; *p<0.05; **p<0.01; ***p<0.001, Legends: coefficients, absolute value of z statistic in parentheses), relative risk ratios in bold

*Service sector is the base/ reference category (dependent variable)

**Here, males, middle age-group, below primary education level, no technical education, Hindu, General/ OBC, small household size, small landholding by household, developed states, household type self-employed in agriculture (for rural) and household type self-employed (for urban) and the first MPCE quartile are reference categories. Landholding is not considered in urban models

***'Group 1' states include Tamil Nadu, Gujarat, Maharashtra, Karnataka, Kerala, Andhra Pradesh, Punjab and Haryana while 'Group 2' states include Bihar (and Jharkhand), Madhya Pradesh (and Chattisgarh), Uttar Pradesh (and Uttarakhand), Rajasthan, Odisha, and West Bengal; the two groups are divided on the basis of per capita incomes.

Table 5.30: Multinomial Logistic Regression Results: Correlates of Urban Workforce Diversification: Status

		1983 Urban		1993-94 Urban		2004-05 Urban		2011-12 Urban	
		Self-Employed	Casual Labour	Regular Salaried	Casual Labour	Regular Salaried	Casual Labour	Regular Salaried	Casual Labour
	Female	0.314***	0.591***	-0.122*	0.140*	0.177***	-0.439***	0.306***	-0.627***
		(6.050)	(16.390)	(2.160)	(2.240)	(3.630)	(7.210)	(5.070)	(8.000)
Gender		**1.369**	**1.806**	**0.885**	**1.151**	**1.193**	**0.644**	**1.358**	**0.534**
	Youth	0.040	0.713***	-0.005	0.772***	0.380***	0.709***	0.783***	0.983***
		(1.110)	(22.400)	(0.130)	(16.410)	(9.740)	(15.720)	(16.400)	(17.250)
		1.041	**2.040**	**0.995**	**2.165**	**1.463**	**2.031**	**2.189**	**2.672**
	Elder	0.401***	-0.105**	-0.282***	-0.413***	-0.111**	-0.354***	-0.196***	-0.280***
		(10.940)	(2.630)	(7.930)	(7.400)	(3.320)	(6.720)	(5.210)	(5.160)
Age group		**1.494**	**0.900**	**0.754**	**0.662**	**0.895**	**0.702**	**0.822**	**0.756**
	Prim/ Mid	-0.369***	-0.912***	0.145**	-0.363***	0.191***	-0.248***	0.153**	-0.356***
		(9.460)	(27.580)	(3.260)	(7.450)	(4.470)	(5.360)	(2.770)	(6.180)
		0.691	**0.402**	**1.156**	**0.696**	**1.211**	**0.781**	**1.165**	**0.700**
	Sec/Above	-0.925***	-2.664***	0.485***	-1.263***	0.426***	-1.093***	0.527***	-1.115***
		(20.250)	(44.700)	(10.290)	(19.270)	(9.230)	(18.410)	(9.800)	(17.820)
General Education Level		**0.396**	**0.070**	**1.624**	**0.283**	**1.531**	**0.335**	**1.694**	**0.328**
	Tech Edu	-0.612***	-0.945***	0.234**	-0.681***	0.457***	-0.050	0.863***	-0.188
		(-8.660)	(7.460)	(3.410)	(4.030)	(7.320)	(0.370)	(12.530)	(1.150)
Technical Education		**0.542**	**0.389**	**1.264**	**0.506**	**1.579**	**0.951**	**2.371**	**0.829**
	Muslim	0.043	0.210***	-0.091’	-0.038	-0.082’	0.016	-0.156**	-0.103
		(0.950)	(5.010)	(1.880)	(0.670)	(1.770)	(0.300)	(2.980)	(1.620)
		1.044	**1.233**	**0.913**	**0.963**	**0.921**	**1.016**	**0.855**	**0.902**
	Christian	-0.121	0.190*	0.331**	0.383**	0.144	0.391**	0.216’	0.605***
		(1.230)	(2.340)	(3.110)	(2.920)	(1.520)	(2.910)	(1.800)	(3.900)
		0.886	**1.209**	**1.392**	**1.467**	**1.155**	**1.478**	**1.240**	**1.831**
	Others	0.324***	-0.285**	-0.199*	-0.305**	-0.019	0.051	-0.143	-0.589
		(4.060)	(3.270)	(2.530)	(2.890)	(0.230)	(0.440)	(1.520)	(4.140)
Religion		**1.383**	**0.752**	**0.819**	**0.737**	**0.981**	**1.052**	**0.867**	**0.555**
	ST	-0.145	0.512***	-0.144	0.453***	0.209*	0.624***	0.370***	0.749***
		(1.600)	(7.650)	(1.490)	(4.310)	(2.380)	(5.930)	(3.680)	(6.550)
		0.865	**1.668**	**0.865**	**1.573**	**1.232**	**1.866**	**1.448**	**2.114**
	SC	-0.296***	0.248***	0.188**	0.509***	0.307***	0.527***	0.362***	0.629***
		(5.910)	(6.380)	(3.460)	(8.390)	(6.720)	(9.940)	(6.790)	(10.150)
Caste		**0.744**	**1.281**	**1.207**	**1.663**	**1.359**	**1.695**	**1.436**	**1.877**
	6-10	0.148***	-0.253***	-0.218***	-0.132**	-0.299***	0.166***	-0.186***	0.266***
		(4.490)	(8.180)	(5.840)	(2.870)	(8.190)	(3.540)	(4.200)	(4.710)
		1.160	**0.776**	**0.804**	**0.876**	**0.742**	**1.180**	**0.830**	**1.304**
	>=11	0.334***	-0.272***	-0.149	0.030	-0.464***	0.584***	-0.186’	0.776***
		(4.790)	(4.140)	(1.450)	(0.280)	(5.190)	(5.750)	(1.650)	(6.070)
Household Size		**1.397**	**0.762**	**0.861**	**1.031**	**0.629**	**1.793**	**0.831**	**2.172**
	MPCE Quartile 2	-0.135**	-0.565***	0.065	-0.251***	-0.025	-0.312***	-0.045	-0.313***
		(2.930)	(14.990)	(1.300)	(4.740)	(0.600)	(6.300)	(0.930)	(5.400)
Urban MPCE Quartile		**0.874**	**0.568**	**1.067**	**0.778**	**0.975**	**0.732**	**0.956**	**0.731**

	MPCE Quartile 2	-0.182***	-1.055***	0.198***	-0.526***	-0.010	-0.703***	-0.005	-0.575***
		(3.820)	(25.780)	(3.880)	(9.050)	(0.210)	(11.250)	(0.100)	(8.520)
		0.834	**0.348**	**1.219**	**0.591**	**0.990**	**0.495**	**0.995**	**0.563**
	MPCE Quartile 2	-0.612***	-1.637***	0.444***	-0.875***	-0.023	-1.279***	0.141*	-1.094***
		(12.330)	(34.760)	(7.930)	(11.690)	(0.440)	(15.210)	(2.540)	(12.470)
		0.542	**0.195**	**1.559**	**0.417**	**0.978**	**0.278**	**1.152**	**0.335**
	Casual labour	-4.333***	-0.374***	2.406***	5.283***	2.381***	5.077***	2.846***	5.397***
		(126.940)	(8.060)	(33.970)	(88.510)	(39.020)	(92.540)	(41.700)	(82.290)
		0.013	**0.688**	**11.092**	**197.014**	**10.813**	**160.266**	**17.224**	**220.719**
	Regular wage/ salaried			4.842***	2.790***	4.456***	2.507***	4.724***	2.698***
				(132.200)	(51.910)	(129.660)	(47.690)	(114.800)	(43.490)
				126.705	**16.277**	**86.177**	**12.264**	**112.564**	**14.851**
	Other			2.541***	1.707***	1.932***	1.913***	2.133***	2.572***
				(31.290)	(12.530)	(22.270)	(15.930)	(16.380)	(15.890)
Urban Household Type				**12.695**	**5.514**	**6.905**	**6.776**	**8.439**	**13.089**
	Group 2	0.083**	-0.543***	-0.121***	-0.380***	-0.285***	-0.331***	-0.310***	-0.579***
		(2.660)	(17.740)	(3.590)	(8.630)	(8.900)	(7.980)	(8.520)	(12.020)
State Group		**1.087**	**0.581**	**0.886**	**0.684**	**0.752**	**0.718**	**0.733**	**0.561**
		2.782***	0.893***	-2.670***	-2.441***	-2.491***	-2.402***	-2.785***	-2.351***
		(48.450)	(15.060)	(46.890)	(37.010)	(51.120)	(41.440)	(44.600)	(32.980)
_cons		**16.157**	**2.442**	**0.069**	**0.087**	**0.083**	**0.091**	**0.062**	**0.095**
Statistics		1983 Urban		1993 Urban		2005 Urban		2012 Urban	
chi2		27232.605		33101.51		34012.05		27146.62	
N		53083		54889		54124		44660	
Log-Lik Full Model:		-30970.93		-23508.3		-25746.46		-19878.56	
LR(69):		48261.648		66190.44		59750.99		52046.25	
McFadden's Adj R2:		0.436		0.583		0.535		0.565	
Cragg & Uhler's R2:		0.683		0.803		0.767		0.789	
Adj Count R2:		0.553		0.583		0.523		0.562	
AIC*n:		62115.852		47202.5		51678.92		39943.12	
BIC':		-47869.98		-65753.9		-59315.03		-51617.98	

Note: p-value: 'p<0.10; *p<0.05; **p<0.01; ***p<0.001, Legends: coefficients, absolute value of z statistic in parentheses), relative risk ratios in bold

*Apart from 1983 where regular salaried job was the base, in all other periods; self-employment is the base/ reference category (dependent variable)

**Here, males, middle age-group, below primary education level, no technical education, Hindu, General/ OBC, small household size, small landholding by household, developed states, household type self-employed in agriculture (for rural) and household type self-employed (for urban) and the first MPCE quartile are reference categories. Landholding is not considered in urban models

***'Group 1' states include Tamil Nadu, Gujarat, Maharashtra, Karnataka, Kerala, Andhra Pradesh, Punjab and Haryana while 'Group 2' states include Bihar (and Jharkhand), Madhya Pradesh (and Chattisgarh), Uttar Pradesh (and Uttarakhand), Rajasthan, Odisha, and West Bengal; the two groups are divided on the basis of per capita incomes.

Fairlie Decomposition: Exploring explanatory extent of household and individual factors

This section attempts to understand the *extent* of explanatory power of these household and individual factors in explaining diversification (through choice of sector for work participation). This is done using the Fairlie decomposition technique (Fairlie, 1999), which has modified the Blinder-Oaxaca decomposition technique in a manner that accommodates non-linear as well as binary dependent models in order to separate group differences based on their characteristics (the groups here being those who choose to work in different sectors; farm versus non-farm for rural areas, and secondary versus tertiary sector for urban areas).

In order to do such decomposition, the Fairlie Decomposition Technique first runs a logistic regression in order to directly decompose the dependent variable on its 'characteristics'. The model as Fairlie (1999) has proposed, examines racial gap in self-employment rates using a non-linear decomposition of the following functional form:

$$\bar{Y}^{W} - \bar{Y}^{B} = \left[\sum_{i=1}^{N^{W}} \frac{F(X_i^{W} \hat{\beta}^{W})}{N^{W}} - \sum_{i=1}^{N^{B}} \frac{F(X_i^{B} \hat{\beta}^{W})}{N^{B}} \right] + \left[\sum_{i=1}^{N^{B}} \frac{F(X_i^{B} \hat{\beta}^{W})}{N^{B}} - \sum_{i=1}^{N^{B}} \frac{F(X_i^{B} \hat{\beta}^{B})}{N^{B}} \right]$$

Here, *Nj* denotes the sample size for race *j*. In this equation, the first term in brackets describes the racial gap due to group differences in distribution of X (the independent variable(s)). On the other hand, the second term in brackets describes the gap due to differences in group processes determining the levels of Y (the dependent variable). This term in fact captures the portion of gap which is due to group differences in unobserved endowments and has been termed as the 'unexplained' portion of the gap. This kind of decomposition is also often used to explore causes of differences over time, regions and so on (for instance, Hayford, 2013).

In a similar manner accordingly, the following analysis presents a decomposition of workforce diversification for rural and urban areas separately, on the basis of the individual and household characteristics of the workforce between three time periods ranging from the 1980s: **Period 1 describes the model between 1983 and 1993-94, Period 2 describes the model between 1993-94 and 2004-05, while Period 3 describes the model between 2004-05 and 2011-12**. Decomposition over time has also been attempted by Van Hook et al (2012) in the context of child nutrition. When household and personal factors provide a limited explanation over time, it has been argued that unobserved factors that cannot be measured could be in play (ibid).

Similarly, the following analysis checks the explanatory extent of the individual and household characteristics listed in the previous section on workforce diversification, and any lack in explanation is explained by unobservable factors such as policies.

Dependent variable (depvar): Workforce diversification in case of rural areas has been defined here as 0 if the respondent worked in agriculture[46], while it is 1 if he/ she was employed in non-agriculture. In the case of urban areas, it has been defined as being 0 if respondent is employed in the secondary sector, while it is 1 if employed in services sector[47]. The independent variables are listed below:[48]

Fgender	Gender of individual: 0=male, 1=female (male=reference category)
Fage_young	Youth worker (age 15-29)
Fage_old	Elder worker (age 46-65)
Fgenedu_mid	General Educational Attainment Level = primary/ middle
Fgenedu_sec	General Educational Attainment Level = secondary/ above
Ftechedu	Individuals with some Technical education
Frel_islam	Muslims
Frel_chris	Christians
Frel_oth	Belonging to other religion
Fcaste_ST	Scheduled Tribe
Fcaste_SC	Scheduled Caste
Fhhsize_med	Medium Household size (6-10)
Fhhsize_lar	Large household size (>=11)
Fownland_small	Owning small landholding (>1 and <=2 ha)
Fownland_lar	Owning large landholding (>2 ha)
Fhhtype_R1	Self-employed in non-agriculture
Fhhtype_R2	Casual agricultural labour
Fhhtype_R3	Other casual labour
Fhhtype_R4	Other (salaried)
Fhhtype_U1	Casual labour
Fhhtype_U2	Regular wage/ salaried
Fhhtype_U3	Other
FmpceQ_R1	Rural MPCE Quartile 2
FmpceQ_R2	Rural MPCE Quartile 3
FmpceQ_R3	Rural MPCE Quartile 4
FmpceQ_U1	Urban MPCE Quartile 2
FmpceQ_U2	Urban MPCE Quartile 3
FmpceQ_U3	Urban MPCE Quartile 4
Fstategrp	State group (Group 1 states reference category)

[46] On a principal status

[47] Agriculture forms a very low proportion of urban work participation and has been excluded. The sample has been taken for secondary versus service sector workers to see diversification trends within non-agriculture in urban areas, also excluding construction.

[48] Here, males, middle age-group, below primary education level, no technical education, Hindu, General/ OBC, small household size, small landholding by household, developed states, household type self-employed in agriculture (for rural) and household type self-employed (for urban) and the first MPCE quartile are reference categories. Landholding is not considered in urban models

Results from the Decomposition: Rural

The decomposition of change in (probability) of workforce diversification over time is a technique to capture the visible impacts of individual and household characteristics while at the same time ascertaining the extent to which unobserved exogenous factors impact the choice of sector of work. The decomposition results[49] (Table 5.31) suggest that in rural areas, higher education (secondary or above), rural hhtype1 (self-employed in non-agriculture), rural hhtype4 (other households-salaried/ receiving inheritance or remittance income) and land holding over 2 hectares were the most important factors explaining change in work participation.

In rural areas, higher education explained 38.65 per cent of the workforce diversification (change in work participation from agriculture to non-agriculture) in Period 1 but this declined to 6.63 per cent in Period 2, and explained 7.17 percent workforce diversification in Period 3. Rural households that were self-employed in non-agriculture (Fhhtype_R1) explained 24.61 per cent of the workforce diversification in Period 1, which rose to 48.34 per cent in Period 2 and declined to 22.71 per cent in Period 3. Rural households that were salaried or had other sources of income such as remittances or inheritance (Fhhtype_R4), explained 29.49 per cent of workforce diversification in Period 1, 12.54 per cent in Period 2 and 26.62 per cent in period 3. These two household types are the relatively better off categories amongst households, and would have had the capability to diversify. Land ownership (over 2 hectares) on the other hand (another indicator of wealth in rural areas), explained 3.74 per cent of workforce diversification in Period 1, which fell to 2.78 per cent in Period 2 and further to 1.48 percent in Period 3[50]. Most importantly, in Period 2, rural casual labour households (Fhhtype_R3) explained 22.8 per cent of workforce diversification, which remained more or less same in Period 3. This suggests the role of construction sector in generating non-farm employment during Period 2, which has marginally come down in Period 3.

On the whole, the compositional factors (individual and household characteristics) explained 99.1 per cent of the difference choice of working in the non-agricultural sector as compared to agriculture in Period 1. This explanatory extent has been gradually falling over the periods, with

[49] The binomial logit results before execution of the Fairlie decomposition are presented in the appendix, the results are similar to those in the much detailed multinomial logistic results presented in the previous section.
[50] This may be expected as lands are becoming fragmented.

around 87 per cent explanation provided by these characteristics in Period 3. The remaining 13 per cent may be attributed to policy changes and other immeasurable exogenous factors.

A similar case is seen when decomposition is based on status[51] (Table 5.32) of work rather than sector of work as explained above, with household type and educational attainment status being the major explanatory factors for status of work participation[52]. Although post-reform period between 1993-94 shows 99 per cent explanation by individual and household factors in determination of status of work, in the latter period, unexplained factors counterbalance the impact of these factors which could otherwise have been even higher, and the missing nature of policies and enabling conditions seems to suggest that despite education being the most significant factor, without public policy and role of state in creating more jobs, it would not mean much.

[51] Stress has been laid on the post-reforms period in this case.
[52] Whether employment is in self-employed or casual status versus regular salaried work

Table 5.31: FAIRLIE DECOMPOSITION: RURAL FARM VERSUS NON-FARM

	Rural Period 1			Rural Period 2			Rural Period 3		
depvar_R	Coef.	Std. Err.	% explained	Coef.	Std. Err.	% explained	Coef.	Std. Err.	% explained
Fgender	0.00107***	0.00007	3.05000	-0.00433***	0.00018	-2.92000	0.00618***	0.00025	4.50000
Fage_young	-0.00005	0.00004	-0.13000	-0.00022*	0.00010	-0.15000	0.00004	0.00014	0.03000
Fage_old	-0.00040***	0.00005	-1.15000	-0.00080***	0.00007	-0.54000	-0.00161***	0.00012	-1.17000
Fgenedu_mid	0.00013	0.00014	0.38000	0.00207***	0.00012	1.39000	0.00013’	0.00007	0.09000
Fgenedu_sec	0.01351***	0.00038	38.65000	0.00985***	0.00030	6.63000	0.00984***	0.00036	7.17000
Ftechedu	0.00102***	0.00008	2.92000	0.00089***	0.00009	0.60000	0.00016*	0.00007	0.11000
Frel_islam	-0.00011***	0.00003	-0.32000	0.00023***	0.00003	0.16000	0.00056***	0.00005	0.41000
Frel_chris	-0.00001	0.00002	-0.01000	0.00001	0.00001	0.01000	-0.00001	0.00001	-0.01000
Frel_oth	0.00010***	0.00002	0.27000	-0.00005’	0.00003	-0.03000	-0.00010’	0.00006	-0.07000
Fcaste_ST	-0.00006’	0.00003	-0.18000	-0.00010*	0.00005	-0.07000	-0.00015***	0.00004	-0.11000
Fcaste_SC	0.00005	0.00003	0.14000	0.00002	0.00002	0.01000	-0.00002	0.00003	-0.02000
Fhhsize_med	-0.00031***	0.00006	-0.87000	0.00037***	0.00004	0.25000	0.00151***	0.00012	1.10000
Fhhsize_lar	-0.00015***	0.00004	-0.43000	0.00002	0.00002	0.01000	0.00147***	0.00016	1.07000
Fownland_small	-0.00037***	0.00005	-1.05000	0.00077***	0.00007	0.52000	0.00094***	0.00009	0.69000
Fownland_lar	0.00131***	0.00016	3.74000	0.00412***	0.00024	2.78000	0.00203***	0.00015	1.48000
Fhhtype_R1	0.00861***	0.00024	24.61000	0.07183***	0.00040	48.34000	0.03117***	0.00046	22.71000
Fhhtype_R2	-0.00198***	0.00026	-5.67000	0.00079’	0.00045	0.53000	0.00063	0.00046	0.46000
Fhhtype_R3	0.00267***	0.00022	7.63000	0.03388***	0.00029	22.80000	0.03066***	0.00040	22.34000
Fhhtype_R4	0.01031***	0.00024	29.49000	0.01864***	0.00028	12.54000	0.03654***	0.00043	26.62000
FmpceQ_R1	-0.00003	0.00004	-0.08000	-0.00016***	0.00004	-0.11000	0.00001	0.00002	0.01000
FmpceQ_R2	0.00014**	0.00005	0.40000	0.00022***	0.00005	0.14000	-0.00023***	0.00004	-0.17000
FmpceQ_R3	-0.00036***	0.00008	-1.03000	0.00028*	0.00011	0.19000	-0.00006	0.00005	-0.04000
Fstategrp	-0.00047***	0.00008	-1.35000	0.00012**	0.00004	0.08000	0.00000	0.00004	0.00000
Total	0.03462		99.00000	0.13842		93.15000	0.12000		87.18000
Difference	0.03497			0.148595			0.137265		
Total explained	0.034666			0.138427			0.119776		
	(99.13%)			(93.16%)			(87.26%)		
Total unexplained	0.0003034			0.010168			0.017489		
	(0.87%)			(6.84%)			(12.74%)		
Note: p-value : 'p<0.10; *p<0.05; **p<0.01; ***p<0.001									

Table 5.32: FAIRLIE DECOMPOSITION: RURAL STATUS

	1993-94 to 2004-05			2004-05 to 2011-12		
depvarstatus_R	Coef.	Std. Err.	% explained	Coef.	Std. Err.	% explained
Fgender	-0.00039***	0.00008	-1.44988	0.00009	0.00006	0.25925
Fage_young	0.00020***	0.00005	0.73321	0.00007	0.00012	0.18915
Fage_old	0.00002	0.00003	0.05750	-0.00029	0.00009**	-0.82029
Fgenedu_mid	0.00141***	0.00020	5.30043	-0.00239	0.00034***	-6.65471
Fgenedu_sec	0.01135***	0.00044	42.63416	0.01103	0.00062***	30.67636
Ftechedu	0.00041***	0.00005	1.54120	-0.00023	0.00006***	-0.63727
Frel_islam	0.00000	0.00001	0.00037	0.00006	0.00003’	0.16022
Frel_chris	0.00000	0.00001	0.01210	-0.00001	0.00002	-0.03839
Frel_oth	0.00011**	0.00003	0.40550	-0.00027	0.00009**	-0.74519
Fcaste_ST	0.00000	0.00004	-0.00132	-0.00008	0.00005’	-0.22058
Fcaste_SC	0.00002	0.00006	0.07441	-0.00001	0.00003	-0.03449
Fhhsize_med	0.00021**	0.00006	0.78620	0.00068	0.00010***	1.90317
Fhhsize_lar	-0.00024**	0.00007	-0.88917	0.00070	0.00011***	1.93711
Fownland_small	0.00000	0.00004	0.01236	0.00004	0.00005	0.10292
Fownland_lar	-0.00067***	0.00019	-2.51154	0.00026	0.00010**	0.72183
Fhhtype_R1	0.00071***	0.00016	2.67614	-0.00031	0.00016’	-0.85451
Fhhtype_R2	-0.00504***	0.00047	-18.94270	-0.00001	0.00022	-0.03727
Fhhtype_R3	0.00799***	0.00040	30.02084	-0.00007	0.00009	-0.20167
Fhhtype_R4	0.01137***	0.00012	42.71345	0.04130	0.00043***	114.86740
FmpceQ_R1	0.00012’	0.00006	0.43256	-0.00002	0.00003	-0.06398
FmpceQ_R2	-0.00027***	0.00007	-1.00642	0.00005	0.00003’	0.14965
FmpceQ_R3	-0.00095***	0.00018	-3.58636	0.00009	0.00008	0.25702
Fstategrp	0.00017***	0.00005	0.63399	0.00002	0.00004	0.06926
Total	0.02652	99.64704		0.05069	140.98500	
Difference		0.026609			0.03595	
Total explained		0.026509			0.050698	
		(99.62%)			(141.02%)	
Total unexplained		0.0001			-0.014748	
		(0.38%)			(-41.02%)	
Note: p-value : 'p<0.10; *p<0.05; **p<0.01; ***p<0.001						

Results from the Decomposition: Urban

In urban areas, the decomposition results[53] (Table 5.33) suggest that higher education (secondary or above), youth, older working age, being Scheduled Caste, medium household size, being a regular salaried household or casual labour household were the major determinants of workforce diversification in services sector as compared to secondary sector.

In Period 2 (the period immediately post the reform period), 83 percent of the workforce diversification was explained by unobserved factors. Being SC or from a casual labour household was very important, but became negligible in Period 3. Higher education continued to remain the most important characteristic, followed by young age in explaining secondary to tertiary sector diversification. As found in the case of Period 3 in the urban sector, individual and household factors more than explain the urban workforce diversification, which may imply that unobserved factors (such as the policy space and jobless growth phase set in motion) could have counterbalanced the compositional factors which otherwise could have led to more diversification to services sector[54].

A similar case again is seen when decomposition is based on status[55] (Table 5.34) of work rather than sector of work as explained above. Again, educational attainment (and household type) seems to be the major factors explaining status of work participation[56]. Although post-reform period between 1993-94 shows 86 per cent explanation by individual and household factors in determination of status of work, in the latter period, it explained only 80 per cent, showing the growing importance of unexplained factors such as state policy (or lack thereof, leading to more casualisation) as determining factors of status of work.

[53] In urban areas, household type is not comparable within Period 1. The results for Period 2 and Period 3 are summarised here. The binomial logit results before execution of the Fairlie decomposition are presented in the appendix, the results are similar to those in the much detailed multinomial logistic results presented in the previous section.

[54] A similar argument has been proposed by Van Hook et al (2012), who find that unobserved factors counterbalanced the compositional factors which could otherwise have led to greater increases in child weight, as these factors were quite relevant. In this case, public construction work, or automation led slowdown of service sector and/ or secondary sector, could have had such a counterbalancing effect.

[55] Stress has been laid on the post-reforms period in this case.

[56] Whether employment is in self-employed or casual status versus regular salaried work

Table 5.33: FAIRLIE DECOMPOSITION: URBAN MANUFACTURING VERSUS SERVICES

	Period 2			Period 3		
urban_depv~1	Coef.	Std. Err.	% explained	Coef.	Std. Err.	% explained
Fgender	-0.00094***	0.00019	-4.50000	0.00015*	0.00007	1.58000
Fage_young	0.00036***	0.00008	1.71000	0.00227***	0.00029	23.31000
Fage_old	0.00014*	0.00006	0.67000	0.00035	0.00025	3.59000
Fgenedu_mid	-0.00037*	0.00016	-1.78000	-0.00049	0.00033	-5.00000
Fgenedu_sec	0.00137***	0.00020	6.57000	0.01597***	0.00086	163.78000
Ftechedu	-0.00005***	0.00007	-0.24000	0.00001	0.00013	0.11000
Frel_islam	-0.00030	0.00006	-1.46000	-0.00007	0.00004	-0.68000
Frel_chris	-0.00022**	0.00007	-1.05000	0.00005	0.00004	0.47000
Frel_oth	-0.00008*	0.00004	-0.39000	-0.00003	0.00004	-0.30000
Fcaste_ST	0.00020***	0.00005	0.95000	0.00007’	0.00004	0.77000
Fcaste_SC	0.00173***	0.00023	8.29000	-0.00021**	0.00007	-2.13000
Fhhsize_med	0.00060***	0.00017	2.88000	0.00142***	0.00034	14.53000
Fhhsize_lar	-0.00044**	0.00015	-2.08000	0.00048*	0.00023	4.90000
Fhhtype_U1	0.00056***	0.00005	2.66000	0.00047***	0.00005	4.77000
Fhhtype_U2	0.00226***	0.00022	10.82000	-0.00180***	0.00021	-18.42000
Fhhtype_U3	-0.00010*	0.00004	-0.48000	-0.00011’	0.00007	-1.15000
FmpceQ_U1	-0.00013*	0.00006	-0.60000	0.00003	0.00005	0.35000
FmpceQ_U2	-0.00010	0.00008	-0.48000	0.00009	0.00007	0.92000
FmpceQ_U3	-0.00118***	0.00031	-5.65000	0.00026*	0.00013	2.64000
Fstategrp	0.00031***	0.00007	1.50000	0.00075***	0.00013	7.71000
Total	0.00362		17.32000	0.01967		201.76000
Difference	0.020907			0.009751		
Total explained	0.003606			0.019633		
	(17.25%)			(201.34%)		
Total unexplained	0.017301			-0.009882		
	(82.75%)			(-101.34%)		

Note: p-value : 'p<0.10; *p<0.05; **p<0.01; ***p<0.001

Table 5.34: FAIRLIE DECOMPOSITION: URBAN STATUS

	1993-94 to 2004-05			2004-05 to 2011-12		
depvarstat~U	Coef.	Std. Err.	% exp	Coef.	Std. Err.	% exp
Fgender	0.00087***	0.00010	-2.15325	-0.00111***	0.00012	-3.45108
Fage_young	-0.00014***	0.00004	0.35780	-0.00196***	0.00017	-6.07986
Fage_old	-0.00001	0.00004	0.03013	-0.00034*	0.00013	-1.05889
Fgenedu_mid	0.00048***	0.00008	-1.20286	-0.00126***	0.00022	-3.89511
Fgenedu_sec	0.00069***	0.00013	-1.70707	0.01040***	0.00063	32.23276
Ftechedu	0.00010*	0.00004	-0.23704	0.00051***	0.00008	1.59376
Frel_islam	-0.00004	0.00003	0.09511	-0.00001	0.00002	-0.04062
Frel_chris	-0.00001	0.00003	0.01860	0.00000	0.00001	0.00834
Frel_oth	0.00000	0.00001	-0.00040	0.00000	0.00003	0.01107
Fcaste_ST	-0.00003	0.00005	0.08242	0.00001	0.00002	0.01820
Fcaste_SC	0.00049**	0.00015	-1.21880	-0.00010’	0.00005	-0.29457
Fhhsize_med	0.00070***	0.00009	-1.73371	0.00143***	0.00022	4.42688
Fhhsize_lar	-0.00077***	0.00011	1.92020	0.00053***	0.00014	1.63066
Fhhtype_U1	0.00017’	0.00009	-0.42776	-0.00037’	0.00022	-1.15935
Fhhtype_U2	-0.03416***	0.00023	85.05947	0.01825***	0.00020	56.57143
Fhhtype_U3	-0.00147***	0.00016	3.67233	-0.00048***	0.00010	-1.49144
FmpceQ_U1	0.00004*	0.00002	-0.09387	-0.00003	0.00003	-0.09271
FmpceQ_U2	-0.00037***	0.00009	0.91354	0.00019**	0.00006	0.58231
FmpceQ_U3	-0.00094***	0.00024	2.34473	0.00046***	0.00012	1.43532
Fstategrp	-0.00011**	0.00004	0.27264	-0.00019***	0.00005	-0.59472
	-0.03454	85.99220		0.02591	80.35238	
Difference		-0.04016			0.032251	
Total explained		-0.03455			0.025932	
		(86.03%)			(80.40%)	
Total unexplained		-0.00561			0.006319	
		(13.97%)			(19.59%)	

Note: p-value : 'p<0.10; *p<0.05; **p<0.01; ***p<0.001

Drivers of Rural Non-Farm Employment- Distress or Prosperity?

The Decomposition analysis revealed that there is a certain extent of influence of unobserved factors in explaining workforce diversification patterns in rural as well as urban areas. Since the extent of individual and household characteristics' influence has already been determined above, this section elaborates on other observable and unobserved factors impacting diversification.

Infrastructure Development and Urbanisation

The importance of infrastructural development and urbanisation has also been widely discussed in the literature as a positive influence on agriculture as well as for on-agricultural development (for instance, see Mellor, 1976; Barnes and Binswanger, 1986; Narayanamoorthy and Hanjra, 2006). The location of workers is also at the same time important; it has been postulated that weaker sections of the society also tend to be concentrated in remote areas with low infrastructure access, no markets and no enabling conditions for diversification to more productive sectors (Haggblade et al. 1989; Dercon and Krishnan, 1996; FAO, 1998 and so on).

In this context, migratory patterns for diversification become important. With diminishing returns to labour, meeting one's demands and needs incentivizes workers to migrate to urban areas with better access to markets and infrastructure (Carter, 1997). Such workers often send remittances depending on the income they receive, which their families can use locally as capital investment for diversifying, or education or consumption etc. (Lucas and Stark, 1985; Reardon et al., 1994). This diversification is associated with rural-urban linkages driven by urbanisation, infrastructure development, and commercialisation of activities, supported by the State and its social welfare programmes (Bhalla, 1993; Eapen, 1995; Jayaraj, 1994; Shukla, 1994).

Geography, Location and Ecological Factors

Several studies indicate the correlation between agro-climatic conditions such as rainfall, soil quality, crop yield etc., and workforce diversification patterns (Haggblade et al., 1989; Reardon et al., 1992; Patnaik and Narayanan, 2010); favourable agro-climatic conditions led to increased farm produce and activity due to wider crop choices for diversification within agriculture. On the other hand, unfavourable agro-climatic conditions instigate distress diversification and/ or migration to non-farm activities due to uncertainty and seasonality in agriculture (see for

instance Reardon et al, 1997; FAO, 1998; Reddy et al, 2008). Therefore, as agricultural productivity, income growth, urbanisation and market access and most importantly, infrastructural development have been considered as the prosperity factors on the one hand, while factors such as unemployment and poverty have been described as distress factors inducing workforce diversification, the following segment critically analyses these issues.

Prosperity Induced Workforce Diversification

The motivation to diversify is not high if returns to time spent on the farm increase in the form of farm output price increase and/ or increase in farm productivity and yield, while on the other hand, increase in non-farm wages could increase the motivation to diversify (Singh et al, 1986). It is in this context that rural consumption linkages have been given importance (even over production linkages); this is because additional farm incomes lead to increased demand for non-farm products, and these changing demand patterns lead to changes in consumption, savings and investment patterns in rural areas, enabling pursuit of non-farm activities (for instance, Vaidyanathan, 1986; Dev, 1990; Unni, 1991; Harris, 1991).

Agricultural productivity has been quoted as the major source of prosperity–induced diversification especially in rural areas (Mellor, 1976). It is argued that agricultural growth has indirect effects by generating employment avenues for surplus rural labour and reducing poverty. Income from non-farm can also be invested in household farm activities, motivating farmers to engage in non-farm work. Meanwhile, in case of disguised unemployment, diversification is inevitable and output growth in agriculture gets translated into non-farm activities (see Chadda (2008). Prosperity-induced diversification is associated with agricultural growth, while distress is the opposite, and to some extent, both can be witnessed simultaneously in urban areas (ibid).

Figure 5.6: Push and Pull Factors of Workforce Diversification

Push Factors	Pull Factors
• Population Growth • Increasing scarcity of arable land and decreasing access to fertile land • Declining farm productivity • Declining returns from farming • Lack of access to farm input markets • Decline of the natural resource base • Temporary events and shocks • Absence or lack of access to rural financial markets	• Higher return on labour in the RNFE • Higher return on investments in the RNFE • Lower risk of RNFE compared to on-farm activities • Generation of cash in order to meet household objectives • Economic opportunities, often associated with social advantages, offered in urban centres and outside of the region or country

Source: Davis and Pearce (2000)

Distress Induced Workforce Diversification

Workforce participation rate began picking up since the 1970s and has been more evident in rural areas than urban areas. However, many studies argue that this has been essentially distress-driven. According to Vaidyanathan (1986), the limited absorptive capacity of agriculture and urban areas leads to rural non-farm activities acting as a 'sponge' for surplus rural labour in distress. Vaidyanathan's hypothesis therefore predicts a positive association between rural unemployment and proportion of non-farm workers. Further, Islam (1986) argues that households which have small or no land or assets are pushed to accept any activity even at lower wages and if migration is not an option, this further exacerbates their distress diversification in the form of pluriactivity in small low-productive jobs.

The debate on push or pull factors as discussed above influencing workforce diversification was explored by Bhalla (1993) who argued that neither operates to produce an 'inverted-U relation'; and diversification takes form of migration when threshold level of household income falls, resulting in deindustrialization. In this context, Chandrashekhar (1993) concluded that the demand for goods and labour does indeed generate an inverted-U shaped relation, wherein push factors from agriculture are not sufficient to increase non-farm jobs, and a critical minimum income level would be required. Both these studies argue however that in absence of such a critical income level, '*the outcome is "agricultural involution" rather than distress diversification*' (italics added). Further, mechanisation of agriculture also impacts farm employment, by gradually reducing the need for labour (Vaidyanathan, 1978; Ishikawa, 1981).

Extending Ghosh and Sen's Analysis

The growth of rural non-farm activities in particular has been a subject matter of much debate in the Indian economy. However, Sen and Ghosh (1993) postulated a detailed model testing for the push versus pull debate using a difference model across time and states using the NSS data, and concluded that government expenditure on rural schemes and agricultural performance turned out to be the most significant drivers of rural non-farm employment. They further argue that demand for non-farm goods during slack agricultural periods was also maintained by stepping up public expenditure through rural employment guarantee schemes and infrastructure development. The model is built in the following manner.

Empdiff (dependent variable)	Difference between successive NSS rounds in non-agricultural person day employment per person
gdpavglog	Log of 5 year average of agricultural NDP around survey year
sqgdpavglog	Square of Log of 5 year average of agricultural NDP around survey year
cubegdpavglog	Cube of Log of 5 year average of agricultural NDP around survey year
gdpratiolog	Log of ratio between agricultural NDP in survey year and 5 year average
logdepemplag	Level in logs of dependent variable in previous survey
invavglog	Log of 5 year average of (agricultural) Investment around survey year
sqinvavglog	Square of Log of 5 year average of (agricultural) Investment around survey year
cubeinvavglog	Cube of Log of 5 year average of (agricultural) Investment around survey year
invratiolog	Log of ratio between (agricultural) Investment in survey year and 5 year average
unempratelag	Person day unemployment in the previous survey
unemprateddiff	Difference between successive surveys of person day unemployment rate
stategrp	State group (same as in the models in the preceding section)

Table 5.35: Estimates for 'Push and Pull factors'

empdiff	Model 1		Model 2	
gdpavglog	0.403241'	1.78	0.40324	1.69
sqgdpavglog	-0.014961'	-1.8	-0.014961'	-1.74
cubegdpavglog	0.000729'	1.83	0.000729'	1.79
gdpratiolog	-4.104492	-1.33	-4.104496	-1.23
logdepemplag	1.720198'	1.99	1.720197'	1.91
invavglog			-0.341837'	-1.97
sqinvavglog			0.01384'	2.02
cubeinvavglog			0.00073*	-2.06
invratiolog			-2.81153	-0.17
unemprateddiff	0.045662'	1.71		
unempratelag	-0.13817	-0.02	-0.13817	-0.32
stategrp	1.709405	1.4		
_cons	-1316626'	-1.76	-1316620	-1.46
R-squared	50.29		51.54	

Push or Pull?

The basic objectives of this exercise are to first, test the Chandrashekhar hypothesis (Chandrashekhar, 1993) as well as the Vaidyanathan hypothesis (Vaidyanathan, 1986), in order to determine whether pull or push factors determine diversification to rural non-farm employment in general; and second, to assess the role of rural investment on such diversification. Two models are run here, one that only focuses on the first objective and the second focusing on both objectives together. A Ridge regression[57] is used in this 'Dynamic' model, first to reduce large variances and multicollinearity, and second, to get a better fit to the model.

[57] This is because multicollinearity due to cubic polynomials of the same variable being taken, and hence coefficient estimates could be impossibly large and meaningless. Taking a log of the dependent variable also gives similar results, but the Ridge model fits better, with difference between employment between rounds regressed on large squares and cubes of GDP (for which log has been taken), and multicollinearity is resolved.

Model 1 regresses the difference between the successive NSS rounds (1983, 1993-94, 2004-05 and 2011-12) on the cubic polynomial of the log of 5 year average of agricultural NDP around survey year (gdpavglog, sqgdpavglog and cubegdpavglog) to test for the Chandrashekhar hypothesis, in addition to the Log of ratio between agricultural NDP in survey year and 5 year average (gdpratiolog), level in logs of dependent variable in previous survey (logdepemplag), as well as the difference between successive surveys of person day unemployment rate (unempratediff) and person day unemployment in the previous survey (unempratelag) to test for the Vaidyanathan hypothesis. In addition, it includes a dummy for state groups. The regression results broadly suggest that in accordance with the Chandrashekhar hypothesis (1993), there is a non-linear relationship between NDP and non-agricultural employment with two turning points, consistent with the hypothesis that people move to non-agricultural jobs when agriculture's NDP lower, come back to agriculture when NDP rises and move to non-agriculture again when agriculture becomes too mechanised and demand for labour reduces[58]. The significance of the variable unempratediff signifies that the strong form of Vaidyanathan's hypothesis holds (i.e. increasing unemployment between two periods increases the rate of growth of non-agricultural employment between these periods. However, the weak form of Vaidyanathan's hypothesis (high levels of unemployment induce shifts into non-agriculture) is not significant (unempratelag). The logdepemplag (log of lag of the dependent variable) is also significant. The remaining variables are not significant.

Model 2 also includes a cubic polynomial of Log of 5 year average of investment around survey year (this includes agricultural investment in general as well as rural development expenditure). In this model, a weaker form of Chandrashekhar hypothesis holds (gdpavglog is not significant but the rest of the non-linear relations holds true). Additionally, with investment trends in agriculture and rural development, it was found that with lower levels of investment in agriculture, participation in non-agriculture fell as more labour supply could be used in agriculture) i.e. non-agricultural participation fell, with increase in non-agricultural participation when investment improved in agriculture, but with even more investment in agriculture,

[58] This is consistent with the findings from the field survey which is discussed in Chapter 8 under Focused Group Discussions. The introduction of GM crops seems to be having a similar impact as the Green Revolution.

participation in non-agriculture fell again suggesting that agriculture became more productive/ remunerative.[59] Vaidyanathan's hypothesis does not hold true in this model.

Concluding Remarks and Outlook of the Following Chapter

The major aim of this chapter was to probe into the correlates of workforce diversification (for different levels of vulnerable nature of work participation- Only PS, PS with SS and Only SS) in rural and urban areas; and to examine the workforce diversification across educational attainment levels, age-groups and age cohorts, religion, caste and gender groups, especially *within the non-farm sector*. The decline in share of manufacturing in general and rise of construction over the years in rural areas as an employing sector, and services in the urban areas for different groups became evident. Using multinomial logistic regression, the chapter also examined the individual and household characteristics impacting likelihoods of participating in different sectors and status of work, as well as decomposed the extent of importance of these factors in driving workforce diversification over the decades since 1980s using the Fairlie decomposition method. While educational attainment and household type (which shows some path dependence based on family work) were the major determinants of workforce diversification in terms of sector as well as status, the explanation of individual and household characteristics especially in the post-reforms period shows that unexplained factors have been gradually on the rise; this indicates to the role of the state (and lack thereof) in job creation and thus impacting the decisions of diversification. It further tested the Chandrashekhar and Vaidyanathan hypothesis of workforce diversification for rural areas using a dynamic model, the evidence of importance of public investment in rural areas, as well as the presence of some level of distress were both found. Having looked at long-term trends in detail, the following chapter uses PLFS data to examine short term trends in workforce diversification.

[59] This was also found to be true in Erode and is discussed in Chapter 8.

Chapter 6: Tracking Workers in the Labour Market: 2017-18

'...The full potential of labour can be utilized only if there is mobility in labour...' Paul Hoffman

Recapitulation

The previous three chapters were focused around critically evaluating the trends, patterns and correlates of workforce diversification in India at the individual, household, as well as the state level over four decades since the 1980s. The role of socio-economic factors as well as public investment was also examined. Although attempts to capture the outcome of diversification were made, this would be more feasible and fruitful if the *same* individual could be tracked. With this in mind, this chapter tracks workers in the labour market, their mobility, and the outcomes of such mobility.

Outline of this chapter

An important aspect that remains to be seen is the latest and most recent trends, which have been released in the form of the new Periodic Labour Force Survey (PLFS) data. This data is also novel in the sense that it tracks the *urban* workforce in quarterly intervals, which makes possible the tracking of mobility of the *same* individual in short-term periods, and the outcomes of the same. The literature review in the previous chapters also summarized the prosperity versus distress debates, which were somewhat more centered on the rural sector. This chapter, using the PLFS survey of 2017-18, tracks urban workers exclusively.

Objectives of the chapter

The main objectives of this chapter can be summarised as follows:

- What are the basic new major trends that the latest PLFS survey suggests?
- What are the short term sectoral mobility patterns in urban areas?
- What are the occupational mobility patterns?
- How has wage mobility in the short term in urban areas taken place?

6.1. Mobility in the Labour Market

Mobility in the labour market, as has been discussed in earlier chapters, could be due to a pull for prosperity or a push due to distress. The outcome of the resulting mobility may also be different

in different cases. For instance, when households or individuals in households diversify for income expansion, income inequality could go either way; if better off families are able to diversify to better jobs in the labour market as compared to the poor, which is also intuitive; then the result would be an increase in inequality in the society (see for instance Ellis, 2000).

The important question is who is benefitting from such mobility (if at all). It must be highlighted here that although economic growth has been argued to be the most significant contributor to raising human development and capabilities of individuals (Sen, 2000), economic mobility is one of the channels through which this could take place. To some extent, the income and employment mobility patterns themselves indicate economic growth as well (for instance, see Fields, 1989; Deininger and Squire, 1996).

To further stress on the importance and significance of economic mobility, the following illustration by Friedman (1962) would be useful:

> "…*Consider two societies that have the same distribution of annual income. In one there is greater mobility and change so that the position of particular families in the income hierarchy varies widely from year to year. In the other, there is great rigidity so that each family stays in the same position year after year. Clearly, in any meaningful sense, the second would be the more unequal society*…"[60]

Similarly, workforce diversification, whether in the short-term or long-term, must show some outcomes. Unfortunately, tracking the same individual and/or household is not possible through the National Sample Survey (Employment and Unemployment Rounds. This lacuna has been covered by the recently released Periodic Labour Force Survey (2017-18), which was conducted with the very objective of measuring the dynamics of labour force and employment, in short-term intervals for urban areas specifically using the Current Weekly Status approach, in addition to determining employment estimates based on UPSS status for rural and urban areas as in earlier NSSO surveys. The PLFS has used a rotational sample design for the urban sample, which allows the same household to be visited four times in a year, first with the first visit schedule and later with the revisit schedule. This has been extensively used in this chapter to throw some light on the outcomes of urban employment mobility in the short-term.

[60] Friedman (1962), '*Capitalism and Freedom'*, italics added

6.2. An Exploratory Excursus: What the latest trends show

Before investigating the workforce mobility trends in urban India using the PLFS rotational panel data released in 2017-18, an overview of the employment situation from 2011-12 to 2017-18 is presented first, given the emerging debates around the same. In Table 6.1, employment growth between 2011-12 and 2017-18 has been presented comparing the analysis in the present study along with various other estimates as mentioned in recent debates[61].

Table 6.1: Employment growth between 2011-12 and 2017-18

Total	AGRI	MIN	MGF	UTL	CNS	THR	TSC	FBR	CSP	TOT
All workers (PS+SS)	-11.5	-24.8	-5.6	11.9	8.0	7.1	20.3	39.2	10.8	-1.9
All PS Workers	-4.4	-24.0	0.3	12.8	13.8	8.8	20.7	40.1	13.7	3.7
Workers with Only PS	8.9	-25.5	7.0	10.1	37.1	15.0	26.5	46.8	18.2	15.0
Workers with PS & SS	-52.3	-13.5	-58.7	66.6	-57.1	-50.5	-38.1	-46.9	-37.1	-51.9
Workers with Only SS	-64.3	-80.1	-69.6	-42.7	-66.4	-54.3	-34.6	-8.6	-66.3	-64.5
Rural	**AGRI**	**MIN**	**MGF**	**UTL**	**CNS**	**THR**	**TSC**	**FBR**	**CSP**	**TOT**
All workers (PS+SS)	-11.8	-20.6	-14.3	47.1	5.6	16.0	26.7	71.4	17.9	-4.8
All PS Workers	-4.8	-19.3	-6.4	46.6	13.1	18.3	27.4	75.7	21.4	1.9
Workers with Only PS	8.9	-22.2	6.4	42.8	45.6	34.1	40.2	103.4	33.0	17.4
Workers with PS & SS	-52.6	-5.2	-62.2	75.7	-58.3	-52.1	-37.2	-50.1	-41.4	-52.9
Workers with Only SS	-64.3	-100.0	-77.0	123.3	-68.6	-53.7	-62.5	-55.9	-77.2	-65.9
Urban	**AGRI**	**MIN**	**MGF**	**UTL**	**CNS**	**THR**	**TSC**	**FBR**	**CSP**	**TOT**
All workers (Ps+SS)	-2.6	-32.0	3.2	-5.6	15.8	0.3	15.0	28.4	5.2	6.1
All PS Workers	5.8	-32.1	6.6	-4.2	16.1	1.6	15.0	28.3	7.6	8.3
Workers with Only PS	10.7	-30.4	7.6	-4.7	18.5	2.7	16.7	31.0	8.1	9.8
Workers with PS & SS	-37.4	-67.5	-32.7	28.3	-33.1	-42.0	-41.9	-41.7	-14.0	-34.5
Workers with Only SS	-63.9	-9.3	-54.8	-65.6	-8.7	-55.1	16.0	31.0	-58.2	-53.3

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using PLFS 2017-18

In the above table it seen that there has been a marginal decline in overall workers' employment by -1.9 percent. If only principal workers are considered, there has been an increase of 3.7 percent, while the decline of workers with only subsidiary work has been over 60 percent. Additionally, All principal workers' category has been bifurcated into two parts to show that

[61] The following population estimates have been suggested by various researchers for estimating the absolute numbers of employment as well as employment growth trends: For instance, Prof. Himanshu's worker population estimate = 461.51 Million; Prof. Dubey and Bhandari's worker population estimate= 471.92 Million; Prof. Mehrotra and Parida's worker population estimates= 466.71 Million. The present study has used a population estimate of 465 Million workers based on state projections and populations collaborated by UIDAI and GOI estimates (which have also been considered by Prof. Mehrotra and Parida). Another major argument given post the release of PLFS data was the debate on whether Census population multipliers needed to be projected and applied to survey results at all as was done in NSS surveys earlier. This study argues that in either case, it is the trends that matter more., and would not alter much despite variations in estimation of 'absolute numbers'.
https://indianexpress.com/article/opinion/columns/unemployment-jobs-india-plfs-survey-6106758/

while workers with only principal activity (without any subsidiary activity along with principal activity) has increased by 15 percent, there has been over 50 percent decline of workers that take up subsidiary activity along with their principal activity. Also, whereas there has been a 6.1 percent growth in workforce in the urban areas there has been a decline of workforce to the tune of nearly 5 percent in the rural areas. When it comes to the sectoral growth rate of the employment, workers have been moving out of agriculture as the workforce in agriculture came down by more than 10 percent. What is worrying is that there has been over 5 percent decrease in the workforce in the manufacturing sector; and in the rural areas there has been a decline of nearly 15 percent of the manufacturing sector workers in the period between 2011-12 and 2017-18. The highest percentage growth is seen in the Financial Business services and Real estate (FBR) at nearly 40 percent overall; the increase in rural areas being over 70 percent and in urban areas increasing nearly by 30 percent. The other sectors where there has been an increase in employment are Transport, Storage and Communication (TSC) sector and Community, Social and Personal services (CSP).

The following tables present the estimates of the present study using 'population estimates' of various researchers to obtain worker population, which has sparked some debates regarding employment trends. It is to be note here (as also mentioned in Chapter 3) that there may be some (marginal) differences between findings on using different estimates as well as due to rounding off and other statistical errors in estimation. The trend (rather than numbers) is of utmost importance, as stressed earlier.

Table 6.2: Employment growth between 2011-12 and 2017-18 (using Prof. Himanshu's estimates)

Total	AGRI	MIN	MGF	UTL	CNS	THR	TSC	FBR	CSP	TOT
All workers (Ps+SS)	-12.2	-25.3	-6.3	11.1	7.2	6.3	19.4	38.2	10.0	-2.7
All PS Workers	-5.2	-24.6	-0.5	12.0	13.0	8.0	19.8	39.0	12.8	2.9
Workers with only PS	8.1	-26.1	6.2	9.3	36.0	14.1	25.6	45.7	17.3	14.1
Workers with PS & SS	-52.7	-14.2	-59.0	65.4	-57.4	-50.9	-38.5	-47.3	-37.6	-52.3
Workers with Only SS	-64.5	-80.2	-69.9	-43.1	-66.6	-54.7	-35.1	-9.3	-66.6	-64.8
Rural	**AGRI**	**MIN**	**MGF**	**UTL**	**CNS**	**THR**	**TSC**	**FBR**	**CSP**	**TOT**
All workers (Ps+SS)	-12.5	-21.2	-14.9	46.0	4.8	15.1	25.7	70.1	17.0	-5.6
All PS Workers	-5.5	-19.9	-7.1	45.5	12.2	17.4	26.5	74.4	20.4	1.2
Workers with only PS	8.1	-22.8	5.6	41.7	44.5	33.1	39.2	101.8	32.0	16.6
Workers with PS & SS	-52.9	-5.9	-62.5	74.4	-58.6	-52.5	-37.7	-50.5	-41.8	-53.3
Workers with Only SS	-64.6	-100.0	-77.2	121.6	-68.8	-54.0	-62.8	-56.3	-77.4	-66.2
Urban	**AGRI**	**MIN**	**MGF**	**UTL**	**CNS**	**THR**	**TSC**	**FBR**	**CSP**	**TOT**
All workers (Ps+SS)	-3.4	-32.5	2.4	-6.3	14.9	-0.4	14.2	27.4	4.4	5.3
All PS Workers	5.0	-32.7	5.8	-5.0	15.2	0.8	14.2	27.4	6.8	7.5
Workers with only PS	9.9	-31.0	6.8	-5.4	17.6	2.0	15.9	30.0	7.3	9.0
Workers with PS & SS	-37.9	-67.8	-33.2	27.3	-33.6	-42.4	-42.3	-42.1	-14.7	-35.0
Workers with Only SS	-64.1	-10.0	-55.1	-65.8	-9.3	-55.4	15.2	30.0	-58.5	-53.7

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using PLFS 2017-18

Table 6.3: Employment growth between 2011-12 and 2017-18 (using Dubey-Bhandari estimates)

Total	AGRI	MIN	MGF	UTL	CNS	THR	TSC	FBR	CSP	TOT
All workers (Ps+SS)	-10.2	-23.6	-4.2	13.6	9.6	8.7	22.1	41.3	12.5	-0.5
All PS Workers	-3.0	-22.9	1.8	14.5	15.5	10.4	22.5	42.2	15.4	5.2
Workers with only PS	10.6	-24.4	8.6	11.8	39.1	16.7	28.4	49.0	20.0	16.7
Workers with PS & SS	-51.6	-12.3	-58.1	69.1	-56.5	-49.8	-37.1	-46.1	-36.2	-51.2
Workers with Only SS	-63.7	-79.8	-69.2	-41.8	-65.9	-53.6	-33.7	-7.2	-65.8	-64.0
Rural	**AGRI**	**MIN**	**MGF**	**UTL**	**CNS**	**THR**	**TSC**	**FBR**	**CSP**	**TOT**
All workers (Ps+SS)	-10.5	-19.4	-13.0	49.3	7.2	17.7	28.5	74.0	19.7	-3.4
All PS Workers	-3.4	-18.1	-5.0	48.8	14.7	20.1	29.3	78.3	23.2	3.4
Workers with only PS	10.5	-21.1	7.9	44.9	47.7	36.1	42.3	106.4	35.0	19.2
Workers with PS & SS	-51.8	-3.7	-61.7	78.3	-57.7	-51.4	-36.3	-49.4	-40.5	-52.2
Workers with Only SS	-63.8	-100.0	-76.6	126.6	-68.1	-53.0	-62.0	-55.3	-76.9	-65.4
Urban	**AGRI**	**MIN**	**MGF**	**UTL**	**CNS**	**THR**	**TSC**	**FBR**	**CSP**	**TOT**
All workers (Ps+SS)	-1.2	-30.9	4.7	-4.2	17.5	1.8	16.8	30.3	6.8	7.7
All PS Workers	7.3	-31.1	8.2	-2.8	17.8	3.1	16.8	30.3	9.2	9.9
Workers with only PS	12.4	-29.4	9.2	-3.3	20.3	4.3	18.5	32.9	9.7	11.4
Workers with PS & SS	-36.4	-67.1	-31.7	30.2	-32.1	-41.1	-41.0	-40.8	-12.7	-33.6
Workers with Only SS	-63.3	-8.0	-54.1	-65.1	-7.3	-54.4	17.8	32.9	-57.5	-52.6

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using PLFS 2017-18

Table 6.4: Employment growth between 2011-12 and 2017-18 (using Mehrotra-Parida estimates)

Total	AGRI	MIN	MGF	UTL	CNS	THR	TSC	FBR	CSP	TOT
All workers (Ps+SS)	-11.2	-24.5	-5.3	12.3	8.4	7.5	20.8	39.7	11.2	-1.6
All PS Workers	-4.1	-23.7	0.6	13.3	14.2	9.2	21.1	40.6	14.1	4.1
Workers with only PS	9.3	-25.2	7.4	10.5	37.6	15.4	27.0	47.3	18.7	15.4
Workers with PS & SS	-52.1	-13.2	-58.6	67.2	-57.0	-50.3	-37.8	-46.7	-36.9	-51.8
Workers with Only SS	-64.1	-80.0	-69.5	-42.5	-66.2	-54.2	-34.4	-8.3	-66.2	-64.4
Rural	**AGRI**	**MIN**	**MGF**	**UTL**	**CNS**	**THR**	**TSC**	**FBR**	**CSP**	**TOT**
All workers (Ps+SS)	-11.5	-20.3	-14.0	47.6	6.0	16.4	27.1	72.1	18.4	-4.5
All PS Workers	-4.5	-19.0	-6.0	47.2	13.5	18.7	27.9	76.3	21.8	2.3
Workers with only PS	9.3	-21.9	6.7	43.3	46.1	34.6	40.8	104.1	33.5	17.9
Workers with PS & SS	-52.4	-4.8	-62.1	76.3	-58.2	-51.9	-37.0	-49.9	-41.2	-52.8
Workers with Only SS	-64.2	-100.0	-76.9	124.1	-68.5	-53.5	-62.4	-55.8	-77.1	-65.8
Urban	**AGRI**	**MIN**	**MGF**	**UTL**	**CNS**	**THR**	**TSC**	**FBR**	**CSP**	**TOT**
All workers (Ps+SS)	-2.3	-31.7	3.5	-5.2	16.2	0.7	15.5	28.8	5.6	6.5
All PS Workers	6.2	-31.9	7.0	-3.9	16.5	1.9	15.5	28.8	8.0	8.7
Workers with only PS	11.2	-30.2	8.0	-4.4	19.0	3.1	17.2	31.4	8.5	10.2
Workers with PS & SS	-37.2	-67.4	-32.5	28.7	-32.9	-41.8	-41.7	-41.5	-13.7	-34.3
Workers with Only SS	-63.7	-9.0	-54.6	-65.5	-8.3	-54.9	16.5	31.5	-58.0	-53.2

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using PLFS 2017-18

As it is seen from the above estimates, there has been indeed some decline in the total workforce during the period 2011-12 and 2017-18. However, the quantum of such decline varies in the above three other estimates; the highest decline is seen in the estimates based on Prof. Himanshu's population estimates, followed by Prof. Mehrotra and Parida's estimates and the least decline in the total workforce is seen in the estimates based on the population projection of Prof. Dubey and Bhandari. There are however other estimates, and all may be equally valid in their own way. Another point to note here is that there has been increase in the workforce based on the principal category, and the highest such increase in seen in the case of estimates based on the Dubey-Bhandari study. The final point in this analysis is that there has been significant decline in the subsidiary workers that has brought down the total workers despite increase in the principal sector workers. As part of the present study, a further break- up of Principal workers has been done (to Only PS workers and PS workers who also have some SS activity), and in all the three cases as presented above there has been decline in the principal workforce that take up subsidiary work along with their principal work. Those workers that have only principal activity (and no subsidiary alongside) had significant employment growth as presented above.

6.3. Tracking urban workers

Having discussed the emerging debates on the PLFS data and estimates based thereon, the following sections focus on analysing short-term mobility patterns within the PLFS (urban) panel.

Periodic Labour Force Survey 2017-18: Panel Analysis

This section analyses two panels constructed out of the recently released Periodic Labour Force Survey (PLFS) round of 2017-18. This dataset presents the opportunity for tracking *urban* persons on a rotational basis. Hitherto, it was not possible to track the same person's movement through prior NSS rounds' data in such a repetitive manner. The purpose of such an analysis is to look at short term trends within a year, and see if workforce diversification is in fact a transitory process which does not ultimately significantly lead to a shift across sectors in the long run, which is the case generally seen in the previous chapter over a span of 3 decades. The panel analysis is novel, as this allows one to look at the employment trends of the same persons over a much shorter and a relatively longer period of time to see if the behavior shows drastic changes.

The PLFS dataset provides data on the first visit as well as the revisits. The dataset on first visit covers all the four quarters in the year 2017-18 when 25% of the sample was visited in each quarter for the first time. The revisit dataset consists of data on each revisit of the same household and persons (as well as some new members of the household not canvassed in the first visit) in the quarters following the first visit. This is available from the second quarter onwards, and details from each individual's second, third and fourth visit are given.

The panel has been constructed as follows. A short term panel of a quarter's duration was constructed consisting of those persons in urban areas who were visited first in the first quarter itself (the first 25%), and were again visited in the next quarter. At the same time, it was also ensured that the exactly same set was matched with the persons revisited in the last quarter (to complete the one year annual panel). The second panel is the longer term panel of the first 25% persons visited first in the first quarter, who were visited in the last quarter. The conceptualization of these panels is such that a person is tracked again in the very next quarter, and his work trends can then be compared to his trends and behavior in a one year panel, where details on his first and last visit are available.

The results from both the panels are presented in the following section. Since persons engaged in agriculture and primary sector are very few in urban areas, a more meaningful comparison could be between the manufacturing (secondary sector) versus the services (tertiary) sectors. It is often argued that in rural areas, agrarian distress pushes out people to work in non-farm sectors. However, the behavior in urban areas remains to be discussed in more detail. This section attempts to do the same.

6.4. Identifying Mobility Patterns and Outcomes of the Movement

Tracking individuals' behavior within a year

This section tracks persons from quarter 1 to the immediately succeeding quarter. The revisit schedule covers data on current weekly status. This has been tracked over the first and re-visits in this panel to see the kinds of changes in industry or sector of work in the current weekly category of work for these individuals. Panel 1 tracks individuals from the first quarter to the second (immediately following quarter for very short term trends), and Panel 2 tracks the same set of individuals in the last quarter (to look at annual variation if any).

Table 6.5: Mobility in Current Weekly Sector of Work: Short Panel (Quarter 1 and Quarter 2)

	Sector-Q2									
Sector-Q1	**AGRI**	**MIN**	**MGF**	**UTL**	**CNS**	**THR**	**TSC**	**FRB**	**CSP**	Total
AGRI	89.99	0.00	1.64	0.29	1.32	4.47	1.00	0.58	0.70	100
MIN	0.00	83.59	2.94	0.00	4.88	0.84	0.00	5.69	2.06	100
MGF	0.19	0.03	92.61	0.19	1.69	2.73	0.81	0.95	0.81	100
UTL	0.00	0.00	3.94	85.64	0.83	5.57	0.42	0.33	3.28	100
CNS	0.70	0.02	2.62	0.30	90.51	2.71	0.72	1.36	1.06	100
THR	0.68	0.00	2.92	0.47	0.87	92.84	0.63	0.84	0.76	100
TSC	0.16	0.00	1.62	0.00	1.60	1.78	91.72	1.95	1.16	100
FRB	0.17	0.14	2.41	0.12	1.31	1.36	3.68	85.62	5.19	100
CSP	0.33	0.03	1.29	0.30	0.59	1.31	0.89	1.27	93.97	100

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using PLFS 2017-18

The above shown mobility matrix (Table 6.5) gives the percentage distribution of industry classification of the workers in quarter1 and quarter 2. The diagonals represent those workers that were in the same industry in both time periods. It is seen that nearly 90 percent of the workers in agriculture remained in agriculture in the next quarter. The maximum shift of workers from agriculture is seen towards transport, storage and communication sector, rather than shift from agriculture to construction sector. In manufacturing sector, 93 percent of workers remained in the manufacturing sector, while maximum mobility is seen from manufacturing sector to transport, storage and communications. The utility sector saw maximum mobility towards trade, hotels and restaurants. In financial, real estate and business services, maximum mobility is towards community, social and personal services. The sector having least mobility is community, social and personal services, where just 6 percent moved to other sectors. It is seen that there is hardly any movement from non-agricultural to agriculture sector.

Table 6.6: Mobility in Current Weekly Sector of Work: Annual Panel (Quarter 1 and Quarter 4)

	Sector-Q4									
Sector-Q1	**AGRI**	**MIN**	**MGF**	**UTL**	**CNS**	**THR**	**TSC**	**FRB**	**CSP**	Total
AGRI	89.45	0.16	1.93	0.32	2.44	3.25	1.38	0.32	0.75	100
MIN	0.00	75.82	5.59	0.00	6.19	2.04	2.94	5.36	2.06	100
MGF	0.46	0.01	92.12	0.08	1.23	3.01	1.57	0.84	0.67	100
UTL	0.00	0.00	2.06	90.15	1.63	2.62	0.00	1.38	2.16	100
CNS	0.81	0.02	2.56	0.38	89.30	2.71	1.83	1.42	0.98	100
THR	0.71	0.04	3.26	0.46	0.89	91.67	1.04	0.87	1.07	100
TSC	0.36	0.00	1.58	0.05	1.89	1.78	90.65	2.18	1.52	100
FRB	0.08	0.14	2.94	0.41	0.98	1.64	3.78	85.15	4.88	100
CSP	0.27	0.00	1.54	0.27	0.69	1.37	1.36	2.21	92.28	100

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using PLFS 2017-18

While the previous mobility matrix discussed the industrial sector mobility between quarter 1 and quarter 2, this mobility matrix (Table 6.6) gives the mobility across time quarter 1 and quarter 4. Thus, this mobility panel discusses the movement of workers across their industry sector over one year, which gives perhaps longer time to find evidence of the employment mobility. However, the evidence points towards the contrary. Even in the one year panel, as compared to the earlier one quarter panel, it seems that employment mobility has not increased. In case of mining it is seen that there is increase in (annual) mobility as compared to short term mobility. However, in agriculture still around 90 percent remained in agriculture, while in manufacturing sector and in community social and personal services there is minimum mobility. In construction sector, nearly 90 percent remained in construction sector, while the main movement from construction sector to other sectors was witnessed towards mining sector and trade hotels and restaurants. It is to be noted that in FBR sector, around 15 percent had changed their industry of employment, 5 percent of the workers moved to community social and personal services.

While in the previous tables mobility in case of industry of employment was analyzed, the following mobility panel tracks changes in employment in terms of work. The status is categorized into self employment, regular wage and salaried employment and casual employment; while 'other' category comprises of those in education, or doing domestic work and seeking employment.

Table 6.7: Mobility in Current Weekly Status of Work: Short Panel (Quarter 1 and Quarter 2)

	Status-Q2				
Status-Q1	SES	RES	CES	Others	Total
SES	88.63	2.79	2.23	6.34	100
RES	2.30	91.40	1.63	4.67	100
CES	7.34	6.69	75.09	10.88	100
Others	1.26	0.94	0.59	97.22	100

*SES: Self-Employed Status, RES: Regular wage/ salaried status, CES: Casual employment status
Source: Author's estimations using PLFS 2017-18

As seen from Table 6.7, in the short term panel of workers employed in self-employment, 88 percent of them remained in self employment and just 3 percent moved to regular and salaried jobs, while 6 percent moved to mainly non-remunerative category. In case of regular wage and salaried class 91 per cent remained in regular wage and salaried class while 5 percent of them moved to 'other' category, for higher educational attainment or back to domestic work. Again in

case of casual employment, 75 percent remained in casual employment. Since casual employment remains a sector with relatively lower remuneration, it is seen that almost 10 percent of them had moved to others category, suggesting the theory of women in labour working casually when family incomes need support and going back to domestic chores later. Positive mobility would have been visible in a case when workers working in casual employment would have moved to regular wage and salaried class, but the trends are on the contrary. It is evident that employment growth in casual employment is not stable, and it is likely that they would fall out of workforce or it is possible that after a prolonged time seeking employment, they would fall out of labour force. Again the above table confirms that a miniscule percentage of those with others status would gain remunerative employment. Less than three percent of those in the others category gained employment, mostly as self employed (1.26 per cent).

Table 6.8: Mobility in Current Weekly Status of Work: Annual Panel (Quarter 1 and Quarter 4)

	Status-Q4				
Status-Q1	SES	RES	CES	Others	Total
SES	85.96	3.28	1.93	8.82	100
RES	2.74	88.19	1.53	7.54	100
CES	7.97	8.10	68.02	15.91	100
Others	1.39	1.25	0.62	96.75	100

*SES: Self-Employed Status, RES: Regular wage/ salaried status, CES: Casual employment status
Source: Author's estimations using PLFS 2017-18

In the longer mobility panel for employment status (Table 6.8), it is seen that there has been an increase in mobility as compared to the shorter term panel as discussed above. In case of self employed workers' category, 85 percent remained in the self employment category while only 3 percent shifted from self-employment to regular wage category, while less than two percent went to casual employment. It may not be expected that workers would shift from self employment category to casual employment category. It is also to be noted that around 10 percent also moved from self employment category to status of those seeking job or entered education or domestic duties. In case of regular wage and salaried class, around 8 percent moved to others category, while in case of casual employment category overwhelmingly 16 percent moved to 'others' category. Such a large percentage moving to others category, especially in longer term panel, reveals the distress patterns in employment. Also, only a miniscule percentage gets employment from others categories which may relate to those that were previously working. It would be ideal if employment is generated in such a way that it would enable the ones with others status move to more remunerative categories in the longer term.

Having discussed the mobility in the case of industry and status, this section shifts focus on changes in 'occupations'. Occupation still remains a key defining feature of employment. The following tables show the occupational mobility for both short term (quarter 1 and quarter 2) and long term panel (quarter 1 and quarter 4).

Table 6.9: Mobility in Current Weekly Occupation of Work: Short Panel (Quarter 1 & Quarter 2)

	Occup-Quarter2										
Occup-Quarter1	None	Div1	Div 2	Div 3	Div 4	Div 5	Div 6	Div 7	Div 8	Div 9	Total
None	96.90	0.31	0.22	0.23	0.07	0.43	0.20	0.71	0.16	0.75	100
Div 1	4.71	79.92	3.01	2.09	0.84	3.64	0.55	2.17	1.43	1.65	100
Div 2	4.92	3.67	78.51	7.36	0.70	1.99	0.10	1.24	0.64	0.86	100
Div 3	6.28	2.95	8.81	75.10	0.90	2.97	0.00	1.24	0.59	1.17	100
Div 4	4.11	3.40	3.97	3.35	78.90	3.31	0.00	0.59	0.11	2.26	100
Div 5	4.88	4.85	1.31	1.50	0.64	80.40	0.68	1.77	0.51	3.46	100
Div 6	11.45	4.00	0.00	0.06	0.07	3.10	74.99	1.46	0.14	4.73	100
Div 7	8.01	3.33	1.19	0.81	0.44	2.26	0.08	76.69	1.50	5.69	100
Div 8	5.02	3.29	0.46	0.43	0.41	1.71	0.04	3.73	80.60	4.31	100
Div 9	8.64	1.82	0.30	0.52	0.30	3.49	1.17	4.15	2.16	77.46	100

*Division1= Legislators, Senior Officials, Managers; Division 2= Professionals; Division 3= Associate Professionals; Division 4= Clerks; Division 5= Service Workers, Shop, Market Sales workers; Division 6= Skilled Agricultural, Fishery workers; Division 7= Craft and related trade workers; Division 8= Plant & Machine operators & assemblers; Division 9= Elementary Occupations

Source: Author's estimations using PLFS 2017-18

This occupational mobility panel (Table 6.9) shows the short term mobility in occupations. As one moves up from Division 9 to Division 1 they experience upward mobility and as one moves from Division 1 to Division 9 they experience downward mobility. In the case of workers reporting occupation as senior managers, 80 percent remained in same category while in the subsequent visit three percent moved to professionals, while another 2 percent moved to associated professionals; overall around 20 percent of the workers in Division 1 experienced downward occupational mobility. In case of Division 2 comprising of professionals, again nearly 78 percent remained in Division 2, while 4 percent experienced upward occupational mobility and moved up to Division 1. Additionally, around 5 percent also moved out of all occupational divisions, most likely seeking work. It is also seen that just over 7 percent of workers from professional category (Division 2) moved to associate professional category (Division 3). Again in case of Division 3 comprising of associate professionals, nearly 25 percent moved to other categories. While 10 percent experienced upward mobility another 10 percent also experienced downward occupational mobility, with over 5 percent moving out of workforce. Division 6 comprises of skilled agricultural allied sector, and experienced the highest occupational change,

but the main concern is that nearly 12 percent moved out of all occupational categories, thereby giving indications of distress. The least mobility is seen in the case of Division 5 comprising of service workers and Division 8 comprising of plant and machine operators.

Table 6.10: Mobility in Current Weekly Occupation of Work: Annual Panel (Quarter 1 & Quarter 4)

	Occup-Quarter4										
Occup-Quarter1	None	Div1	Div 2	Div 3	Div 4	Div 5	Div 6	Div 7	Div 8	Div 9	Total
None	96.55	0.46	0.22	0.25	0.08	0.53	0.21	0.77	0.21	0.74	100
Div 1	6.11	76.65	2.89	2.10	1.41	4.75	0.75	2.32	1.28	1.74	100
Div 2	8.80	4.23	73.21	7.69	1.34	2.14	0.26	1.21	0.24	0.88	100
Div 3	7.80	3.99	7.46	72.11	1.37	3.35	0.09	2.03	1.04	0.77	100
Div 4	7.03	3.00	3.98	3.01	76.20	3.81	0.18	0.54	0.53	1.71	100
Div 5	7.20	7.11	1.00	1.11	0.87	74.48	0.43	2.78	0.80	4.21	100
Div 6	16.63	3.11	0.00	0.34	0.04	1.08	68.73	1.83	0.87	7.36	100
Div 7	10.84	3.48	0.79	0.92	0.65	2.81	0.18	72.02	1.89	6.41	100
Div 8	6.21	4.61	0.38	0.33	0.44	2.36	0.09	4.57	78.01	3.00	100
Div 9	14.32	2.30	0.37	0.65	0.25	3.80	1.34	6.25	2.18	68.54	100

*Division1= Legislators, Senior Officials, Managers; Division 2= Professionals; Division 3= Associate Professionals; Division 4= Clerks; Division 5= Service Workers, Shop, Market Sales workers; Division 6= Skilled Agricultural, Fishery workers; Division 7= Craft and related trade workers; Division 8= Plant & Machine operators & assemblers; Division 9= Elementary Occupations

Source: Author's estimations using PLFS 2017-18

The above table (Table 6.10) shows the longer term occupational mobility of workers, between quarter 1 and quarter 4. It is seen that the occupational mobility in the longer term panel is higher than shorter term panel. Still it is seen that of those with no occupational category only around 3 percent moved to some occupational division as in the short term panel, which can be attributed to some extent to the recent phenomenon of limited employment creation. Also the major concern flagged, is the shift of workers from various occupation division to no occupation, with over 16 percent in Division 6 (skilled allied agricultural sector), over 10 percent in Division 7 (craft related workers) and nearly 15 percent in Division 9 (elementary occupation). Even in the higher category workers nearly one-fourth experienced downward mobility. In professional category nearly 8 percent moved to associated professional category and 4 percent moved up to senior manager's category. In the category of associated professionals, 72 percent remained in the same category, while just over ten percent experienced upward occupational mobility. Highest mobility is seen in the case of skilled allied agricultural sector (Division 6) and elementary occupations (Division 9) as expected, but with 7 percent of skilled agricultural sector moving to elementary occupations. Above all there seems to be higher occupational mobility in the long term, but not in the desired direction.

Table 6.11: Mobility in Current Weekly Sector of Work: Short Panel (Quarter 1 & Quarter 2) for Regular Wage and Salaried workers

	Sector-Quarter2									
Sector-Quarter1	AGRI	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP	Total
AGRI	84.93	0.00	0.00	0.00	0.00	1.76	7.05	0.00	6.26	100
MIN	0.00	95.69	0.00	0.00	0.00	0.34	0.00	1.33	2.65	100
MGF	0.00	0.00	95.19	0.11	0.18	1.24	1.25	1.56	0.48	100
UTL	0.00	0.00	1.29	94.26	0.23	1.65	0.00	0.42	2.15	100
CNS	0.00	0.00	4.88	0.51	85.44	5.82	1.25	0.79	1.31	100
THR	0.00	0.00	4.35	0.10	0.07	92.04	0.86	1.63	0.93	100
TSC	0.00	0.00	1.53	0.01	2.07	2.21	89.90	2.82	1.48	100
FRB	0.00	0.20	2.78	0.08	0.13	0.99	3.33	86.67	5.82	100
CSP	0.05	0.00	0.83	0.35	0.27	0.84	0.45	1.42	95.79	100

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using PLFS 2017-18

Having discussed the overall mobility of workers, it is only pertinent that mobility of regular workers is discussed separately (Table 6.11). Overall as discussed earlier in the above section, mobility in status with regular wage and salaried workers was very limited; however an attempt has been made in this section to understand the dynamics of such mobility in terms of its industrial relation. Again, the diagonal represents those workers that remained in the same industry. In case of agriculture, 85 percent remained in agriculture, while 7 percent moved to transport storage and communications and 6 percent moved to community social and personal services. The highest mobility in seen in the case of construction sector workers, where nearly 15 percent of the workers moved to another industry; 5 percent moved to manufacturing sector and 6 percent moved to trade hotels and restaurants. The least mobility is seen in the case of community social and personal services, with some of them switching to financial real estate and business services sector.

Table 6.12: Mobility in Current Weekly Sector of Work: Annual Panel (Quarter 1 & Quarter 4) for Regular Wage and Salaried workers

	Sector-Quarter4									
Sector-Quarter1	AGRI	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP	Total
AGRI	91.19	0.00	0.00	0.00	0.00	1.76	7.05	0.00	0.00	100
MIN	0.00	85.98	0.00	0.00	5.69	0.32	0.00	5.46	2.54	100
MGF	0.00	0.03	93.63	0.00	0.42	2.18	1.91	0.94	0.90	100
UTL	0.00	0.00	0.73	95.21	0.00	1.65	0.00	0.55	1.87	100
CNS	0.00	0.00	3.27	0.58	83.84	8.03	2.27	0.49	1.52	100
THR	0.00	0.07	4.46	0.11	0.40	90.59	1.46	1.67	1.24	100
TSC	0.07	0.00	1.83	0.00	2.13	2.40	88.71	2.95	1.91	100
FRB	0.00	0.21	2.80	0.63	0.14	1.04	3.58	85.85	5.75	100
CSP	0.00	0.00	0.97	0.36	0.28	0.90	0.97	2.54	93.98	100

Source: Author's estimations using PLFS 2017-18

This is again a longer-term panel (Table 6.12) showing the change in industrial workers between quarter 1 and quarter 4, for the workers engaged in regular salaried class. Almost 90 per cent of the workers in agriculture remained in agriculture after one year, and just over 7 per cent moved to transport storage and communications, while less than 2 per cent moved to trade, hotels and restaurants. While it was earlier found that persons moving out of agriculture generally went to the construction sector, in case of regular wage and salaried class, they moved to transport storage and communications. In the mining sector nearly 15 per cent workers working in regular wage and salaried status moved to other industries; 6 per cent of them when to construction sector followed by another 6 per cent to financial sector real estate and business services. In case of manufacturing sector, 94 per cent of them remained in manufacturing sector while around 2 per cent moved to transport, storage and communications, and another 2 per cent to trade, hotels and restaurants. Marginally higher mobility was seen in case of construction sector, where 8 per cent of them moved to trade, hotels and restaurants, and just over 3 per cent to the mining sector. In the case of financial sector real estate and business services in regular salaried status, nearly 6 per cent of them moved to community, social and personal services.

Table 6.13: Mobility in Current Weekly Sector of Work: Short Panel (Quarter 1 & Quarter 2) for Self Employed workers

	Sector-Quarter2									
Sector-Quarter1	**AGRI**	**MIN**	**MGF**	**UTL**	**CNS**	**THR**	**TSC**	**FRB**	**CSP**	Total
AGRI	94.78	0.00	1.15	0.00	0.05	3.36	0.02	0.54	0.11	100
MIN	0.00	58.11	0.00	0.00	0.00	3.50	0.00	38.39	0.00	100
MGF	0.30	0.00	94.50	0.22	0.21	3.96	0.11	0.17	0.52	100
UTL	0.00	0.00	17.68	58.50	0.00	23.82	0.00	0.00	0.00	100
CNS	0.71	0.00	1.25	0.91	87.67	3.43	0.00	4.84	1.21	100
THR	1.00	0.00	1.97	0.00	0.01	95.84	0.29	0.37	0.53	100
TSC	0.00	0.00	0.63	0.00	0.40	0.99	97.09	0.81	0.08	100
FRB	0.00	0.00	0.01	0.00	1.02	1.23	3.32	90.36	4.06	100
CSP	0.09	0.19	1.74	0.18	0.00	2.68	1.51	0.39	93.23	100

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using PLFS 2017-18

In this section, mobility of self-employed workers in terms of change in their industry is analysed. In the earlier section discussing mobility across the status of workers, the analysis focused on how self-employed workers moved to regular salaried status or casual or other work status. This section specifically deals with the mobility of workers within self-employment category and explores to what extent there has been a shift in the industry of self-employed

workers between quarter 1 and quarter 2 (Table 6.13). In case of agriculture, 95 per cent of self-employed workers remained in agriculture sector, while just over 3 per cent of them moved to trade, hotels and restaurants. In mining sector just 58 per cent self-employed workers remained in mining while 38 per cent of them moved to financial real estate and business services. In the utility sector as well, 58 per cent of those self-employed in utilities remained in utility sector and 24 per cent moved to trade, hotels and restaurants sector. Of those self-employed in manufacturing sector just over 5 per cent changed their industry and almost a similar situation was seen in trade, hotels and restaurants, transport, storage and communications and community, social and personal services.

Table 6.14: Mobility in Current Weekly Sector of Work: Annual Panel (Quarter 1 & Quarter 4) for Self Employed workers

	Sector-Quarter4									
Sector-Quarter1	**AGRI**	**MIN**	**MGF**	**UTL**	**CNS**	**THR**	**TSC**	**FRB**	**CSP**	Total
AGRI	95.80	0.00	1.12	0.00	0.09	2.73	0.02	0.24	0.00	100
MIN	0.00	17.93	12.22	0.00	0.00	19.23	38.39	12.22	0.00	100
MGF	0.92	0.00	94.57	0.23	0.05	3.47	0.34	0.28	0.14	100
UTL	0.00	0.00	8.96	75.34	9.86	5.84	0.00	0.00	0.00	100
CNS	0.00	0.00	0.98	1.48	88.16	3.46	0.00	4.44	1.48	100
THR	0.71	0.03	2.09	0.00	0.04	95.50	0.58	0.60	0.46	100
TSC	0.96	0.00	0.55	0.00	0.43	0.70	96.62	0.74	0.00	100
FRB	0.00	0.00	0.91	0.00	0.56	0.61	2.73	91.65	3.54	100
CSP	0.07	0.00	2.92	0.00	0.62	2.30	1.56	0.31	92.23	100

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using PLFS 2017-18

Table 6.14 gives the mobility of self-employed workers across industry over a 1 year period. The overall trend of mobility of workers across industries for this longer-term panel seems to be similar to the short-term panel discussed above. Apart from mining, industry and utility sector there has not been any significant change in industry of self-employed workers. It is also seen that many workers from mining and utility sector are moving to manufacturing. In construction sector although 12 per cent self employed workers changed their industry nearly 4 per cent of these workers move to trade, hotels and restaurants, with another 4 per cent moving to FRB. In the remaining sectors, mobility of workers in terms of change in industry was not experienced by more than 10 per cent of workers corresponding to each of the industrial sector. Nearly 97 per cent of self-employed workers engaged in transport, storage and communication remained in this industry, while 92 per cent in case of community, social and personal services seemed to remain in status quo.

In this segment, workers' occupational mobility is analyzed for short term and for a year-long panel. In the following matrix, regular wage and salaried workers' occupational mobility for short term panel is presented.

Table 6.15: Mobility in Current Weekly Occupation of Work: Short Panel (Quarter 1 & Quarter 2) for Regular Wage and Salaried workers

	Occup-Quarter 2									
Occup-Quarter 1	Div 1	Div 2	Div 3	Div 4	Div 5	Div 6	Div 7	Div 8	Div 9	Total
Div 1	78.9	4.3	5.5	3.7	3.2	0.0	1.8	2.3	0.4	100.0
Div 2	1.5	84.0	10.2	1.0	1.2	0.0	0.8	1.0	0.3	100.0
Div 3	2.5	11.1	80.0	1.1	2.8	0.0	0.9	0.8	0.9	100.0
Div 4	3.6	3.6	2.9	83.3	3.6	0.0	0.7	0.1	2.3	100.0
Div 5	2.4	1.4	1.4	1.4	86.5	0.1	1.5	0.7	4.8	100.0
Div 6	0.0	0.0	0.0	3.0	0.0	97.0	0.0	0.0	0.0	100.0
Div 7	0.7	1.6	1.9	1.3	2.0	0.0	84.9	1.7	6.0	100.0
Div 8	0.4	0.8	0.5	0.6	1.1	0.0	4.6	90.5	1.6	100.0
Div 9	0.2	0.2	0.8	0.7	5.2	0.1	4.5	2.5	85.8	100.0

*Division1= Legislators, Senior Officials, Managers; Division 2= Professionals; Division 3= Associate Professionals; Division 4= Clerks; Division 5= Service Workers, Shop, Market Sales workers; Division 6= Skilled Agricultural, Fishery workers; Division 7= Craft and related trade workers; Division 8= Plant & Machine operators & assemblers; Division 9= Elementary Occupations

Source: Author's estimations using PLFS 2017-18

In Table 6.15, it is seen that around 20 percent of regular workers from managerial class (Division 1), moved to other class, while around 80 percent remained in the managerial occupational division. The maximum shift from managerial occupations was to associate professionals and professional categories. In professional occupations, nearly 85 percent did not change their occupation, and of those who did, 10 percent was to associate professional category. In case of regular salaried associate professionals, 10 percent migrated to professional occupations. In case of service works more than 85 percent did not shift their occupation; however 5 percent shifted to elementary occupations. The least occupation mobility was in case of skilled agriculture. In case of machine and plant operations, nearly 90 percent did not shift to other sectors, but nearly 5 percent shifted to crafts work. Also in case of elementary occupations nearly 5 percent migrated to crafts work and service work.

Table 6.16: Mobility in Current Weekly Occupation of Work: Annual Panel (Quarter 1 & Quarter 4) for Regular Wage and Salaried workers

	Occup-Quarter 4									
Occup-Quarter 1	Div 1	Div 2	Div 3	Div 4	Div 5	Div 6	Div 7	Div 8	Div 9	Total
Div 1	76.3	6.3	6.6	6.2	2.0	0.0	1.2	0.8	0.6	100.0
Div 2	2.2	82.0	11.3	1.7	1.2	0.0	1.0	0.4	0.2	100.0
Div 3	2.0	9.2	80.0	1.9	3.5	0.0	1.6	1.3	0.4	100.0
Div 4	2.5	4.0	2.6	83.5	4.3	0.2	0.6	0.6	1.7	100.0
Div 5	1.4	1.2	1.3	1.9	84.4	0.0	3.1	0.6	5.9	100.0
Div 6	0.0	0.0	0.0	1.7	0.9	91.5	0.0	0.0	6.0	100.0
Div 7	0.6	1.5	2.0	2.0	3.2	0.1	80.7	3.1	6.9	100.0
Div 8	0.4	0.6	0.4	0.7	2.3	0.1	5.3	87.8	2.4	100.0
Div 9	0.1	0.2	1.3	0.6	5.5	0.0	5.7	3.2	83.4	100.0

*Division1= Legislators, Senior Officials, Managers; Division 2= Professionals; Division 3= Associate Professionals; Division 4= Clerks; Division 5= Service Workers, Shop, Market Sales workers; Division 6= Skilled Agricultural, Fishery workers; Division 7= Craft and related trade workers; Division 8= Plant & Machine operators & assemblers; Division 9= Elementary Occupations; Source: Author's estimations using PLFS 2017-18

Table 6.16 presents the case for the annual panel. It is seen that there is marginal increase in the occupational mobility in the yearlong panel as compared to the short-term panel seen above. In case of managerial occupations, around 6 percent of regular salaried workers moved into professional occupations, associate professional occupations or clerical occupations. In the Professional category, more than 10 percent moved to associate professional category and in associate professional category nearly ten percent moved to professional category of occupation. In case of service works and skilled agriculture occupations, nearly 6 percent from each moved to elementary occupations. In crafts works, nearly 7 percent moved to elementary occupations, while in case of machine and plant operations, 5 percent shifted to crafts works. In case of elementary occupations 6 percent shifted to crafts works.

Table 6.17: Mobility in Current Weekly Occupation of Work: Short Panel (Quarter 1 & Quarter 2) for Self-employed workers

	Occup-Quarter 2									
Occup-Quarter 1	Div 1	Div 2	Div 3	Div 4	Div 5	Div 6	Div 7	Div 8	Div 9	Total
None	30.84	0.00	33.80	0.00	2.33	15.58	8.10	9.35	0.00	100
Div 1	87.91	1.82	1.08	0.04	3.56	0.78	2.09	1.21	1.50	100
Div 2	8.76	84.05	1.62	0.00	2.36	0.39	1.74	0.00	1.07	100
Div 3	6.43	2.86	84.62	0.00	2.74	0.00	3.36	0.00	0.00	100
Div 4	4.05	13.66	0.00	82.29	0.00	0.00	0.00	0.00	0.00	100
Div 5	7.95	1.11	1.32	0.02	85.00	1.27	1.63	0.23	1.47	100
Div 6	5.43	0.00	0.00	0.00	1.43	91.11	0.84	0.05	1.15	100
Div 7	8.06	1.93	0.27	0.06	3.01	0.10	83.64	1.21	1.72	100
Div 8	9.32	0.17	0.10	0.00	1.12	0.15	0.66	84.89	3.59	100
Div 9	7.32	1.38	0.44	0.00	5.38	4.07	3.88	2.08	75.44	100

Source: Author's estimations using PLFS 2017-18

In this section, occupational mobility of self-employed workers is presented. The above table (Table 6.17) shows the occupational mobility of self-employed workers for the short-term panel. In the managerial occupations, nearly 90 percent did not change occupation, while those that shifted seemed to move to service works. In case of associate professionals, the shift was witnessed mainly to managerial occupations. This was also the case with associate professionals, the majority shifting to managerial works. Among clerks, the shift was to associate professionals. These indicate positive occupational mobility. A similar case was also witnessed in the case of service works, with nearly 9 percent shifting to managerial works. Again the least mobility is seen in the case of skilled agriculture, while the highest mobility is seen in the case of elementary occupations where a quarter of the workers shifted to other occupations. Again, the majority of shift from elementary works was witnessed to the managerial works, followed by service works and crafts and trade.

Table 6.18: Mobility in Current Weekly Occupation of Work: Annual Panel (Quarter 1 & Quarter 4) for Self-employed workers

	Occup-Quarter 4									
Occup-Quarter 1	Div 1	Div 2	Div 3	Div 4	Div 5	Div 6	Div 7	Div 8	Div 9	Total
None	13.13	0.00	0.00	0.00	3.67	50.29	10.02	22.90	0.00	100
Div 1	86.23	1.62	0.92	0.12	5.45	1.07	2.38	1.02	1.20	100
Div 2	7.93	80.71	1.98	0.69	4.18	1.00	1.76	0.00	1.74	100
Div 3	14.70	2.23	78.07	0.00	0.75	0.00	3.92	0.32	0.00	100
Div 4	13.66	5.60	0.00	80.74	0.00	0.00	0.00	0.00	0.00	100
Div 5	13.63	0.93	0.78	0.00	79.80	0.67	1.78	0.86	1.55	100
Div 6	4.07	0.00	0.28	0.00	0.93	90.05	0.76	0.82	3.09	100
Div 7	7.88	0.82	0.25	0.00	3.85	0.02	84.94	0.72	1.53	100
Div 8	14.37	0.17	0.00	0.00	0.98	0.18	1.83	79.25	3.22	100
Div 9	12.41	1.41	0.47	0.00	5.11	4.02	5.27	3.31	68.00	100

*Division1= Legislators, Senior Officials, Managers; Division 2= Professionals; Division 3= Associate Professionals; Division 4= Clerks; Division 5= Service Workers, Shop, Market Sales workers; Division 6= Skilled Agricultural, Fishery workers; Division 7= Craft and related trade workers; Division 8= Plant & Machine operators & assemblers; Division 9= Elementary Occupations; Source: Author's estimations using PLFS 2017-18

In Table 6.18, the occupational mobility for self-employed workforce for the year long panel is presented. The extent of occupational mobility is greater than the occupational mobility seen in the short-term panel. While the trend remains similar, in each of the occupational sector, there is a strong case of positive occupational mobility; the majority of the shift being to the managerial class. In case of associate professionals and plant and machine operators, the shift was nearly 15 percent of the self-employed workers. In service works, clerks and elementary occupations the shift was greater than 10 percent. Overall, percentage of self-employed workers that changed their industry was highest in elementary occupations and lowest in skilled agriculture. There has been significantly higher occupational mobility in longer period than in shorter period.

6.5. Tracking Wage/ Earnings Mobility

Tracking individuals' wages between revisits- Upward or downward mobility?

To track the mobility in terms of wages, one might refer to Todaro (1969) and Harris and Todaro (1970), who did not simply just focus on the absolute wage differential between the origin and destination of work or only on the number of job opportunities at the destination, but looked at these factors in conjunction and considered the difference in wage expectation, and the probability of getting work at the destination. Now, this section simply tries to look at the outcome of the mobility of urban workers within a short period of time, to try and determine if there was an improvement on average after the move or deterioration in average wage ratio before and after.

Therefore, in this section, wage mobility of workers who changed their industry or occupation has been analysed with respect to those workers who did not change the industry or occupation. The average earning[62] received by the worker in their new industry or occupation is compared with the average earning received by the worker in the industry or occupation from which they migrated (and the current wages that those who currently work in that sector earn) and **presented as ratios.** Thus, an overview of the impact on earnings post shift in the industry or occupation is possible. If the average wage or earnings of the workers in their new industry or occupation is greater than those receivable currently had they remained in their original industry occupation (ratio greater than 1), it reflects positive wage mobility, while the converse (ratio less than 1) reflects negative wage mobility.

This section thus looks at wage and earning mobility of specific groups of workers who changed their industry or occupation, but without any change in their usual status (i.e., those in regular salaried jobs continued to be in regular wage or salaried status while those who were self-employed remained in self-employed status). As discussed in the earlier sections, when workers change their industry or sector of work, there might also be a case, when they change their usual status along with changing their industry or occupation. The next section covers this aspect.

[62] Current prices, year 2017-18

Regular Wage Salaried Workers

The following table tracks wage mobility of workers engaged in regular wage and salaried work in quarter 1 and remained regular wage and salaried in quarter 2, but changed their industry of work (the diagonals represent those with no short-term changes). The wage mobility of workers in terms of ratios between the average wage received by the workers who had shifted to a new industry vis-a-vis the current average wage receivable had they remained in the previous industry from which they shifted. Cells in the matrix are to be read row wise.

Table 6.19: Mobility in Wages: Short Panel (Quarter 1 & Quarter 2) for Regular Salaried workers

Q1/Q2	AGRI	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP
AGRI	1.0	.	.	.	.	0.3	0.8	.	1.2
MIN	.	1.0	.	.	.	0.2	.	0.7	0.6
MGF	.	.	1.0	0.6	0.8	1.1	1.6	1.8	1.5
UTL	.	.	0.5	1.0	0.3	0.6	.	0.7	0.8
CNS	.	.	1.2	1.2	1.0	0.6	0.9	1.2	1.5
THR	.	.	1.1	1.5	1.0	1.0	1.3	1.5	0.6
TSC	.	.	0.8	0.5	0.5	0.8	1.0	1.3	0.4
FRB	.	0.5	0.8	1.0	0.7	0.4	1.0	1.0	1.0
CSP	0.3	.	0.7	0.9	2.5	0.4	1.6	1.0	1.0

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using PLFS 2017-18

In Table 6.19, it is evident that as workers shift from regular salaried agriculture jobs to regular salaried trade hotels and restaurants; and transport storage and communication, the wage received by them in these two sectors seem lower (especially in trade hotels and restaurants). However, when they shift to community social and personnel services, they experience marginally better wages than those received by regular workers in agricultural sector. For regular salaried workers in the manufacturing sector, shifting to TSC, financial sector, real estate and business services; and community social and personal services seems to enable them to have substantially better wages. Regular workers shifting out from mining and utilities sector on an average received comparatively lower wages than those receivable had they remained in mining and utilities sector. In the case of construction sector, regular workers moving to community social and personnel services received higher wage on shifting. But this is not the case for regular salaried trade hotels and restaurant workers moving to community social and personal services. In transport storage and communications sector; financial sector real estate and business services; and in community social and personal services; workers tend to receive on an average

lower wages on moving. It might be the case because generally in these sectors wages tend to be comparatively higher; and workers shifting to other sector on an average would receive lower wages.

Table 6.20: Mobility in Wages: Annual Panel (Quarter 1 & Quarter 4) for Regular Salaried workers

Q1/Q4	AGRI	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP
AGRI	1	0	0	0	0	0.53	0.77	0	0
MIN	0	1	0	0	0.27	0.37	0	0.42	0.55
MGF	0	1.11	1	2.00	0.80	0.94	1.32	3.04	0.79
UTL	0	0	0.61	1	0	0.64	0	0.76	0.93
CNS	0	0	1.41	1.18	1	0.57	0.72	0.42	1.41
THR	0	4.26	1.14	1.89	1.84	1	1.18	1.71	0.60
TSC	0.63	0	0.70	0	0.59	0.71	1	1.06	0.71
FRB	0	0.65	0.72	0.50	0.51	0.75	1.01	1	1.13
CSP	0	0	0.76	0.84	2.36	0.48	1.48	1.03	1

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using PLFS 2017-18

After discussing the short-term one quarter wage mobility for regular wage workers changing their industry, the above table (Table 6.20) proceeds to the one year panel, and looks into wage mobility for the regular wage workers changing their industry. It is seen that regular wage workers from agriculture who shifted to trade hotels and restaurants; and transport storage and communications; received lower wages than receivable by regular wage workers in agriculture. Again in case of mining and utilities, the average salary received by regular workers that moved to other sectors tended to be lower than receivable by regular job in mining and utilities. In case of regular salaried trade hotels and restaurant workers, any movement (except to community social and personal services) seemed to result in relatively higher wages. But in case of transport storage and communications, only workers shifting to financial sector and real estate and business services, had a marginal increase in wage. Also, there is no significant positive wage mobility for workers shifting to other industries from financial sector, real estate and business services.

In the following segment, wage mobility for self-employed workers who remained self-employed but changed industry/ sector of work is discussed. The following table presents wage mobility for the short-term 1 quarter panel.

Table 6.21: Mobility in Wages: Short Panel (Quarter 1 & Quarter 2) for Self-Employed workers

Q1/Q4	AGRI	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP
AGRI	1	0	1.34	0	1.40	1.16	2.19	0.44	1.49
MIN	0	1	0	0	0	0.96	0	12.80	0
MGF	0.69	0	1	1.76	0.94	0.99	0.70	0.59	1.01
UTL	0	0	2.31	1	0	0.38	0	0	0
CNS	2.37	0	0.52	0.52	1	0.85	0	2.59	0.61
THR	0.71	0	1.39	0	1.01	1	1.54	2.51	0.79
TSC	0	0	0.67	0	2.77	1.89	1	1.38	3.16
FRB	0	0	0.11	0	0.43	0.36	1.24	1	1.81
CSP	0.45	0.45	3.04	1.20	0	1.48	0.77	2.15	1

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using PLFS 2017-18

In case of self employed workers relative wage of those moving out from agriculture to non-agricultural sector is higher in general. For manufacturing sector, only shifting to utilities industry, self employed workers yielded higher wages than receivable by self-employed workers in the manufacturing sector. It is interesting to note that when construction workers moved to self-employment in agriculture, their earnings seemed to be relatively higher. In trade hotels and restaurants sector, only those self-employed workers that shifted to self-employment in agriculture and community, social and personal services received on average higher earnings. It is also noted that the earnings for self-employed CSP workers moving to self-employment in the manufacturing sector was much greater than those in community social and personal services, thus indicating a positive earning mobility for such self-employed workers.

Table 6.22: Mobility in Wages: Annual Panel (Quarter 1 & Quarter 4) for Self-Employed workers

Q1/Q4	AGRI	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP
AGRI	1	0	0.52	0	1.11	1.14	1.45	0.77	0.00
MIN	0	1	0.91	0	0	0.57	2.28	0.46	0.00
MGF	0.24	0	1	1.43	1.43	0.86	0.68	0.78	1.29
UTL	0	0	2.86	1	0.76	0.70	0	0	0
CNS	0	0	0.56	0.60	1	0.69	0	1.40	1.21
THR	1.24	1.63	1.29	0	1.18	1	1.09	1.34	0.98
TSC	1.58	0	0.52	0	2.37	0.77	1	1.93	0
FRB	0	0	0.83	0	0.32	0.50	0.56	1	2.01
CSP	0.46	0	1.83	0	1.15	1.83	1.04	2.82	1

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using PLFS 2017-18

After discussing the short term panel for self-employed workers, Table 6.22 presents the wage mobility for self-employed workers for the one year panel. In agriculture sector, for self employed workers moving to manufacturing industry, the earning in the industry was just half of the earnings as compared to self-employed earnings in agriculture. For those in manufacturing

sector shifting to agriculture sector as self-employed workers, the earnings were just one-fourth of that of the earning of manufacturing sector, which indicates that such movements might have taken place due to distress. For construction sector workers shifting to financial sector, real estate and business services; and community social and personal services, the shift enabled positive earning mobility for self-employed workers. It is interesting to note that for trade hotels and restaurants, self-employed workers moving out to other sectors including agriculture, would have a positive earning mobility. Also, in case of self-employed workers moving out from community social and business services to other non-agricultural sector, a positive earning mobility could be seen. Movement from self-employment in community, social and personal services to any other sector (except for agriculture) seemed to increase earnings in self-employment.

Wage Mobility across Occupations

Along with the sector of work, occupation of the workers is another key defining feature of diversification, and as discussed in the previous section, occupational mobility of workers is higher than mobility in their industry of work. In this section wage mobility for different groups is analyzed for both the short-term and one year term panel. The table below presents the short term wage mobility of regular wage workers (who continued to be regular salaried workers) across their changing occupations of work.

Table 6.23: Mobility in Wages: Short Panel (Quarter 1 & Quarter 2) across Occupations for Regular salaried workers

Q1/Q2	Div1	Div 2	Div 3	Div 4	Div 5	Div 6	Div 7	Div 8	Div 9
Div 1	1	0.98	0.86	0.68	0.48	0	0.38	0.88	0.38
Div 2	1.84	1	0.93	1.04	0.55	0	0.60	1.10	0.39
Div 3	0.92	1.25	1	1.14	0.70	0	0.55	1.29	0.70
Div 4	1.15	0.67	0.83	1	0.63	0	0.83	0.64	0.47
Div 5	1.60	0.84	2.28	1.68	1	1.36	1.07	0.70	0.72
Div 6	0	0	0	1.37	0	1	0	0	0
Div 7	1.42	1.83	1.03	1.40	0.74	0	1	0.95	0.85
Div 8	1.47	1.55	1.71	0.74	1.21	0	1.18	1	1.08
Div 9	1.04	0.94	0.88	1.86	0.95	0.55	1.55	1.74	1

*Division1= Legislators, Senior Officials, Managers; Division 2= Professionals; Division 3= Associate Professionals; Division 4= Clerks; Division 5= Service Workers, Shop, Market Sales workers; Division 6= Skilled Agricultural, Fishery workers; Division 7= Craft and related trade workers; Division 8= Plant & Machine operators & assemblers; Division 9= Elementary Occupations; Source: Author's estimations using PLFS 2017-18

Source: Author's estimations using PLFS 2017-18

From Table 6.23, as expected the salary of senior officials and managers in division 1 is greater than salary received by regular wage workers in other occupations, so shifting to any other

occupation division from division 1 would turn into negative wage mobility as shown above. The wage received by regular wage workers in elementary occupations (division 9) is on average 40 percent of the senior level occupation. In case of professionals, promotion to senior management would lead to almost doubling of the wages and salaries, while moving to associate professionals would lead to marginal decrease in the salary and wages. It is not evident that shift towards division 9 would necessarily lead to decline in wages and salaries, as in the case of technical occupation, plant and machine operations, marginally higher wages are received. This is also the case for persons moving to machine and plant operations occupation from associate professionals (division 3), also providing for marginally higher wage mobility. However regular clerks (division 4) and regular elementary occupation workers, moving to associate professionals and professionals have a lower wage. So, it is not always the case that if they move to higher category of work they would automatically be better off.

Table 6.24: Mobility in Wages: Annual Panel (Quarter 1 & Quarter 4) across Occupations for Regular salaried workers

Q1/Q4	Div1	Div 2	Div 3	Div 4	Div 5	Div 6	Div 7	Div 8	Div 9
Div 1	1	0.98	0.74	0.60	0.54	0	0.38	0.63	0.32
Div 2	1.48	1	0.88	1.00	0.36	0	0.54	0.25	0.38
Div 3	1.46	1.25	1	0.85	0.55	0	0.51	0.87	0.50
Div 4	1.23	0.61	0.82	1	0.70	0.77	0.74	0.89	0.61
Div 5	2.19	0.87	1.71	1.21	1	2.10	0.99	1.17	0.69
Div 6	0	0	0	2.09	1.74	1	0	0	0.87
Div 7	1.15	2.84	1.26	1.46	0.68	1.02	1	0.93	0.96
Div 8	1.50	1.44	1.93	0.59	0.83	0.63	1.10	1	1.15
Div 9	1.31	0.75	1.21	2.11	0.86	0	1.13	1.49	1

*Division1= Legislators, Senior Officials, Managers; Division 2= Professionals; Division 3= Associate Professionals; Division 4= Clerks; Division 5= Service Workers, Shop, Market Sales workers; Division 6= Skilled Agricultural, Fishery workers; Division 7= Craft and related trade workers; Division 8= Plant & Machine operators & assemblers; Division 9= Elementary Occupations; Source: Author's estimations using PLFS 2017-18

Source: Author's estimations using PLFS 2017-18

Table 6.24 shows the mobility of wages for the regular wage and salaried workers over the one year panel across their occupation divisions. Again, shifting from managerial occupation (Division 1) to other divisions, the wages are significantly lower; and wages in elementary occupations (Division 9) were just one-third of the average wages of the managerial occupations. The wages for managerial workers (Division 1) shifting to professional occupation (Division 2) are similar, however shifting to associate professionals (Division 3) would entail only three fourth of the wages as compared to Occupational Division 1 (managers). In case of Professional occupation (Division 2) shifting to Managerial Occupation (Division 1) there was 50 percent

increase, while shifting to Associate Professional (Division 3) there was marginal decline while shifting to Clerks (Division 4) the wages remained same, but as one moved down towards Division 5 to Division 9 earnings became significantly lower as expected, indicating that those who moved to such situations must have been driven by distress. In case of Clerks (Division 4) only shifting to Division 1 enabled them to have higher wages, otherwise shifting to other sector lead them to have negative wage mobility. While, in case of Service Workers (Division 5) workers generally seemed to have positive wage mobility except for when they moved to the Professional Occupations (Division 2) and Elementary Occupations (Division 9) where there was marginal decline in wages. Also in case of Elementary Occupation, moving up to other Occupations, there was rise in wages for most of the sectors, even though there was marginal decline in some of the occupational categories, although it is expected that moving up the occupational ladder would lead to positive wage mobility, which as seen in the above cases does not always seem to hold true.

Table 6.25: Mobility in Wages: Short Panel (Quarter 1 & Quarter 2) across Occupations for Self-Employed workers

Q1/Q2	Div1	Div 2	Div 3	Div 4	Div 5	Div 6	Div 7	Div 8	Div 9
Div 1	1.0	1.3	1.0	0.6	0.7	0.7	0.6	0.5	0.4
Div 2	1.3	1.0	0.4	.	0.6	1.0	0.5	.	1.4
Div 3	1.7	0.7	1.0	.	0.8	.	4.6	.	.
Div 4	0.4	1.8	.	1.0	.	.	.	.	.
Div 5	1.2	2.0	1.1	1.2	1.0	0.4	1.2	1.2	0.8
Div 6	1.2	.	.	.	1.2	1.0	2.1	1.4	0.9
Div 7	1.5	1.8	2.8	1.5	1.5	1.5	1.0	1.2	0.8
Div 8	1.6	0.4	0.9	.	1.4	0.5	2.0	1.0	0.7
Div 9	1.8	8.5	4.5	.	1.3	1.5	0.8	1.1	1.0

*Division1= Legislators, Senior Officials, Managers; Division 2= Professionals; Division 3= Associate Professionals; Division 4= Clerks; Division 5= Service Workers, Shop, Market Sales workers; Division 6= Skilled Agricultural, Fishery workers; Division 7= Craft and related trade workers; Division 8= Plant & Machine operators & assemblers; Division 9= Elementary Occupations; Source: Author's estimations using PLFS 2017-18

Source: Author's estimations using PLFS 2017-18

After discussing the wage mobility for regular wage workers across occupational divisions, this segment looks at the earning mobility for self-employed workers across occupational divisions. First, self-employed workers across changing occupations are analysed in the short-term panel for tracking short-term mobility outcomes (Table 6.25). It is evident that even in the case of self-employed workers, on moving from higher Occupation Categories (Division 1) to elementary occupations (Division 9) there is negative wage mobility (declining ratios) which is to be expected if one moves to lower level occupations, while moving up towards higher occupation

categories (Division 1) from lower occupation categories (Division 9), there is positive wage mobility. In the first three occupation divisions, there is significant negative earning mobility. In case of occupational division 5 (Service Works) and division 6 (Skilled Agriculture) moving to division 7 (Craft works) and division 8 (Plant and Machine Operations) there was higher earning mobility. At the same time, occupational division 8 (Plant and Machine Operations), moving to division 7 (Craft Works) doubled their income, but moving to division 3 (Associate Professionals) and division 2 (Professionals) entailed lesser earning. In case of craft workers, only moving to elementary occupations led to negative earning mobility, while in converse, in case of elementary occupations (Division 9), only moving to craft workers led to decrease in wages, otherwise there seemed to be positive wage mobility in moving to other occupations.

Table 6.26: Mobility in Wages: Annual Panel (Quarter 1 & Quarter 4) across Occupations for Self-Employed workers

Q1/Q4	Div1	Div 2	Div 3	Div 4	Div 5	Div 6	Div 7	Div 8	Div 9
Div 1	1.0	1.6	0.7	1.1	0.6	0.7	0.6	0.6	0.4
Div 2	1.0	1.0	0.6	0.8	0.7	0.7	0.5	.	0.9
Div 3	1.2	0.6	1.0	.	0.4	.	0.8	0.9	.
Div 4	1.6	0.4	.	1.0	.	.	.	.	.
Div 5	1.2	1.5	0.6	.	1.0	1.2	1.2	1.3	0.7
Div 6	0.9	.	0.8	.	1.3	1.0	0.7	0.3	1.1
Div 7	1.4	1.8	2.5	.	1.4	0.6	1.0	1.3	1.0
Div 8	1.1	0.5	.	.	1.1	0.7	1.1	1.0	0.5
Div 9	1.4	5.4	4.2	.	1.1	1.8	1.3	1.4	1.0

*Division1= Legislators, Senior Officials, Managers; Division 2= Professionals; Division 3= Associate Professionals; Division 4= Clerks; Division 5= Service Workers, Shop, Market Sales workers; Division 6= Skilled Agricultural, Fishery workers; Division 7= Craft and related trade workers; Division 8= Plant & Machine operators & assemblers; Division 9= Elementary Occupations; Source: Author's estimations using PLFS 2017-18

Source: Author's estimations using PLFS 2017-18

In the above table (Table 6.26), for the one year panel, earning mobility for self-employed workforce for occupation divisions has been analyzed. Higher occupation categories generally have negative earning mobility, given the fact that earnings in higher occupations are also higher and moving to lower occupation categories (towards division 9), would led to negative earning mobility. In case of managerial occupations (Division 1), moving to Professional occupations (Division 2) also had substantial earning mobility, but Professionals moving to Managerial Occupations had the same earning level. Associate Professionals moving to Professionals had negative mobility, whereas moving to managerial occupation had only marginally higher wages, at the same time moving to lower occupation categories had a negative earning mobility. Service works occupations (Division 5) usually had positive wage mobility, except when moving to

Associate Professionals (Division 3). Machine and Plant Operations works (Division 8) did not have any significant earning mobility, the maximum being just 10 percent higher earnings. But, any movement out from Elementary Occupations (Division 9) to any other occupation category had positive earning mobility in moving, but moving to Professionals and Associate Professionals had significantly higher earnings than received in Elementary occupations.

Overall Wage Mobility

This section analyses the overall wage mobility of workers across industries. There are chances that when workers in due course happen to change industry of employment, their wage might rise when wage-pull factors are working, but at the same time it is also likely that they may experience decline in their wages if distress-push scenario is prevalent. Generally, these two factors seem to be simultaneously working out to bring about wage 'equilibrium' in the market. In such cases, workers on diversification may either experience a positive wage mobility or negative wage mobility.

The following table gives the distribution of wage mobility for workers across their current industry with respect to previous industry in which they were working. The diagonals represent ratio of change in wages for those workers who have not changed their industry (therefore it remains 1), while non-diagonal cells give the wage ratios for the workers who changed their industry, as ratio of the wages they currently received in the current industry with respect to the current wage prevalent in the industry from which they migrated and would have received had they remained there. In this section, status of work could also vary for workers; they could have been in regular salaried jobs or self-employed jobs (**currently regular salaried**).

Table 6.27: Mobility in Wages: Short Panel (Quarter 1 & Quarter 2) across Sectors

Q1/Q2	AGR	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP
AGR	1.0	0.0	0.4	0.5	1.2	0.3	0.7	1.0	0.8
MIN	0.0	1.0	0.0	0.0	0.3	0.2	0.0	0.8	0.6
MGF	0.0	0.0	1.0	0.6	0.5	1.1	2.1	1.7	1.3
UTL	0.0	0.0	0.5	1.0	0.3	0.6	0.1	0.7	0.6
CNS	0.2	0.0	1.0	0.8	1.0	0.5	0.7	1.5	0.8
THR	0.0	0.0	1.1	1.5	1.1	1.0	1.4	1.7	0.6
TSC	0.0	0.0	0.7	0.5	0.5	0.8	1.0	1.3	0.4
FRB	0.0	0.5	0.7	1.0	0.7	0.4	1.5	1.0	1.0
CSP	0.3	0.0	0.7	0.9	2.5	0.4	1.3	1.0	1.0

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using PLFS 2017-18

Table 6.27 analyses the short-term wage mobility of workers (currently regularly employed, earlier status could have been self-employed). In case of agriculture, those who shifted from agriculture to manufacturing, utilities, trade hotels and restaurants, transport storage and communication and to community social and personal services on regular Wage and salary, received a lower wage then when current wages received by the workers in agriculture (currently) working on regular salary status. In case of manufacturing sector, those who shifted to regular wage employment in trade hotels and restaurant; transport, storage communication; financial real estate and business services; community social and personal services received higher wages. In case of construction workers, only shift to financial, real estate and business services provided a higher wage. In case of financial sector real estate and business services only shift to transport, storage and communication sector enabled workers to have higher wages, while in case of community social and personal services, only shift to transport storage and communication sector enabled positive wage mobility. The following table presents long-term wage mobility for workers across industries.

Table 6.28: Mobility in Wages: Annual Panel (Quarter 1 & Quarter 4) across Sectors

Q1/Q4	AGR	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP
AGR	1	1.35	0.47	0.81	0.81	0.40	0.79	0.57	0.40
MIN	0	1	0	0	0.31	0.38	0	0.44	0.57
MGF	0	1.13	1	2.04	0.79	0.90	1.43	2.61	0.86
UTL	0	0	0.61	1	0	0.64	0	0.61	0.94
CNS	0	0	0.85	0.87	1	0.45	0.57	0.84	0.71
THR	0.77	4.33	1.07	2.19	1.75	1	1.26	1.74	0.61
TSC	0.64	0	0.72	0	0.60	0.71	1	1.07	0.58
FRB	0	0.64	0.65	0.49	0.50	0.76	1.05	1	1.11
CSP	0	0	0.77	0.85	2.40	0.49	1.32	1.04	1

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using PLFS 2017-18

It is expected that a person moving out of agriculture (from any status) and joining some other sector (on regular wage) would be getting more wages, but this does not hold true as seen in the mobility matrix above (Table 6.28). This shows the extent of prevailing distress-push factors across the economy. The present scenario brought out by PLFS confirms some level of distress in terms of wage mobility. While in manufacturing sector, workers moving out and working on regular wage and salaried jobs in other non-agricultural sectors except for construction, trade hotels and restaurant, received higher wages than those received by regular workers in manufacturing sector. Workers moving out from utilities construction sector, and joining other

sector regular weight wallpaper, received lower wages than those received by their counterparts. it is also to be seen that when workers move out from trade, hotels and restaurants sector and join non- agricultural sectors apart from community, social and personal services, received higher wages. Also, there is no significant positive change for workers who moved out from transport storage and communication; and financial real estate and business services, to other sectors. It is also seen that, in most of the cases when workers shifted to community, social and personal services as regular wages workers, they received a lower wage, indicating distress and informality of jobs within the CSP sector as argued earlier in the literature.

The following table present mobility in wages for workers who shifted their industry and **became self-employed workers** in various industries. The new wages received by such worker in the current industry is compared with those of the industry from which the person migrated.

Table 6.29: Mobility in Wages: Short Panel (Quarter 1 & Quarter 2) across Sectors

Q1/Q2	AGR	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP
AGR	1	0	1.14	0.40	1.42	1.13	1.16	0.48	1.51
MIN	0	1	0	0	0	0.65	0	13.17	0
MGF	0.59	0.90	1	1.11	0.67	0.95	0.84	0.60	1.03
UTL	0	0	2.58	1	0	0.44	0	0	0
CNS	1.92	0	0.38	0.55	1	0.59	0.15	2.48	0.58
THR	0.71	0	1.31	0	1.02	1	1.55	1.97	0.75
TSC	0	0	0.88	0	2.78	1.62	1	1.23	3.18
FRB	0	0	0.11	0	1.36	0.31	1.05	1	1.82
CSP	0.46	0.44	2.23	1.19	0.84	1.40	0.77	1.99	1

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using PLFS 2017-18

When a worker moved (Table 6.29) from agriculture and joined as self-employed in a non-agricultural sector, except for mining and financial sector, real estate and business services; he received higher earnings. Workers moving out from manufacturing sector (from any status) and joining other sector as self-employed worker generally experienced negative earning mobility. It is interesting to note that persons moving out from construction sector and joining agriculture and financial sector real estate and business services, had higher earnings than earnings of self-employed workers in the construction sector. Similarly for workers moving out from trade, hotels and restaurants and joining non-agricultural sectors (except for community, social and personal services) received higher wages. It may be presumed that earnings in financial, real estate and business services would be high, so persons moving out from financial, sector real

estate and business services would have positive mobility because they would only move for better wages; this is true in most of the cases except for mining; and trade hotels and restaurants. Persons moving out from community, social and personal services, joining as self-employed workers in manufacturing and in financial sector, real estate and business services on average doubled their earnings. Similar trends are seen for the annual panel (Table 6.30).

Table 6.30: Mobility in Wages: Annual Panel (Quarter 1 & Quarter 4) across Sectors

Q1/Q4	AGR	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP
AGR	1	0	0.49	0.59	1.11	0.84	0.38	0.78	0
MIN	0	1	1.06	0	0	0.53	2.28	0.46	0
MGF	0.24	0	1	1.47	1.32	0.80	0.99	0.73	1.27
UTL	0	0	3.00	1	0.80	0.70	0	0	0
CNS	0.73	0	0.57	0.64	1	0.68	0.58	1.36	1.30
THR	1.26	1.65	1.22	0	1.10	1	1.03	1.35	0.98
TSC	1.61	0	1.14	0.58	1.78	0.65	1	2.15	0.77
FRB	0	0	1.34	0	2.09	0.53	0.62	1	2.02
CSP	0.46	0	1.52	0	1.17	1.62	0.85	2.06	1

*AGRI: agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's estimations using PLFS 2017-18

Occupations based earnings mobility

After discussing the wage and earning mobility across industries, the following section discusses the wage and earning mobility for different occupations for those who also **became regular wage and salaried workers**, beginning with the short-term panel. In the following table, it is generally seen that negative wage mobility outnumbers positive wage mobility, the other aspect being that positive wage mobility was mostly marginal in most of the cases.

Table 6.31: Mobility in Wages: Short Panel (Quarter 1 & Quarter 2) across Occupations

Q1/Q2	Div 1	Div 2	Div 3	Div 4	Div 5	Div 6	Div 7	Div 8	Div 9
Div 1	1.0	1.0	1.2	0.7	0.4	.	0.3	0.9	0.3
Div 2	2.1	1.0	0.9	1.0	0.5	.	0.6	1.1	0.4
Div 3	0.9	1.3	1.0	1.2	0.7	.	0.6	1.3	0.7
Div 4	1.2	0.7	0.8	1.0	0.6	.	0.8	0.6	0.5
Div 5	1.6	0.9	2.2	1.7	1.0	0.9	1.1	0.9	0.7
Div 6	.	.	0.6	1.3	.	1.0	1.1	0.4	0.4
Div 7	1.4	1.8	1.0	1.4	0.8	.	1.0	1.0	0.8
Div 8	1.4	1.6	1.7	0.7	1.2	.	1.1	1.0	1.1
Div 9	1.1	1.0	0.9	2.0	1.0	0.6	1.5	1.6	1.0

*Division1= Legislators, Senior Officials, Managers; Division 2= Professionals; Division 3= Associate Professionals; Division 4= Clerks; Division 5= Service Workers, Shop, Market Sales workers; Division 6= Skilled Agricultural, Fishery workers; Division 7= Craft and related trade workers; Division 8= Plant & Machine operators & assemblers; Division 9= Elementary Occupations; Source: Author's estimations using PLFS 2017-18

Source: Author's estimations using PLFS 2017-18

In Table 6.31, in case of Managerial Occupations (Division 1), only moving to Associate Professionals Occupation (Division 3) had a marginal higher wage, but in other cases from Division 4 to Division 9 had a significant lower wages as compared to wages in managerial occupation. However, workers moving to managerial classes on an average received almost double wages. For workers from Associate Professionals, moving to Professional occupation (Division 2) and Service Works (Division 4), the wages were. In lower occupation divisions in most of the cases there is evidence of positive wage mobility. In the occupation category of craft workers (Division 7), only moving to Service worker (Division 5) and Elementary Occupations (Division 9) had around 20 percent lower wages. While in case of Machine and Plant Operations (Division 8), there were generally higher wages for other occupations for persons moving, except for the clerks Occupation (Division 4). Finally for elementary occupation workers moving to clerks doubled the wages, while moving to skilled agriculture sector, nearly halved the wages, but overall for other sectors there has been marginal increase in the wages.

Table 6.32: Mobility in Wages: Annual Panel (Quarter 1 & Quarter 4) across Occupations

Q1/Q4	Div 1	Div 2	Div 3	Div 4	Div 5	Div 6	Div 7	Div 8	Div 9
Div 1	1.0	1.0	1.0	1.0	1.0	.	1.0	1.0	1.0
Div 2	1.6	1.0	0.9	0.9	0.3	.	0.5	0.3	0.3
Div 3	1.4	1.2	1.0	0.9	0.6	.	0.5	0.9	0.5
Div 4	1.2	0.6	0.8	1.0	0.7	0.8	0.7	0.9	0.6
Div 5	2.3	0.9	1.7	1.3	1.0	1.0	1.0	1.3	0.7
Div 6	.	.	0.4	2.1	0.6	1.0	1.0	0.8	0.7
Div 7	1.2	2.6	1.4	1.5	0.6	1.0	1.0	0.9	1.0
Div 8	1.4	1.5	2.0	0.5	0.8	0.6	1.0	1.0	1.0
Div 9	1.3	0.8	1.2	2.1	0.9	.	1.1	1.4	1.0

*Division1= Legislators, Senior Officials, Managers; Division 2= Professionals; Division 3= Associate Professionals; Division 4= Clerks; Division 5= Service Workers, Shop, Market Sales workers; Division 6= Skilled Agricultural, Fishery workers; Division 7= Craft and related trade workers; Division 8= Plant & Machine operators & assemblers; Division 9= Elementary Occupations; Source: Author's estimations using PLFS 2017-18

Source: Author's estimations using PLFS 2017-18

In the one year panel (Table 6.32), wage mobility for workers (who became regular salaried workers) has been analyzed for different occupation categories. For the Managerial Occupation (Division 1) though in the short-run wage mobility was negative, but in the long run average wage for such workers in other sectors was same as the wages received in the Managerial Occupation. But this can be taken as an exception. For Professionals and Associate Professionals, only moving to higher occupational categories had a higher wages, while moving towards lower occupational categories had negative wage mobility as would be expected. For the occupation of clerks only moving to managerial occupations (Division 1) had a marginally

higher wage. Also the case of mobility for skilled agriculture has been minimal to other sector and in general entailed negative wage mobility. For workers in the Plant and machine operations, only moving to Associate Professionals, Professionals and Managerial Occupations yielded higher wages. But, in general workers moving out from Elementary Occupations (Division 9) had positive wage mobility. Only two occupations; professionals (Division 2) and service works (Division 5) had marginally lower wages.

In this section, the wage mobility for those who **became self-employed** is analyzed across occupational categories.

Table 6.33: Mobility in Wages: Short Panel (Quarter 1 & Quarter 2) across Occupations

Q1/Q2	Div 1	Div 2	Div 3	Div 4	Div 5	Div 6	Div 7	Div 8	Div 9
Div 1	1.0	1.1	1.0	0.6	0.7	0.7	0.6	0.5	0.4
Div 2	1.3	1.0	0.6	.	0.6	1.0	0.5	.	1.4
Div 3	1.7	0.7	1.0	.	0.8	.	4.6	.	.
Div 4	0.4	3.8	0.8	1.0	.	.		0.8	.
Div 5	1.2	1.6	1.0	1.2	1.0	0.4	1.0	1.2	0.8
Div 6	1.3	.	.	.	1.2	1.0	2.2	1.4	0.9
Div 7	1.3	1.7	2.0	1.5	1.3	0.9	1.0	1.2	0.9
Div 8	1.5	0.4	0.9	.	1.4	0.5	1.7	1.0	0.7
Div 9	1.6	6.7	3.2	.	1.2	1.3	0.9	1.2	1.0

*Division1= Legislators, Senior Officials, Managers; Division 2= Professionals; Division 3= Associate Professionals; Division 4= Clerks; Division 5= Service Workers, Shop, Market Sales workers; Division 6= Skilled Agricultural, Fishery workers; Division 7= Craft and related trade workers; Division 8= Plant & Machine operators & assemblers; Division 9= Elementary Occupations; Source: Author's estimations using PLFS 2017-18

Source: Author's estimations using PLFS 2017-18

In table 6.33, in case of managerial occupations, shifting to professional occupations had 10 percent higher wages, whereas in the associate professional's categories, the wages were same as in the managerial occupations. In the case of Professionals Occupations, wages in managerial occupations was 30 percent higher and those in elementary occupations interestingly had 40 percent higher wages. There has not been much mobility in case of Clerks and Skilled Agriculture. However, in case of Service works, outward movement to other occupations led to higher wages. For workers moving out from Craft works, generally higher wages were seen on moving, except in case of skilled agriculture and elementary occupations where there was marginal decrease. Also, in case of elementary occupations, there was in general higher wages on movement to other sectors, except in case of workers moving to crafts works. Overall, workers moving to higher occupations divisions from lower occupation divisions would receive higher earnings and would also have higher earning mobility.

Table 6.34: Mobility in Wages: Annual Panel (Quarter 1 & Quarter 4) across Occupations

Q1/Q4	Div 1	Div 2	Div 3	Div 4	Div 5	Div 6	Div 7	Div 8	Div 9
Div 1	1.0	1.5	0.7	1.1	0.6	0.7	0.6	0.6	0.4
Div 2	1.0	1.0	0.7	0.8	0.7	0.7	0.5	.	0.9
Div 3	1.3	1.2	1.0	.	0.6	.	0.8	0.9	.
Div 4	1.0	4.2	0.8	1.0	.	.	.	.	.
Div 5	1.2	1.4	0.6	1.6	1.0	1.2	1.0	1.2	0.6
Div 6	0.8	.	0.8	.	1.3	1.0	0.7	0.3	0.5
Div 7	1.2	1.8	1.6	.	1.4	0.4	1.0	1.3	1.0
Div 8	1.1	0.5	.	.	1.2	0.7	1.1	1.0	0.5
Div 9	1.5	4.4	3.6	.	1.3	1.7	1.3	1.4	1.0

*Division1= Legislators, Senior Officials, Managers; Division 2= Professionals; Division 3= Associate Professionals; Division 4= Clerks; Division 5= Service Workers, Shop, Market Sales workers; Division 6= Skilled Agricultural, Fishery workers; Division 7= Craft and related trade workers; Division 8= Plant & Machine operators & assemblers; Division 9= Elementary Occupations; Source: Author's estimations using PLFS 2017-18

Source: Author's estimations using PLFS 2017-18

Finally, the earning mobility for those who became self-employed across occupation divisions has been discussed for one year panel (Table 6.34). Even in this case, the downward earning mobility out-numbered upward earning mobility. Again, it is to emphasize that comparative earnings for managerial sector and that of other sectors increased as persons moved down towards elementary occupations. For Associate Professionals and Skilled Agriculture, wages on movement were around 70 percent of managerial works, while in case of Service workers, Craft workers and Plant and machine operation works wages on moving were 60 percent of the managerial earnings; and in case of movement from elementary occupations was just 40 percent of managerial earnings. For associate Professionals, there was negative earning mobility moving to other sectors, while moving up to managerial occupation also did not entail higher earnings. But in case of associate professionals, moving up to professionals and managerial occupation did entail marginally higher earnings. For associate professionals moving to other sector resulted in negative earning mobility. For skilled agricultural workers, only moving to service works would result in marginal increase in wages. In case of elementary occupation, moving to other sectors resulted in positive earning mobility. But given the distress and subdued economic scenario, workers in urban areas in the short term panels did experience distress-push employment to some extent.

Concluding remarks and a Glimpse of the following chapter

This chapter, using the PLFS survey of 2017-18, tracked urban workers exclusively with the aim to understand short term sectoral mobility patterns in urban areas as well as occupational

mobility patterns and outcomes of mobility in terms of wage ratios on movement/ diversification. The major findings suggest that generally, within a year, not much movement in terms of current weekly activity was seen, although the movements were move visible for casual workers. Around 25 per cent mobility was seen in terms of occupations and around 10 per cent in terms of sectors. The mobility patterns and wage transitions so seem to indicate to some level of urban distress in some cases with wage ratios on movement across sector/ status/ occupation being lower, although in many cases the transitions and outcomes in terms of wage ratios are as expected. Since only a year-long small panel has currently been released by the PLFS, forthcoming surveys could add more dimensions and scope for further research. The major point that could be raised, looking at the results from previous chapters indicating some level of distress in the labour market and the need for more public investment and policies for employment, the looming threat of 'premature deindustrialization' hampering the structural transformation in the economy needs some probing. The following chapter seeks to attempt this at more disaggregated levels of analysis.

Chapter 7: Spatial Dimensions of Workforce Diversification and 'Deindustrialization'

'.....Goals for more growth should specify more growth of what and for what'.....

Simon Kuznets in 'The New Republic' (1962)

Recapitulation

The previous chapters focused mostly on individual and household data from the National Sample Surveys (Employment and Unemployment Rounds) as well as the new Periodic Labour Force Survey. The analysis carried out thus far majorly focused on the temporal aspects of workforce diversification and a glimpse of spatial patterns. The previous chapters discuss the extent, pathways and correlates of workforce diversification. Although state level and regional level trends were touched upon, a more detailed spatial level analysis at the district level is further possible to see exactly which pockets in India witnessed structural shifts in employment, which this chapter attempts to undertake.

Outline of this chapter

Since an in-depth analysis of spatial trends in workforce diversification across major states of India is missing from the discourse, this chapter uses data from the Census of India for the years 2001 and 2011 to compare workforce diversification and employment growth in major sectors at the *district* level to create a sort of *atlas* for capturing diversification trends and patterns as also to identify clustering of various sectors. Although corresponding regional level analysis was discussed in previous chapters, the political and administrative units of districts have different policy spaces, which necessitate a study at the district level, which is possible using Census data. In this chapter, sectoral shares of employment as well as employment elasticities at the district level are also calculated and seem in tandem with urbanisation levels. With the recent discourse on premature deindustrialization, this chapter tries to find evidence for the same at the spatial level, while at the same time also taking into consideration the quality of employment in terms of 'occupations', and occupation changes in general.

7.1. Importance of Spatial analysis

The main point that came out from the previous chapters was the importance of non-agricultural sector for low income states in driving their GDP growth while agriculture has been lagging

behind significantly. However, for low income states, the base for industry and services is somewhat low and the significant growth of non-agricultural sector employment has not been able to offset the high share of agriculture in their total GDP as well as employment.

The World Bank (2008) has highlighted 5 main constraints that need to be addressed for improving this scenario: *"clustering and strong neighbourhood effects, through which the low growth of the low income states lowers the growth of its 'neighbours' and the region as a whole; (ii) the dependence of low income economies on low-productivity agriculture which is associated with low growth of non-farm jobs and urban development; (iii) infrastructure, financial development and regulatory weaknesses; (iv) low levels of human and social development; and (v) the complementary challenges of low investment rates and weak institutions."*

Inter-state differentials in economic growth, structural transformation as well as employment diversification have not been converging, and in many cases have in fact been widening. It is an even bigger concern that there still exist huge differentials within states themselves, which further lead to divergence in growth patterns of states. Under these growing concerns, the main objectives of this chapter are listed below.

7.2. Objectives of the chapter

This chapter essentially probes at a much more disaggregated level of the *district* for the major Indian states. This has been attempted with a view to investigating the following claims in the Indian labour market discourse:

- What do the employment diversification patterns across districts show and what implications can these have for policies?
- Is the claim of premature deindustrialization widespread across districts or in clusters?
- What has been the change in occupational diversification and nature of jobs?
- How have urbanisation and structural transformation processes evolved spatially?

These and other such related issues are discussed in this chapter with the aim to understand spatial dimensions of structural change and the evolving nature of work.

7.3. Snapshot of Workforce from Census data

Before beginning the detailed district level analysis using Census data, a brief snapshot of workforce, its composition and sectoral shares are presented below for the decade between 2001 and 2011. Table 7.1 presents workforce across major sectors of work in millions (main and marginal combined).

Table 7.1: Census: Persons (in Millions) Main and Marginal Combined

	Total Persons		Total Persons Main		Total Persons Marginal	
	2001	**2011**	**2001**	**2011**	**2001**	**2011**
Total	401.9	481.9	312.6	362.6	89.2	119.3
AGRI	248.0	274.5	177.4	190.2	70.6	84.3
MIN	2.5	2.1	2.2	1.8	0.2	0.3
MFG	46.6	48.4	38.6	40.3	7.9	8.1
UTL	1.5	2.0	1.5	1.9	0.0	0.1
CNS	14.7	26.8	11.9	20.0	2.7	6.8
THR	31.9	35.4	29.1	32.1	2.8	3.3
TSC	13.1	18.6	12.2	16.9	0.9	1.6
FBR	11.2	5.7	9.5	5.4	1.7	0.3
CSP	32.5	68.4	30.1	54.0	2.4	14.4

*AGRI: Agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Census of India, 2001 and 2011.

In the previous discussions, it was presented that Indian workforce had undergone significant structural change between 2004-05 and 2011-12 when the total percentage of persons as well as total *number* of persons in agriculture had declined in 2011-12 (68^{th} round of NSS) as compared to 2004-05 (61^{st} round of NSS). The NSS figures had also suggested that the agricultural workforce had not only declined but declined and become on par with the 1993-94 figures. However as far as Census data is concerned, total persons in agriculture *increased* by 25 million between 2001 and 11, and on account of higher additions of workforce in the agricultural sector, even in percentage terms, the Census figures give a somewhat higher estimate for the number of persons employed in agriculture. The Census figures for males and females are also presented below.

Table 7.2: Census: Males (in Millions) Main and Marginal Combined

	Total Males		Males Main		Males Marginal	
	2001	**2011**	**2001**	**2011**	**2001**	**2011**
Total	274.8	332.0	239.9	273.2	34.9	58.7
AGRI	150.6	172.4	126.0	133.9	24.5	38.5
MIN	2.1	1.8	1.9	1.6	0.2	0.2
MGF	33.6	36.3	30.5	32.0	3.1	4.3
UTL	1.4	1.8	1.4	1.7	0.0	0.1
CNS	13.1	23.0	10.9	18.0	2.2	5.0
THR	28.9	32.0	26.9	29.4	2.0	2.6
TSC	12.7	17.6	11.8	16.0	0.8	1.5
FBR	8.8	4.9	8.0	4.6	0.8	0.2
CSP	23.6	42.3	22.4	36.1	1.2	6.2

*AGRI: Agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Census of India, 2001 and 2011.

As seen in Table 7.2, there has been an increase in the male workforce in agriculture to the tune of over 20 millions, and male workers in agriculture reached 172 million in 2011. The increase of male workforce in agriculture comprised of around 8 millions in the main category while there was around 14 million increase in the marginal category of work. In the manufacturing sector there was an addition of just 1.5 million main male workers, which significantly raises questions on the manufacturing sector being able to emerge as an enabler of jobs. Also, there has been an increase of 10 million male workers in the construction sector, with the number of male workers in construction sector reaching 23 million in 2011. The sector that saw an overall decrease in the male workforce was FBR sector, where the number of male workers declined from 8.8 million in 2001 to 4.9 million in 2011, with most of the decline coming under main workers. It is expected that as an economy and business grows, and with the rise of level of educational attainments, there would eventually be a rise in the number of persons engaged in FBR sector, but the trends are on the contrary; there was nearly a 50 percent decline in the male workforce in FBR sector between 2001 and 2011.

Table 7.3 shows the trends for female workforce between 2001 and 2011. In the case of female workforce, a net addition of around 22 million was seen. Also, in the agriculture sector, there has been an increase of female workers to the tune of nearly 5 millions, most of which is visible in the main workers category and not in the marginal capacity as one could have argued given the fact that significantly higher percentage of females work in agriculture under 'subsidiary'

employment. Another significant aspect of change in the female workforce is that most of the addition in female workforce has been under CSP sector.

Table 7.3: Census: Females (in Millions) Main and Marginal Combined

	Total Females		Females Main		Females Marginal	
	2001	**2011**	**2001**	**2011**	**2001**	**2011**
	127.1	150.0	72.7	89.4	54.4	60.6
AGRI	97.4	102.1	51.4	56.3	46.0	45.8
MIN	0.4	0.3	0.3	0.3	0.1	0.1
MGF	12.9	12.1	8.1	8.3	4.8	3.8
UTL	0.1	0.2	0.1	0.2	0.0	0.0
CNS	1.6	3.8	1.1	2.0	0.5	1.8
THR	3.0	3.4	2.2	2.8	0.8	0.6
TSC	0.4	1.0	0.4	0.9	0.1	0.1
FRB	2.4	0.8	1.5	0.7	0.8	0.1
CSP	8.9	26.1	7.7	17.9	1.3	8.2

*AGRI: Agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Census of India, 2001 and 2011.

Composition of Workforce across sectors

The following tables (Table 7.4, 7.5 and 7.6) describe the composition of workers (for both main and marginal workers) across major sectors.

Table 7.4: Percentage distribution of persons across sectors

	Total Persons		Total Persons Main		Total Persons Marginal	
	2001	2011	2001	2011	2001	20011
AGRI	61.7	57.0	56.7	52.5	79.1	70.7
MIN	0.6	0.4	0.7	0.5	0.2	0.3
MGF	11.6	10.0	12.3	11.1	8.9	6.8
UTL	0.4	0.4	0.5	0.5	0.0	0.1
CNS	3.7	5.6	3.8	5.5	3.0	5.7
THR	7.9	7.3	9.3	8.9	3.1	2.8
TSC	3.3	3.9	3.9	4.7	1.0	1.3
FRB	2.8	1.2	3.0	1.5	1.9	0.3
CSP	8.1	14.2	9.6	14.9	2.7	12.1
Total	100.0	100.0	100.0	100.0	100.0	100.0

*AGRI: Agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Census of India, 2001 and 2011.

The above table gives the percentage distribution of workforce across industries for the year 2001 and 2011. It is seen that percentage of total workers in agriculture came down from 62 per

cent in 2001 to 57 per cent in 2011 (in contrast to the 48.9 per cent share of workers engaged in agriculture in 2011-12 reported by the NSS data). While the percentage of total workers in manufacturing sector was 11.6 per cent, it further came down to just 10 per cent. While it is often expected that industry would eventually emerge as a major employer through structural change, the case in India seems to suggest the opposite, with the share of employment in manufacturing declining. This is a major reason for the peculiar shift of workers from agriculture to services in India, bypassing the manufacturing sector. Though the construction sector showed increase in share of employment, the highest increase in share of employment was shown by community, social and personal services (CSP). The percentage of workers engaged in CSP increased from 8.1 per cent to 14.2 per cent between 2001 and 2011.

Table 7.5: Percentage distribution of Male workers across sectors

	Total Males		Males Main		Males Marginal	
	2001	**2011**	**2001**	**2011**	**2001**	**2011**
AGRI	54.8	51.9	52.5	49.0	70.2	65.6
MIN	0.8	0.5	0.8	0.6	0.6	0.3
MGF	12.2	10.9	12.7	11.7	8.9	7.3
UTL	0.5	0.5	0.6	0.6	0.0	0.2
CNS	4.8	6.9	4.5	6.6	6.3	8.5
THR	10.5	9.6	11.2	10.8	5.7	4.4
TSC	4.6	5.3	4.9	5.9	2.3	2.6
FRB	3.2	1.5	3.3	1.7	2.3	0.3
CSP	8.6	12.7	9.3	13.2	3.4	10.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

*AGRI: Agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Census of India, 2001 and 2011.

In case of male workforce, around 21 percent was engaged in agriculture, lesser than the overall percentage of workforce engaged in agriculture. Even for males, just around 11 percent of the workforce was engaged in manufacturing sector in 2011, down from 12.2 percent in 2001. There has been significant addition in male workforce in the construction sector, where percentage of workforce increased from 4.8 percent in 2001 to 6.9 percent in 2011. CSP is another sector providing employment for male workforce (to the tune of over 12 per cent in 2011).

Table 7.6: Percentage distribution of Female workers across sectors

	Total Females		Females Main		Females Marginal	
	2001	**2011**	**2001**	**2011**	**2001**	**20011**
AGRI	76.6	68.1	70.7	63.0	84.6	75.6
MIN	0.3	0.2	0.4	0.3	0.2	0.2
MGF	10.1	8.1	11.1	9.3	8.8	6.3
UTL	0.1	0.1	0.1	0.2	0.0	0.0
CNS	1.3	2.5	1.5	2.2	0.9	3.0
THR	2.4	2.3	3.0	3.1	1.5	1.0
TSC	0.3	0.7	0.6	1.0	0.2	0.2
FRB	1.9	0.5	2.1	0.8	1.5	0.2
CSP	7.0	17.4	10.6	20.0	2.4	13.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

*AGRI: Agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Census of India, 2001 and 2011.

Around two-third of the female workforce is still engaged in agricultural sector in 2011. For the female workforce in the marginal category, 75 percent of them are still in the agriculture sector in 2011. There has been a decline in the percentage of female workforce in the manufacturing sector, with marginal increase in the percentage of female workforce engaged in the construction sector. Outside agriculture, there has been significant change in employment in the CSP sector, where only 7 percent of female workforce was engaged in 2001, but increased to over 17 percent in 2011. In case of main workers, 20 percent of female main workers are engaged in CSP sector.

State Level Analysis

Tables 7.7, 7.8 and 7.9 present the percentage change in total workers (main and marginal combined) for the major sectors between 2001 and 2011, for persons, males as well as females. The analysis is done for the major Indian states as in the preceding chapters, including Group 1 and Group 2 states (based on per capita incomes) and includes the following:

Group1: Andhra Pradesh (AP), Gujarat(GJ), Haryana (HR), Karnataka (KR), Kerala (KL), Maharashtra (MH), Punjab (PB) and Tamil Nadu (TN).

Group 2: Uttar Pradesh (UP), West Bengal (WB), Bihar (BH), Chattisgarh (CH), Jharkhand (JH), Madhya Pradesh (MP), Odisha (OR), and Rajasthan (RJ).

Table 7.7: Percentage change in total workers (main + marginal) between 2001 and 2011

States	AGRI	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP
AP	6	-34	-6	116	63	-2	53	-50	106
GJ	10	-40	21	188	38	1	13	-39	85
HR	-11	-70	-6	-24	53	10	58	-24	104
KR	5	-5	20	13	60	17	86	-44	100
KL	-14	-21	-3	36	85	7	25	-7	64
MH	12	-25	10	-8	41	7	34	-37	111
PB	-11	-18	-3	-43	86	8	42	-45	73
TN	2	-12	14	11	109	18	90	-57	88
	AGRI	**MIN**	**MGF**	**UTL**	**CNS**	**THR**	**TSC**	**FRB**	**CSP**
UP	10	-11	-1	33	103	10	36	-69	234
WB	14	-13	0	-17	97	4	11	-64	92
BH	16	-32	-15	-30	163	-5	5	-61	263
CHT	22	-18	-4	154	113	21	56	-14	84
JH	21	-10	3	43	176	22	49	-20	140
MP	18	-11	-3	43	96	19	43	-33	79
OR	16	12	17	-4	89	17	70	-53	82
RJ	17	1	9	15	101	26	30	-28	113

*AGRI: Agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's computations from Census of India, 2001 and 2011.

From the above table it is clear that employment growth has been uneven across states for different sectors. In agriculture, workforce increased between 2001 and 2011 for most of the states, except for major agriculturally developed states such as Punjab Haryana and Kerala. In the mining sector, workforce decreased for all states except Rajasthan where there was just a 1 percent increase. In case of Manufacturing sector, most of the states had a negative growth of employment. Only industrially developed states such as Gujarat and Karnataka showed an employment growth in manufacturing of around 20 percent. What is more pronounced is the fact that for all states there has been negative employment growth in FBR sector. However there as almost a doubling of employment in Community Social and Personal Services sector, which has emerged as one of the key service sectors generating employment at present.

In case of male workforce, percentage of male workers declined only in Kerala, while for other states, there has been a substantial increase in male agricultural employment. Even in states with high per capita income, such as Gujarat and Maharashtra, there was 20 percent increase in the male agricultural workers. For 'laggard' states such as Bihar, Chattisgarh, Madhya Pradesh and West Bengal, instead of male workers moving out of agriculture there has been over 20 percent increase in male workforce in agriculture. Over 100 percent increase was seen in case of male

workers in the construction sector for states such as Bihar, Jharkhand and Chhattisgarh. There also has been higher male workforce increase in Transport, Storage and Communication (TSC) sector than in Trade, Hotels and Restaurants sector. In Financial, Business services and Real Estate (FBR), male workforce declined substantially, with correspondingly higher employment growth in Community, Social and Personal services (CSP).

Table 7.8: Percentage change in Male workers (main + marginal) between 2001 and 2011

States	AGRI	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP
AP	4	-32	-1	81	59	-4	48	-44	80
GJ	22	-38	23	155	40	9	12	-34	84
HR	9	-68	-1	-23	54	11	54	-19	89
KR	8	-1	25	10	61	17	78	-37	62
KL	-14	-15	2	33	59	2	24	-16	51
MH	20	-25	12	-12	43	5	29	-38	88
PB	5	-17	9	-41	82	10	40	-39	52
TN	3	-11	18	8	95	15	83	-54	63
	AGRI	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP
UP	14	-11	2	29	97	10	34	-62	143
WB	21	-17	2	-20	91	4	9	-60	72
BH	18	-35	-6	-34	156	-4	4	-53	161
CH	26	-18	1	148	106	17	55	-7	65
JH	17	-14	3	37	172	21	48	-12	93
MP	23	-11	-1	40	90	18	41	-28	49
OR	14	10	31	-8	86	17	69	-43	49
RJ	17	0	9	7	68	25	30	-20	86

*AGRI: Agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's computations from Census of India, 2001 and 2011.

In case of female workers (Table 7.9) there has been sizeable employment growth in the utilities sector in many states, which is in line with the findings from NSS data presented earlier. Female employment has also increased substantially in the construction sector, Transport Storage and Communication sector (TSC) and Community, Social and Personal Services (CSP). As presented earlier, in case of female workforce too there has been a very high negative employment growth in Mining sector and Financial, Business services and Real Estate (FBR). In agriculturally developed states such as Punjab and Haryana, there has been a significant decline in female agricultural workforce of 48 percent and 37 percent respectively.

Table 7.8: Percentage change in Female workers (main + marginal) between 2001 and 2011

States	AGRI	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP
AP	8	-39	-13	819	81	7	202	-73	167
GJ	-7	-47	2	1000	17	-48	41	-61	88
HR	-37	-88	-26	-35	42	3	264	-50	150
KR	2	-18	12	49	53	22	248	-63	178
KL	-13	-52	-11	54	439	62	52	26	77
MH	4	-22	1	75	27	26	154	-32	160
PB	-48	-45	-44	-57	168	-16	126	-70	118
TN	1	-14	7	43	204	38	255	-71	138
	AGRI	MIN	MGF	UTL	CNS	THR	TSC	FRB	CSP
UP	-3	-12	-13	120	224	15	112	-91	682
WB	-6	20	-4	48	222	-3	56	-80	136
BH	11	11	-37	136	354	-23	61	-89	840
CH	17	-17	-21	275	141	55	98	-48	131
JH	26	29	1	175	207	31	92	-59	301
MP	13	-12	-8	169	126	28	108	-59	177
OR	20	19	-7	116	104	16	117	-84	193
RJ	18	14	10	303	334	32	21	-70	226

*AGRI: Agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's computations from Census of India, 2001 and 2011.

The following segment looks at share of workforce across states between 2001 and 2011.

Table 7.9: Share of Total Workforce across states 2001-2011

Y01	**0**	**1**	**2**	**4**	**5**	**6**	**7**	**8**	**9**		**Y11**	**0**	**1**	**2**	**4**	**5**	**6**	**7**	**8**	**9**	
AP	65	1	10	0	4	7	3	3	7	100	AP	57	1	10	0	5	10	5	3	8	100
GJ	57	0	15	0	4	10	4	2	7	100	GJ	47	1	19	1	5	12	5	3	7	100
HR	58	0	13	1	5	9	3	2	10	100	HR	47	0	15	1	6	12	4	3	11	100
KR	61	1	12	0	4	9	4	4	7	100	KR	54	1	11	1	5	11	5	4	8	100
KL	36	1	16	0	9	14	8	4	12	100	KL	35	1	13	0	12	17	11	4	8	100
MH	57	0	12	0	4	9	5	3	9	100	MH	46	1	15	1	5	12	7	4	9	100
PB	47	0	15	1	5	11	4	3	13	100	PB	43	0	15	1	6	13	5	4	12	100
TN	52	1	16	0	4	9	4	4	9	100	TN	44	1	16	1	5	12	5	5	10	100
Y01	**0**	**1**	**2**	**4**	**5**	**6**	**7**	**8**	**9**		**Y11**	**0**	**1**	**2**	**4**	**5**	**6**	**7**	**8**	**9**	
UP	68	0	12	0	3	7	2	3	6	100	UP	64	0	12	0	3	8	3	3	6	100
WB	48	1	18	0	4	12	5	3	10	100	WB	46	1	16	0	4	14	6	4	9	100
BH	79	0	7	0	1	5	2	2	4	100	BH	76	0	7	0	2	6	2	2	5	100
CH	79	1	6	0	2	5	2	1	6	100	CH	70	2	8	0	3	7	3	1	7	100
JH	69	3	10	0	3	6	3	1	5	100	JH	60	4	10	0	4	8	4	2	6	100
MP	74	1	8	0	3	5	2	1	6	100	MP	66	1	8	0	4	8	3	2	8	100
OR	68	1	9	0	4	6	2	2	8	100	OR	64	1	8	1	5	8	3	2	8	100
RJ	70	1	8	1	4	6	3	2	6	100	RJ	58	1	10	1	6	9	4	2	8	100

*0= Agriculture and allied; 1= Mining and Quarrying; 2=Manufacturing; 4=Utilities including electricity, gas and water supply; 5=Construction; 6=Trade, Hotels and Restaurants; 7= Transport, Storage and Communication; 8=Finance, business and real estate services; 9=Community, Social and Personal services; Y01=Year 2001, Y11= Year 2011

Source: Author's computations from Census of India, 2001 and 2011.

As seen in Table 7.9, the composition of workforce within each state is not evenly spread across industries. Kerala has just around 35 percent of its workforce in agriculture, while in Bihar still over 75 percent of the workforce is dependent on agriculture. In 2001, West Bengal had 18 percent of workforce in the manufacturing sector, which was highest across major states, but in 2011, Gujarat with 19 percent of its workforce in manufacturing sector was the highest across major states. There was marginal decline in the percentage of workforce engaged in manufacturing for many states as shown above. However, even though there seems to a be lack of significant structural transformation at the state level, even state level analysis could sometimes mask the changes that could have occurred within states in the spatial dimension.

Table 7.10: Share of Male Workforce across states 2001-2011

Y01	0	1	2	4	5	6	7	8	9		Y11	0	1	2	4	5	6	7	8	9	
AP	57	1	10	0	5	10	5	3	8	100	AP	53	1	9	1	7	9	7	2	13	100
GJ	47	1	19	1	5	12	5	3	7	100	GJ	46	0	19	1	6	11	5	2	10	100
HR	47	0	15	1	6	12	4	3	11	100	HR	43	0	12	1	8	11	6	2	17	100
KR	54	1	11	1	5	11	5	4	8	100	KR	48	1	12	1	7	11	8	2	10	100
KL	35	1	13	0	12	17	11	4	8	100	KL	28	1	12	1	17	16	12	3	12	100
MH	46	1	15	1	5	12	7	4	9	100	MH	45	0	14	0	6	11	7	2	14	100
PB	43	0	15	1	6	13	5	4	12	100	PB	39	0	14	1	10	12	6	2	16	100
TN	44	1	16	1	5	12	5	5	10	100	TN	38	1	16	1	9	12	8	2	13	100
Y01	**0**	**1**	**2**	**4**	**5**	**6**	**7**	**8**	**9**		**Y11**	**0**	**1**	**2**	**4**	**5**	**6**	**7**	**8**	**9**	
UP	64	0	12	0	3	8	3	3	6	100	UP	60	0	10	0	5	7	3	1	13	100
WB	46	1	16	0	4	14	6	4	9	100	WB	47	1	13	0	7	12	5	1	13	100
BH	76	0	7	0	2	6	2	2	5	100	BH	73	0	5	0	4	5	2	1	11	100
CH	70	2	8	0	3	7	3	1	7	100	CH	68	1	6	1	5	6	4	1	9	100
JH	60	4	10	0	4	8	4	2	6	100	JH	56	3	8	1	8	8	5	1	10	100
MP	66	1	8	0	4	8	3	2	8	100	MP	65	1	7	0	6	7	3	1	9	100
OR	64	1	8	1	5	8	3	2	8	100	OR	60	1	9	0	7	8	4	1	10	100
RJ	58	1	10	1	6	9	4	2	8	100	RJ	54	1	9	1	8	9	4	1	11	100

*0= Agriculture and allied; 1= Mining and Quarrying; 2=Manufacturing; 4=Utilities including electricity, gas and water supply; 5=Construction; 6=Trade, Hotels and Restaurants; 7= Transport, Storage and Communication; 8=Finance, business and real estate services; 9=Community, Social and Personal services; Y01=Year 2001, Y11= Year 2011

Source: Author's computations from Census of India, 2001 and 2011.

In case of male workforce (table 7.10), the percentage of workforce engaged in agriculture for Group 2 states is higher than Group 1 states. Though the percentage of workforce in agriculture has declined, there has been significant increase in the percentage of workforce engaged in Community Social and Personal services (CSP). Construction sector's share in employment is far less as compared to CSP. Thus for many states, CSP sector has seen higher positive change in the share of employment as compared to construction sector.

Table 7.11: Share of Female Workforce across states 2001-2011

Y01	0	1	2	4	5	6	7	8	9		Y11	0	1	2	4	5	6	7	8	9	
AP	77	1	10	0	2	3	0	1	6	100	AP	73	0	8	0	3	3	1	0	13	100
GJ	79	0	6	0	2	4	0	1	8	100	GJ	74	0	6	0	2	2	0	1	15	100
HR	81	0	8	0	1	2	0	1	7	100	HR	64	0	7	0	2	2	1	1	23	100
KR	73	0	12	0	1	3	0	3	7	100	KR	64	0	12	0	2	3	1	1	17	100
KL	39	1	25	0	3	5	2	3	23	100	KL	27	0	18	0	11	6	2	3	32	100
MH	79	0	7	0	2	2	1	2	8	100	MH	70	0	6	0	2	3	1	1	18	100
PB	60	0	14	0	1	3	0	3	18	100	PB	36	0	9	0	3	3	1	1	46	100
TN	66	0	17	0	1	3	0	3	9	100	TN	57	0	15	0	4	4	1	1	18	100
Y01	**0**	**1**	**2**	**4**	**5**	**6**	**7**	**8**	**9**		**Y11**	**0**	**1**	**2**	**4**	**5**	**6**	**7**	**8**	**9**	
UP	80	0	11	0	0	2	0	3	4	100	UP	63	0	8	0	1	2	0	0	26	100
WB	55	0	25	0	1	3	0	3	13	100	WB	46	0	21	0	2	3	1	0	27	100
BH	87	0	7	0	0	1	0	1	2	100	BH	77	0	4	0	1	1	0	0	18	100
CH	90	0	3	0	1	1	0	0	4	100	CH	87	0	2	0	2	1	0	0	7	100
JH	84	1	8	0	1	1	0	1	4	100	JH	78	1	6	0	3	1	0	0	11	100
MP	86	0	7	0	1	1	0	1	4	100	MP	81	0	5	0	2	1	0	0	9	100
OR	77	1	11	0	2	2	0	2	6	100	OR	73	1	8	0	4	2	0	0	13	100
RJ	89	0	5	0	1	1	0	1	3	100	RJ	82	0	4	0	5	1	0	0	7	100

*0= Agriculture and allied; 1= Mining and Quarrying; 2=Manufacturing; 4=Utilities including electricity, gas and water supply; 5=Construction; 6=Trade, Hotels and Restaurants; 7= Transport, Storage and Communication; 8=Finance, business and real estate services; 9=Community, Social and Personal services; Y01=Year 2001, Y11= Year 2011

Source: Author's computations from Census of India, 2001 and 2011.

In case of female workers (Table 7.11), in many of the Group 2 states such as Chhattisgarh, Madhya Pradesh and Rajasthan, still over 80 percent of the female workforce is dependent on agriculture for employment. There is evidence of a sharp decline in percentage of female workforce engaged in agriculture but the decline is higher in Group 1 states than in Group 2 states. For Punjab, in 2001, 60 percent of the female workforce was in agriculture, which declined to 36 percent in 2011; while in Kerala just 39 percent of the female workforce was in agriculture in 2001, which further declined to 27 percent in 2011. Another specific feature is high concentration of female workers in CSP sector but not for all the states. In case of Punjab, 46 percent of female workforce is in CSP, while in Chhattisgarh and Rajasthan only 7 percent of the female workforce was found to be engaged in CSP. It is interesting to note that in West Bengal, 25 percent of female workforce was in manufacturing sector, which even though declined to 21 percent in 2011, was still the highest across major states; while in case of Gujarat, only 6 percent of its female workforce was in the manufacturing sector. There is an enormous potential of employment generation for the female workforce in the manufacturing sector, given the low level of share of the female workforce currently engaged in manufacturing sector.

The following tables give a brief outline of urbanisation scenario and the workforce diversification scenario for the major states, before beginning the detailed district level analysis. Group 1 states (which have higher per capita incomes overall) are also the states with higher urbanisation ratios as compared to Group 2 states (as can be seen from Table 7.12).

The Workforce Diversification Index was calculated as follows (based on Simpson's Index of Diversity which is often used in ecology. This has been adapted to measure workforce diversification across the 9 major sectors (namely agriculture, mining, manufacturing, utilities, and construction, THR, TSC, FBR and CSP as discussed above). The Index was constructed as follows:

Workforce Diversification Index (WDI) = 1-[(Σ n(n-1)) / (N (N-1))], where n denotes the number of workers in each sector and N denotes the total number of workers, for each state.

Table 7.12: Urbanisation ratio and Workforce Diversification Index for major states

	Urbanisation Ratio		Workforce Diversification Index	
	2001	2011	2001	2011
Group 1				
AP	0.31	0.33	0.443	0.4
GJ	0.37	0.43	0.365	0.336
HR	0.29	0.35	0.371	0.291
KR	0.34	0.39	0.396	0.332
KL	0.26	0.48	0.205	0.174
MH	0.42	0.45	0.363	0.332
PB	0.34	0.37	0.282	0.235
TN	0.44	0.48	0.32	0.266
Group 2				
UP	0.21	0.22	0.483	0.41
WB	0.28	0.32	0.292	0.282
BH	0.1	0.11	0.635	0.57
CH	0.2	0.23	0.625	0.588
JH	0.22	0.24	0.488	0.433
MP	0.26	0.28	0.554	0.522
OR	0.15	0.17	0.481	0.434
RJ	0.23	0.25	0.504	0.448

Source: Author's computations from Census of India, 2001 and 2011.

The Workforce Diversification Index meanwhile (higher value of the index signifies higher diversification), in the has been more or less declining throughout, though the indices for Group 2 states have been larger than Group 1 states in this decade, largely due to the fact that Group 1 states were already diversifying and the structural change process in the Group 2 states was lagging behind and has only just begun to catch up slowly.

7.4. Spatial Analysis: Diversification in Industry

The diversification of workforce in industry has been slow, although there have been spurts in growth of rural non-farm sector often witnessed and discussed widely in the literature. Rural industries generally tend to be more labour intensive as compared to urban industries, and their inter-linkages with agriculture benefit both sectors, paving the way for higher growth and employment diversification at the same time by triggering multiplier effects (Mellor, undated). However, most of this rural non-farm industrial segment is small-scale and produces consumer goods to meet the changing local demands, also at the same time employing the local workforce, thus circularly also impacting demand patterns through income changes. Farm and non-farm links as well as urban proximity therefore tend to be important facets of the structural development process, reducing the pressure on urban towns and increasing urbanisation itself.

As early as the 1990s, Papola (1992) argued that over half of all manufacturing jobs seemed to be in rural areas. However, as mentioned earlier, the scale of such industries need not always be large enough, with the rural manufacturing sector majorly classified into household and non-household, and traditional and modem manufacturing (see for instance Mukhopadhyay et al, 1985; Visaria, 1995; Fisher et al, 1997). In India especially, a larger proportion of traditional rural manufacturing and household industries have been in existence, and their employment generating capacities are not very significant. By the late 1990s, Jha (2007) revealed that rural non-farm sector, especially manufacturing too started declining gradually. Manufacturing was becoming a more urban sector, with increasing forward-backward linkages with the growing construction, trade, and transport sectors. He further argued that regional factors such as demography and socio-economic development also impacted regional differentials in industrialization.

At the spatial level, Fisher et al. (1997) rural non-farm sector especially to be more developed in the states of Punjab, Tamil Nadu and Gujarat; while the tertiary sector employment and its inter-linkage with agriculture was found to be important in the case of Punjab, rural manufacturing turned out to be important for the transformation in Gujarat. Similarly, Bhaumik (2002) found manufacturing especially in the rural areas to be capable of absorbing almost upto one-fourth of the male workforce in the states of Bihar, West Bengal, Gujarat, Maharashtra, Tamil Nadu and Uttar Pradesh by the late 1990s. Moreover, services sector was found to be a major source of

non-farm employment in states such as Andhra Pradesh, Bihar, Karnataka, Madhya Pradesh, Maharashtra and Odisha.

It must also be noted that regional development in India is not a random process; it is clustered around some regions (World Bank, 2008). Region(s) also vary in terms of Socio- Economic conditions or demography and these in turn influence workforce diversification. Factors such as Geography – such as mountains, forests, proximity to rivers/plains also influence diversification, as also climatic conditions such as drought or flood(s). Studies also suggest that proximity to (small) towns has a significant effect on poverty reduction through workforce diversification; the State's role becomes important in this regard. However, these studies are based on older time-periods, and recent discussions are more focused on the increasing role of the services sector in employment generation, while manufacturing sector shows dismal employment elasticity, leading to fears of premature deindustrialization.

While the role of states and state-level as well as regional level patterns in workforce diversification and expenditure patterns were discussed in preceding chapters, the nature of work at district level and the growth in different kinds of occupations are examined in detail in this chapter to inspect the 'premature deindustrialization' hypothesis. The Census of India provides details on all districts of India in terms of workforce participation and sector and occupation of work in its General Economic Tables, which are exhaustive and also comparable over the years. Therefore, due to the best possible estimates of population at the district level, as well as concordance in occupational categories that Census data provides, data for the last decade[63], i.e. 2001 and 2011 have been analysed in this chapter to throw light on the deindustrialization discourse as well as the occupational changes in Indian labour market, corresponding to the analysis from PLFS in the preceding chapter on occupational mobility[64].

[63] Although NSS region level analysis was carried out in the preceding chapters, district as a political unit should also be analysed separately for policy and administrative issues. Moreover, NCO codes in NSS data only provide concordance upto 50 per cent, and hence comparison over time is difficult. This exercise has therefore been undertaken using the Census data.

[64] The PLFS survey is the first round of its kind released as yet, with an urban rotational panel adding new households in each quarter (constituting 25 per cent each). A region level and detailed occupation level study could be possible and more meaningful when more rounds are surveyed and released. Meanwhile, though the Census data pertain to 2011, the General Economic Tables were released more slowly, but provide a more accurate picture at the spatial level as well as in tracking occupational changes due to comparable codes.

7.5. Spatial Trends in Employment

This section uses data on employment from the Census of India (General Economic Tables) for the recent decade between 2001 and 2011, and maps the spatial trends across 468[65] districts in the major states of India (viz Andhra Pradesh, Bihar, Chattisgarh, Gujarat, Haryana, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and West Bengal). The spatial trends are analysed in terms of main workers[66] and the decadal change in absolute number of workers in each major sector of work, i.e. the decadal growth of workers in each sector. This is particularly relevant because of the following reason. Given increasing population over time (although the growth rates may have slowed down), change in share of workers in an indication of *quantum* of such change, while a *fall* (say) in *absolute* number of workers reiterates the *gravity* of such change and emphasizes that workers are moving away from that sector. This is an indication thus of 'deindustrialization' in that particular sector/ activity, while graded increases in growth of workers across sectors give an indication of quantum of increase for various groups of workers in different regions and sectors.

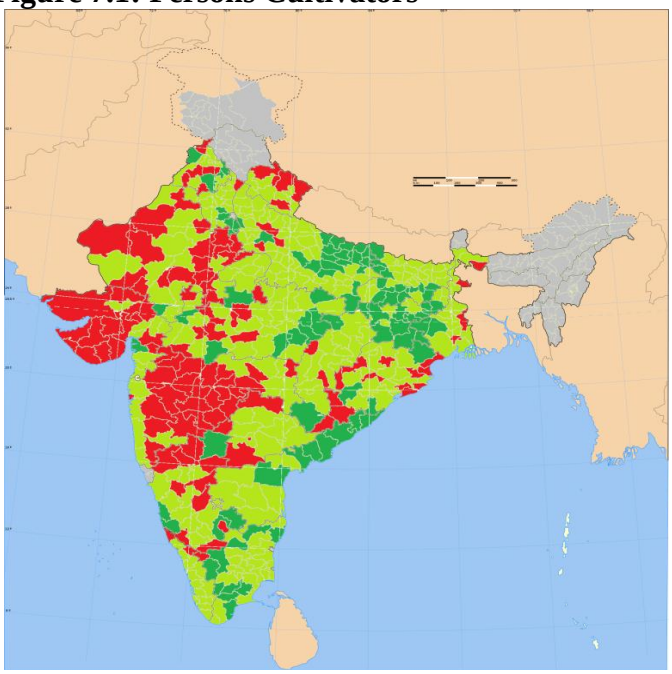
The following figures map those who are employed in agriculture as their main activity, either as cultivators or as agricultural labourers[67]. Figure 7.1 looks at growth in absolute number of workers in agriculture as *cultivators*. The lighter green shades show a fall in the absolute number of cultivators between 2001 and 2011 to the magnitude of between 1 per cent and 25 per cent (there are 254 such districts). Darker green shades show a fall in absolute number of cultivators between 2001 and 2011 to the magnitude of between 25 per cent and 90 per cent (there are 96 such districts). The regions shaded red represent increase in the absolute number of cultivators over the period (118 districts in number). Apart from clusters in Maharashtra, Gujarat, Punjab and Rajasthan, there is a general decline in the number of cultivators across districts all over India.

[65] In 2011, these major states consisted of 497 districts. Since this also includes new districts added over time as well as changes in contours, corresponding adjustment and concordance has been made for decadal comparisons between 2001 and 2011, and 468 districts are found to be comparable.

[66] Marginal workers are not included in the current spatial analysis and are analysed separately, as including shorter-term work with a more long-term nature of work would defeat the purpose of tracking and mapping change in the major sector of work.

[67] This analysis is for all persons (urban shares in agriculture are minimal and these trends therefore mainly represent rural areas).

Figure 7.1: Persons Cultivators



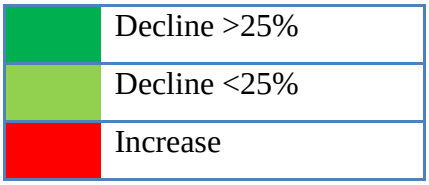


Figure 7.2: Male Cultivators

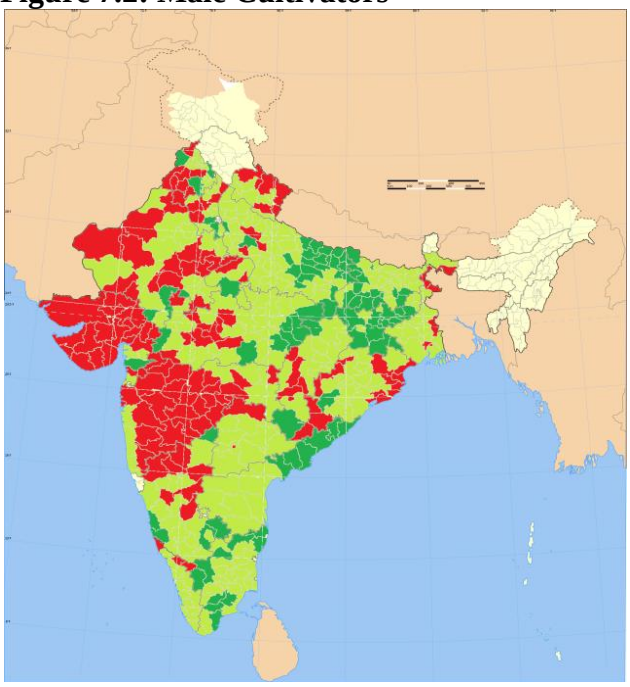
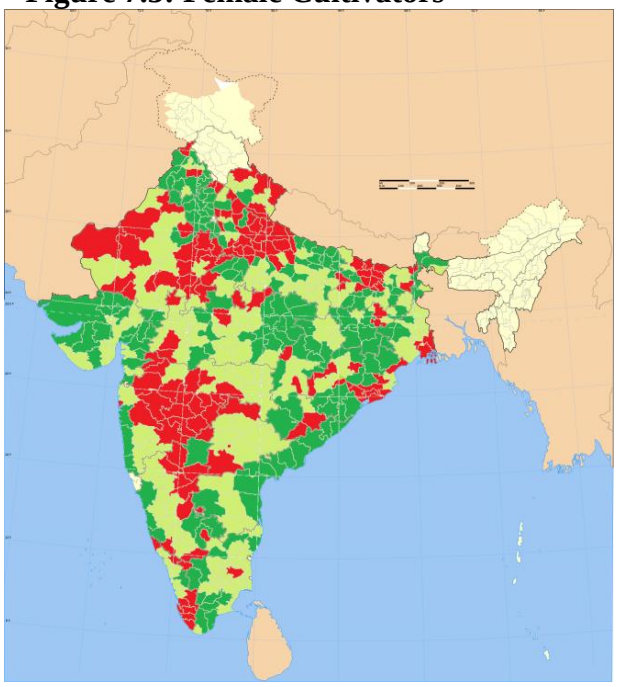


Figure 7.3: Female Cultivators



Source: Author's analysis from Census data

In case of male cultivators, 91 districts recorded a fall of over 25%, while 244 districts noted a fall of upto 25% in male cultivators. 133 districts meanwhile showed an increase in male cultivators between 2001 and 2011. The increase in male cultivators is noted almost entirely in Gujarat, Maharashtra and north-western parts of India. In the case of female construction

workers on the other hand, 171 districts noted a fall of above 25 per cent, 157 districts noted a fall of upto 25 per cent, while 140 districts recorded a growth in female cultivators between 2001 and 2011. The increase in female cultivators is seen in parts of Maharashtra and northern India, but not in Gujarat. Though the relative quantum of increase (where witnessed) is higher for females, the general overall trends suggest a decline in cultivators (male as well as female),

This would seem to suggest a gradual structural transformation away from agriculture. However, a glance at the change in absolute number of *agricultural labourers*, shows that a section of new entrants in workforce over this period have actually joined as agricultural labourers in the main capacity, which means employment opportunities elsewhere might be lower. This is more disturbing, given the evenness of spread across districts in India, as can be seen from Figure 7.4. The green shade represents a fall in absolute number of agricultural labourers during the period between 2001 and 2011 (recorded in around 65 districts). The yellow shades show an increase in agricultural workers to the magnitude of between 1 per cent and 50 per cent (223 districts). Orange shades represent an increase in absolute number of agricultural workers to the magnitude of between 51 per cent and 100 per cent (seen in 114 districts), while red shows an increase to the magnitude of over 100 per cent (recorded in 66 districts).

Figure 7.4: Persons Agricultural Labourers

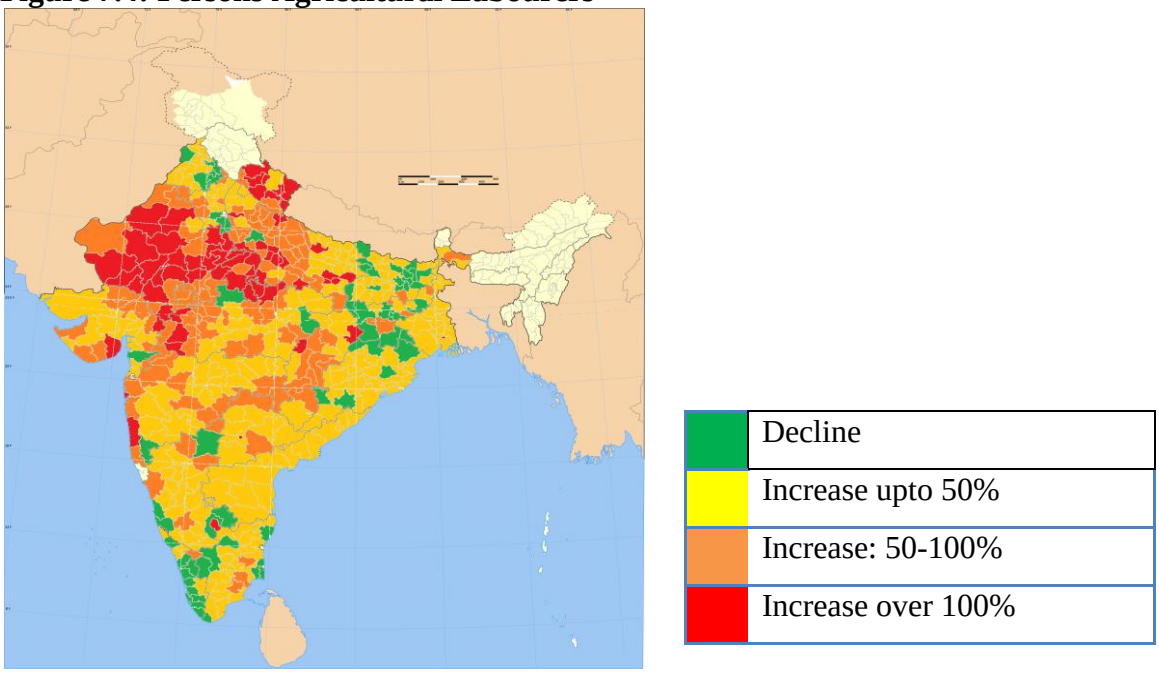


Figure 7.5: Male Agricultural Labourers

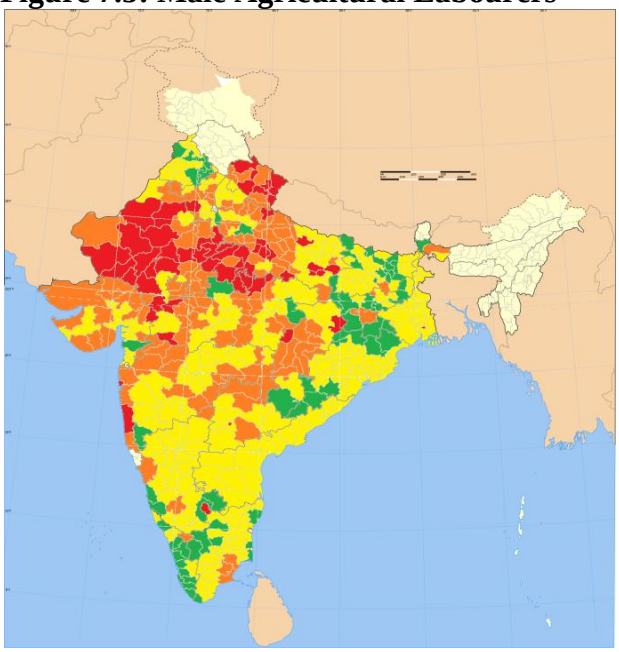
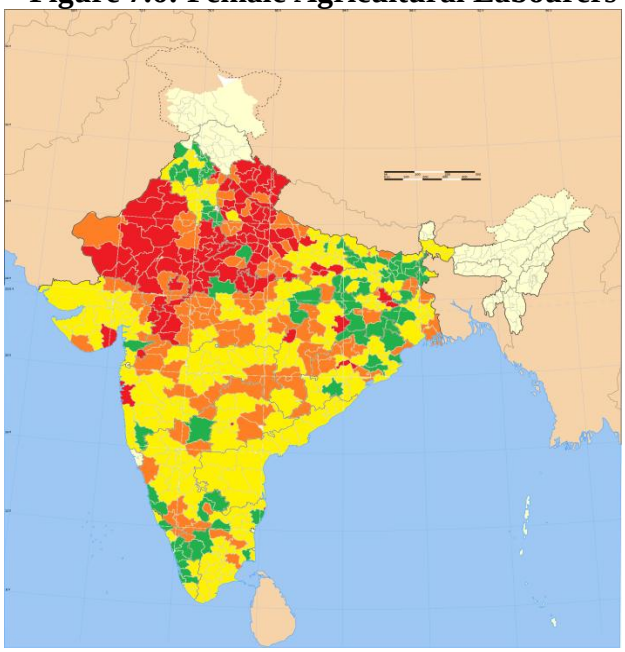


Figure 7.6: Female Agricultural Labourers



Source: Author's analysis from Census data

Figures 7.5 and 7.6 map the growth of number of male and female agricultural workers between 2001 and 2011. In the case of male agricultural workers, a decline is seen in 68 districts. However, an increase of upto 50 per cent is seen in 218 districts, an increase between 50 and 100 per cent in 123 districts, while a higher increase of over 100 per cent is seen in 59 districts for male agricultural labourers. The decline is spread over parts of Bihar and Kerala, while a general increase is seen overall. The highest growth is seen in northern parts of India. In case of female agricultural labourers, a decline was noted for 77 districts out of the 468 districts studied. An increase of upto 50 per cent was seen in 189 districts, an increase between 50 and 100 per cent in 106 districts, while a higher increase of over 100 per cent was recorded in 96 districts for female agricultural labourers, with the larger increase concentrated in northern India.

Although increase in workers with increase in population may be expected, northern part of India including Rajasthan, Punjab and Uttar Pradesh show almost a doubling of agricultural workers (in general larger for women), while the only decline in the absolute number of agricultural workers (desirable for structural change) is seen in Kerala and some parts of Eastern India. This also provides some support to the theory of feminization of agriculture in northern India. For a clean structural shift away from agriculture, decline in absolute number of workers in agriculture would be desirable so

that they enter more productive non-agricultural jobs to complete the transformation. However, there is little evidence of the same except in a few pockets, while there is evidence of large increases in others.

Investigating the Premature Deindustrialization Hypothesis

The scenario would not be bleak if there were large increases in employment in the manufacturing sector. Figures 7.7, 7.8, 7.9, 7.10 and 7.11 look at the change in absolute number of industrial workers across India over the period between 2001 and 2001 for all persons, males, females as well as rural and urban areas. The hypothesis of premature deindustrialization can thus be loosely tested in terms of growth of employment (workers) in manufacturing over the decade between 2001 and 2011, especially given the backdrop of the literature of increasing rural "*non-farm"* sector in previous chapters. Therefore here, only the declines in absolute terms of workers in manufacturing sector are shown for this purpose. The orange shades represent upto a 25 per cent fall in absolute number of workers in manufacturing, while the red shades describe a decline in absolute number of workers in manufacturing to the magnitude of over 25 percent.

Figure 7.7: Persons Industry (Manufacturing)

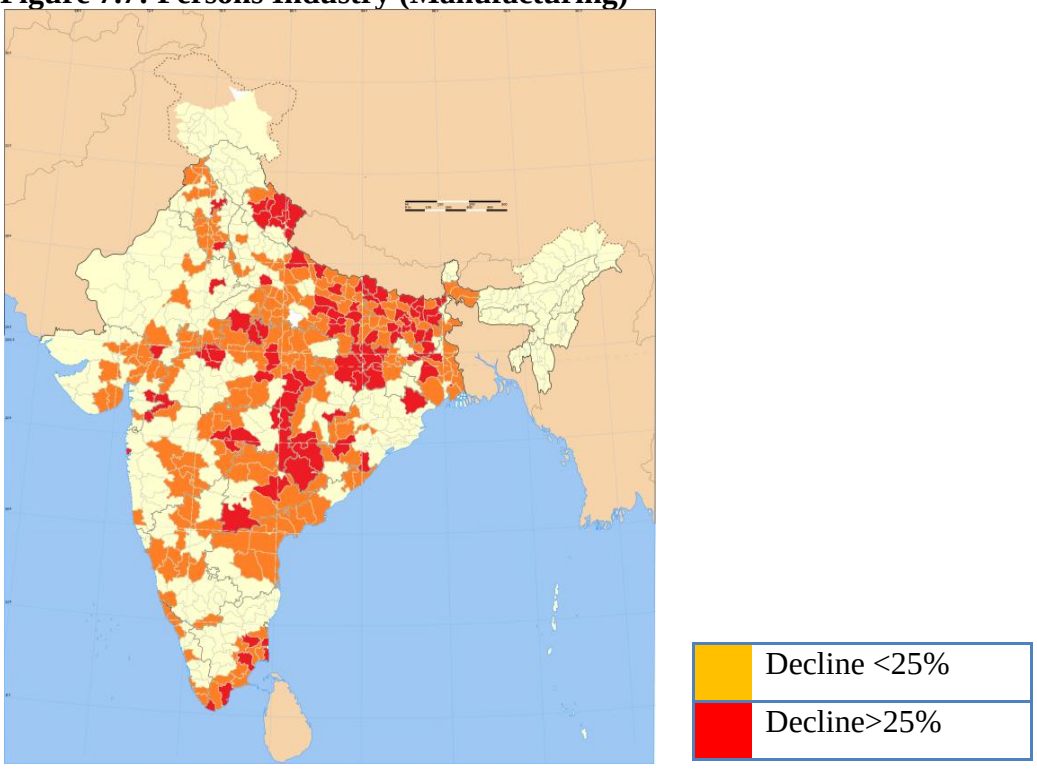


Figure 7.8: Male Industry

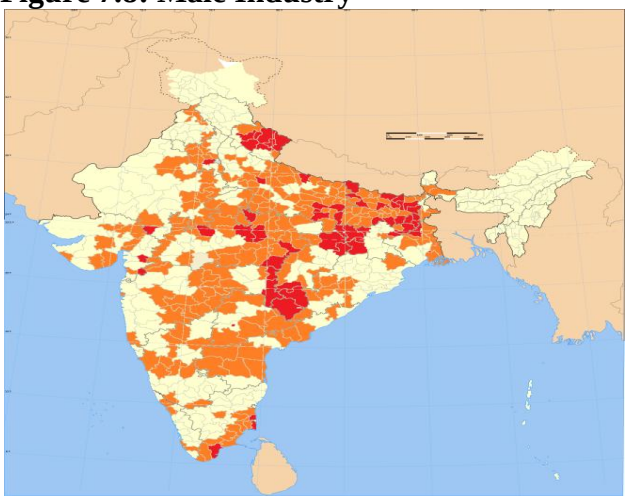
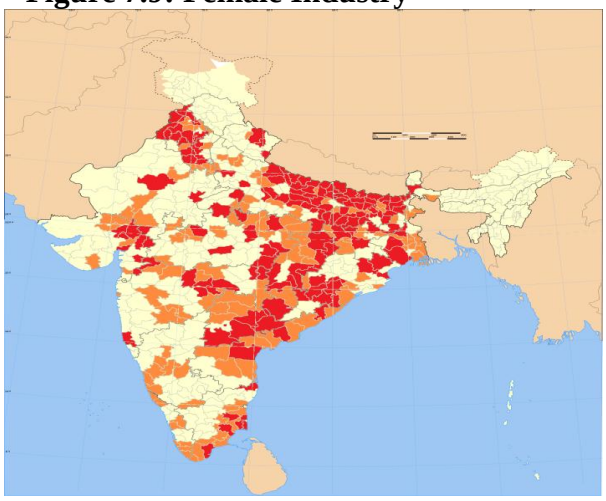


Figure 7.9: Female Industry



In case of industrial workers (manufacturing sector), a decline of over 25 per cent was recorded for 93 districts, while a decline of upto 25 per cent was seen in 189 districts of the total 468 districts. Such a widespread decline in manufacturing sector workers is a disturbing trend, especially for a developing country such as India poised for an evenly spread structural transformation, with declining worker shares and growth of workers in agriculture sector (on an average). In case of male workers in manufacturing, a fall of upto 25 per cent was witnessed in 222 districts, while a larger decline of over 25 per cent was seen in 59 districts. Similarly, for female workers in manufacturing sector, out of the 468 districts under consideration, a fall of upto 25 per cent was seen in 119 districts while a larger decline of over 25 per cent between 2001 and 2011 was witnessed in 156 districts, highlighting widespread deindustrialization.

Figure 7.10: Rural Industry

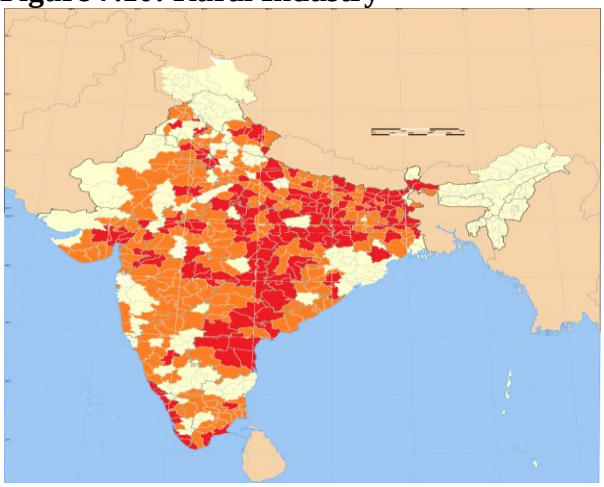
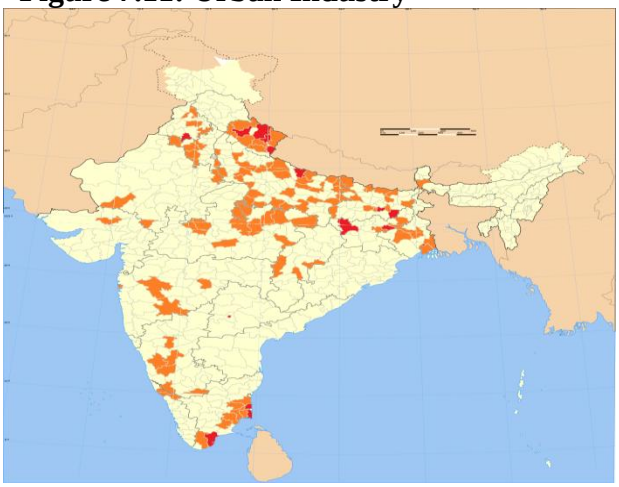


Figure 7.11: Urban Industry



Source: Author's analysis from Census data

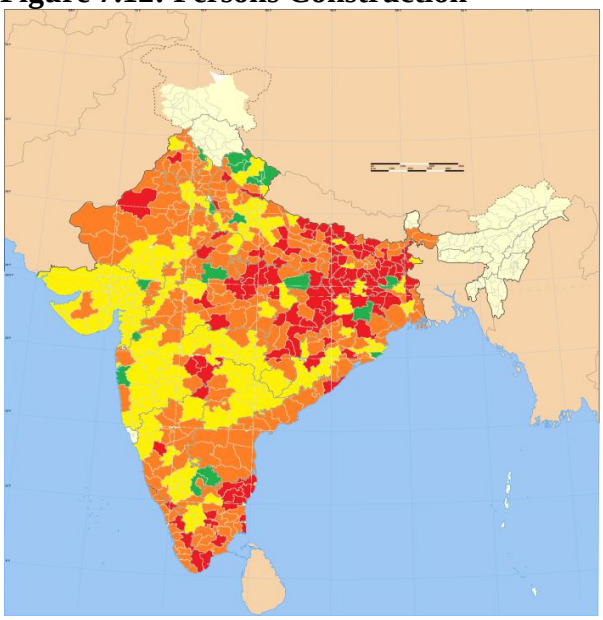
Additionally, when the growth of workers in manufacturing sector was plotted for rural and urban areas, under the increasing debates and discourses on 'rapidly expanding rural non-farm employment', the condition of growth of manufacturing sector workers in rural areas shows huge declines. Figures 7.10 and 7.11 show the trends in rural and urban areas between 2001 and 2011. In case of urban areas, a decline was noted for 119 districts out of the 468 districts, while major increases were little (parts of India which were already highly industrialised such as Gujarat and Tamil Nadu remained industrialised, while a spread of industrialization was missing when compared with Figure 7.7 which shows the aggregate picture.

In case of rural areas however, stark decline in industrial workers is visible, where out of the 468 districts studied, a fall of upto 25 per cent was seen in 202 districts, while a larger decline of over 25 per cent was witnessed in s many as 158 districts. The case of premature deindustrialization is captured in these maps clearly, as an absolute decline in industrial workers while employment in agriculture is still high, shows severe issues with India's structural transformation. The scenario of employment in the manufacturing sector at the aggregate does not seem to be as bleak as that for rural India, which shows decline in almost all districts across India in terms of employment in industry. As far as the debate on rural non-farm sector's growth has been growing in India, the employment in rural manufacturing in particular does not seem to present an encouraging scenario.

Domination of Construction?

The general trends in decline of workers in agriculture have therefore clearly not been absorbed by the manufacturing sector, which has itself been losing workers. The question then is: where have all these workers gone? The construction sector has been seen to have been absorbing a lot of workers who are leaving agriculture (either as a main or a subsidiary activity to support income). In terms of spatial distribution of construction workers, Figure 7.12 maps the growth in construction workers across districts. Only 19 districts of the 468 show a decline in construction workers, while 130 districts showed an increase of upto 50 percent, 213 districts saw an increase between 50 and 100 per cent, while 106 districts saw an increase of over 100 per cent.

Figure 7.12: Persons Construction



	Decline
	Increase <50%
	Increase between 50-100%
	Increase >100%

Figure 7.13: Males Construction

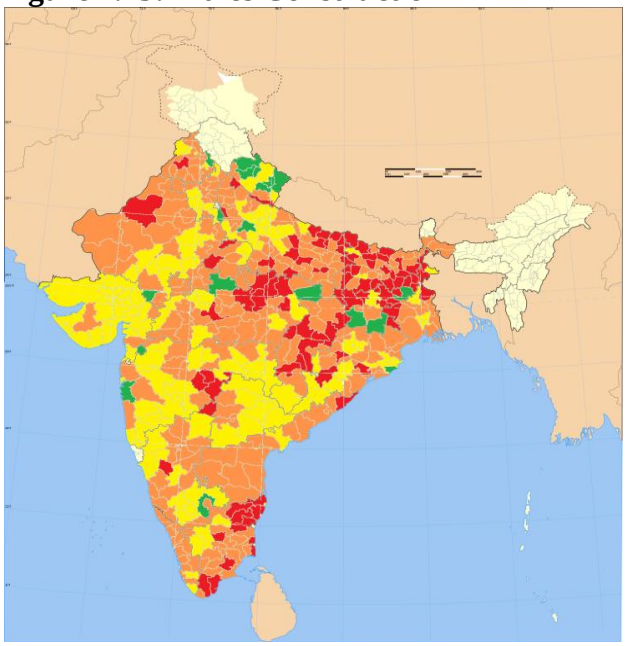
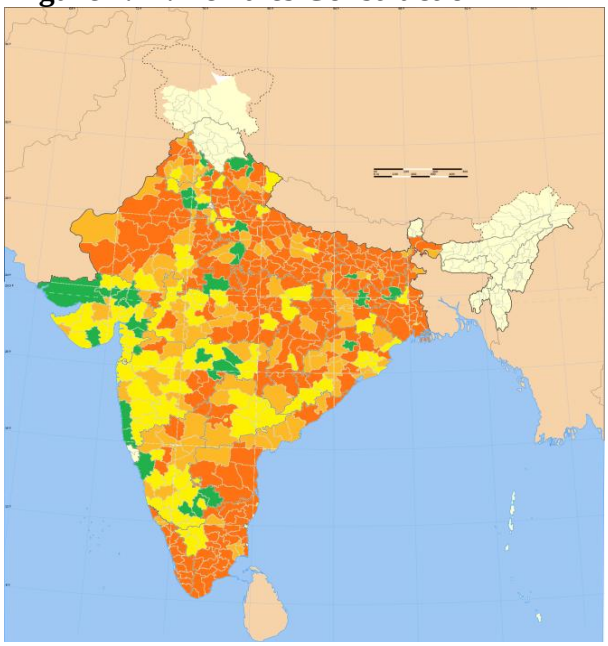


Figure 7.14: Females Construction



Source: Author's analysis from Census data

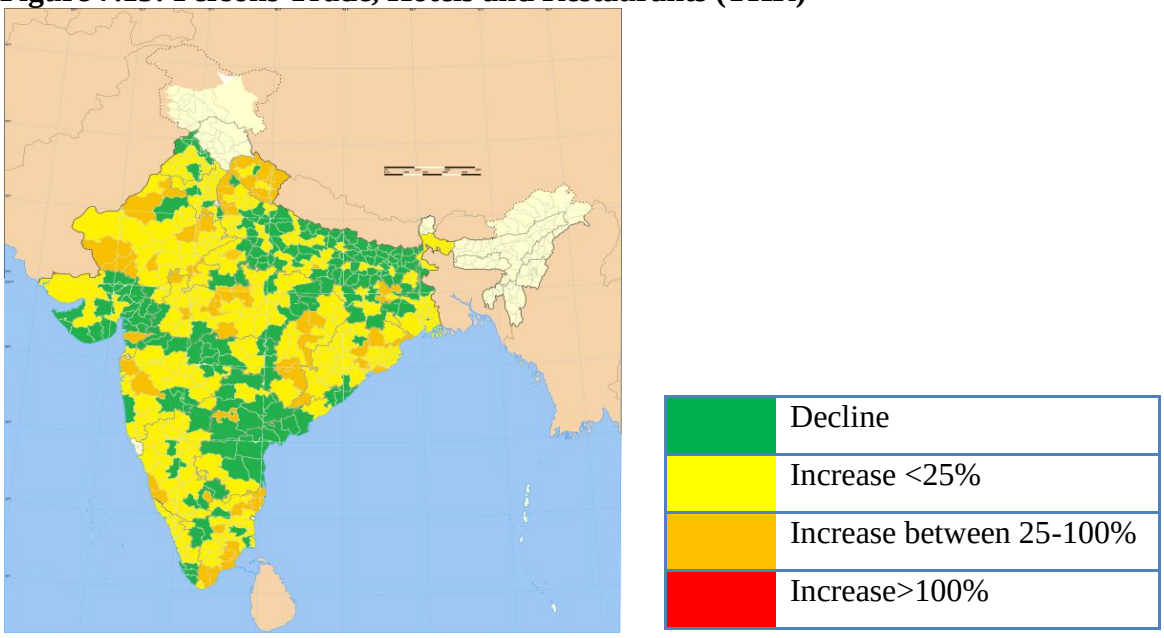
The quantum of increase of male construction workers is however higher than for females as can be seen from Figures 7.13 and 7.14. In case of male construction workers, a decline in construction workers was seen in 19 districts, while an increase of upto 50 per cent was seen in 130 districts. A larger increase of between 50 and 100 per cent was seen in 225 districts and over 100 per cent increase was seen in 94 districts. For females, although increase was witnessed

overall, the magnitude was lower[68]. The highest increases in construction workers (males) was seen in parts of Bihar, Uttar Pradesh, and Odisha as well as parts of Tamil Nadu, while more moderate rates of increase are seen in case of North-Western parts of India, almost the entire North of India and large parts of Southern India.

Increasing Role of Service Sector?

While it is evident that construction became one important sector to absorb agricultural workers, the decline in agricultural and manufacturing workers has been absorbed majorly by the (informal) service sector in India. However it remains to be determined at the spatial level, which service sector absorbs most of these workers. The growth of workers in each service sector group is mapped in this section. Figure 7.15 maps growth of workers in Trade, Hotels and Restaurants (THR). A decline in workers in THR was seen in the case of 176 districts, while an increase of upto 25 per cent was seen in 227 districts. Larger increases above 25 per cent were seen only in 65 out of the 468 districts.

Figure 7.15: Persons Trade, Hotels and Restaurants (THR)



[68] Also, initial lower shares often lead to magnified quantum of change.

Figure 7.16: Male THR

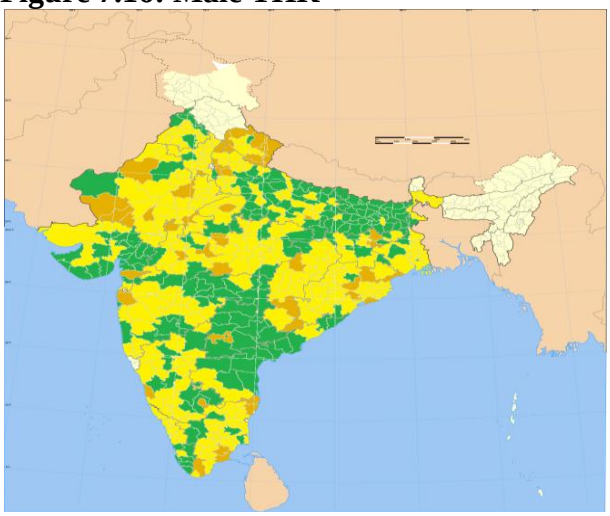
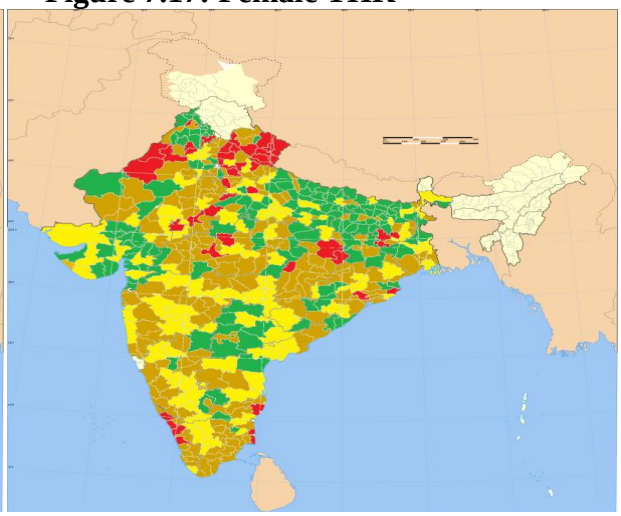


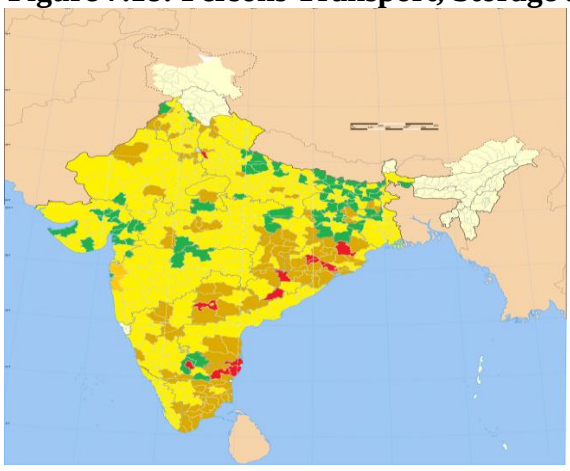
Figure 7.17: Female THR



Source: Author's analysis from Census data

Similarly, in the case of male workers in THR (see Figure 7.16), a decline was seen in 181 districts, an increase upto 25 per cent in 237 districts, while a larger increase over 25 per cent only in 50 districts. On the other hand, for female THR workers (Figure 7.17), a fall was witnessed in 143 districts, while an increase upto 25 per cent was seen in 109 districts, an increase between 25 and 100 per cent in 172 districts, and a high increase (over 100 per cent) in 44 districts out of the 468 districts. Overall, the decline in THR workers was seen in Northern India, Central India, and parts of Gujarat. The maximum increase of female THR workers was witnessed in parts of North India and coastal parts of Southern India. Now, if THR was not the most major service sector absorbing surplus workers, another major service sector is Transport, Storage and Communications (TSC). The growth of workers (males and females) in TSC is given below.

Figure 7.18: Persons Transport, Storage and Communication (TSC)



	Decline
	Increase <50%
	Increase between 50 to 100%
	Increase>100%

Figure 7.19: Male TSC

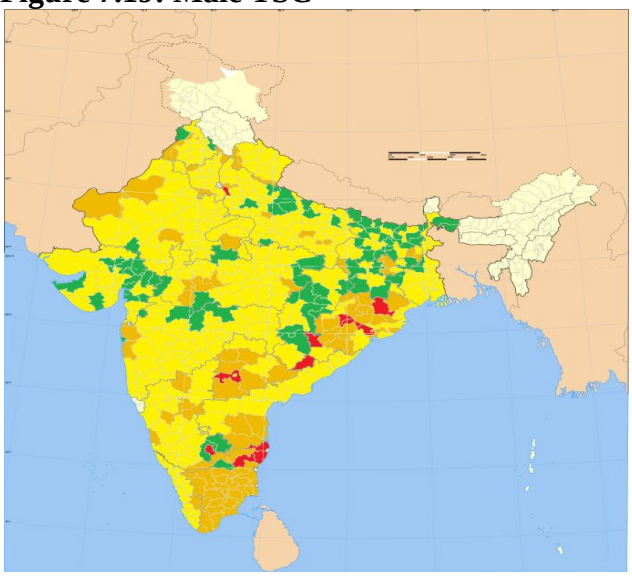
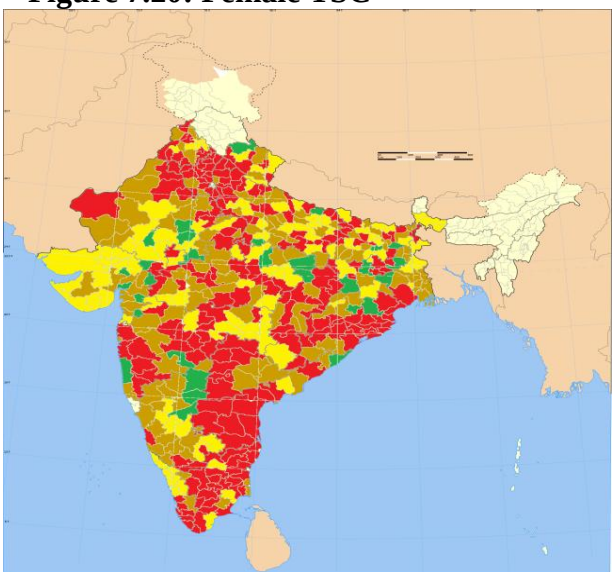


Figure 7.20: Female TSC

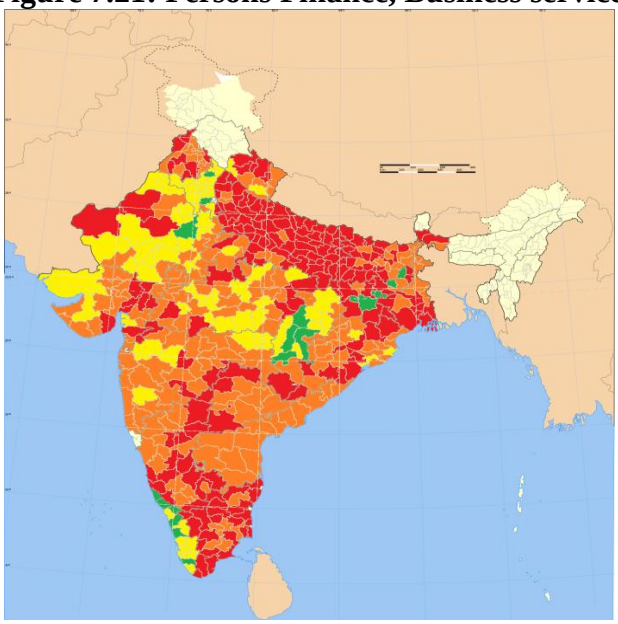


Source: Author's analysis from Census data

In general, persons employed in TSC showed a decline in 65 districts, increased upto 50% in 288 districts, increased between 50 and 100 per cent in 103 districts, while 12 districts saw an increase of TSC workers by over 100 per cent. In case of male TSC workers, 68 out of the 468 districts saw a decline, 293 districts saw an increase upto 50 per cent, 95 districts saw an increase between 50 and 100 per cent, while 12 districts saw a high increase over 100 per cent in male TSC workers. On the other hand, high increase over 100 per cent was witnessed for as many as 207 of the 468 districts in case of female TSC workers (essentially in communications, as women's share in transport and storage activities is relatively lower). The highest rise for women was seen in the northern and southern most parts of India (Tamil Nadu and Andhra Pradesh). Moderate increase between 50 and 100 percent (123 districts) and upto 50 per cent (106 districts) was also seen, while 31 districts saw a decline.

While some increase was seen in workers in TSC sector, the Finance, Business and Real Estate services (FBR) sector also showed 'deindustrialization' in terms of declining workers over time in absolute terms across almost all districts, and in higher magnitude for female FBR workers. The spatial trends for the same are shown below. On an average, out of the 468 districts, only 18 districts saw an increase in FBR workers. 82 districts saw a decline of upto25 percent, 175 districts saw a decline of between 25 and 50 per cent while as many as 193 districts saw a decline of over 100 per cent in FBR workers.

Figure 7.21: Persons Finance, Business services and Real Estate (FBR)



	Increase
	Decline <25%
	Decline 25-50%
	Decline>50%

Figure 7.22: Male FBR

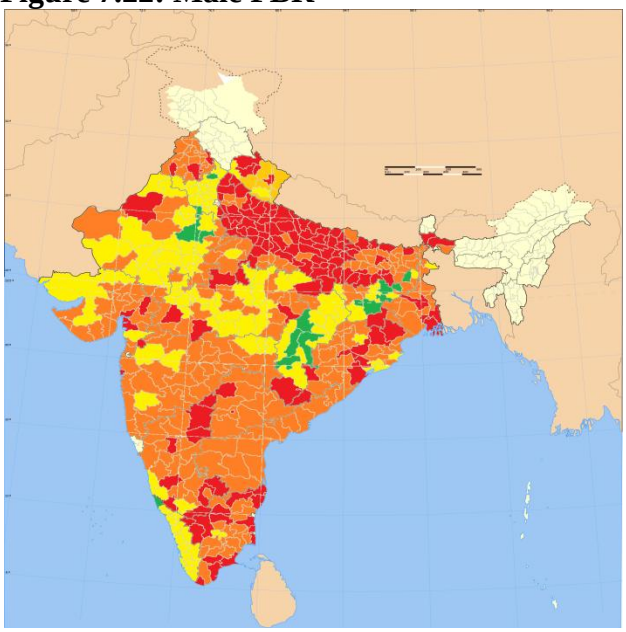
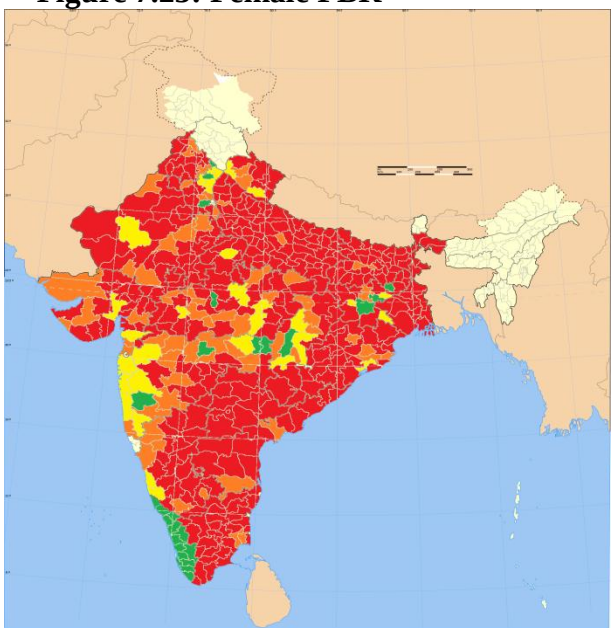


Figure 7.23: Female FBR



Source: Author's analysis from Census data

In case of male FBR workers, only 15 districts saw an increase. A decline upto 25 per cent was witnessed in 104 districts and much higher decline in 140 districts out of the 468 districts. For female FBR workers, the situation was even worse; decline of over 50 per cent was witnessed in as many as 345 out of the 468 districts and declines of lower magnitudes in the remaining, while increase was only seen in 26 districts.

Therefore, deindustrialization has been rampant not just in the manufacturing sector (as well as agriculture), but also within services (the more productive service sectors). Highest increases in workers during this period have been witnessed in Community, Social and Personal services (CSP), which includes regular jobs such as teaching, administrative work and so on, as well as constitutes the highest number of informal work such as beauticians, domestic workers and so on, an increase in which has been documented for women (see Thimothy, undated).

Figures 7.24, 7.25 and 7.26 map the growth of workers in CSP (persons, males and females). Overall, only 9 districts saw an absolute decline in CSP workers. Out of the 468 districts, 106 districts saw an increase upto 50 per cent, 206 districts saw an increase between 50 and 100 per cent, and 147 districts saw an increase over 100 per cent. Similarly, in case of male CSP workers, 13 districts saw a decline. Meanwhile, 217 districts saw an increase upto 50 per cent, 168 districts saw an increase between 50 and 100 per cent, and 70 districts saw an increase over 100 per cent for male CSP workers. In case of female CSP workers as well, out of 468 districts, 331 districts saw an increase over 100 per cent, 110 districts saw an increase between 50 and 100 per cent, and 25 districts saw an increase upto 50 per cent for female CSP workers. The magnitude of this increase has been much higher for females, while the magnitude of increase for males has been relatively lower, across almost all districts under consideration.

Figure 7.24: Persons Community, Social and Personal Services (CSP)

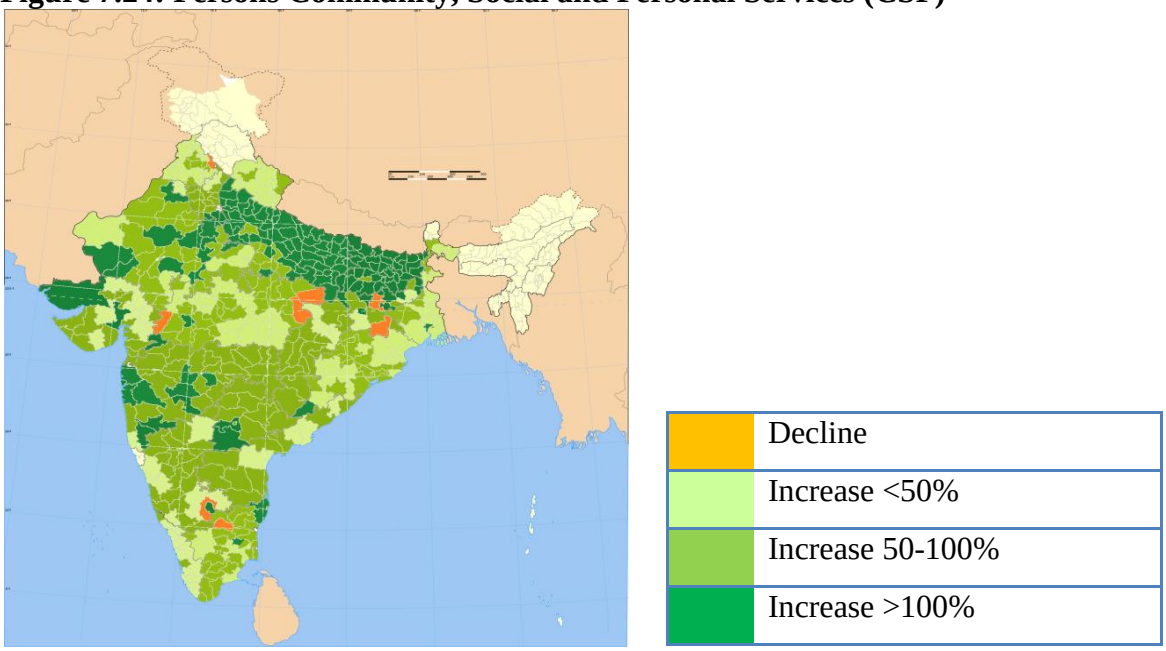


Figure 7.25: Males CSP

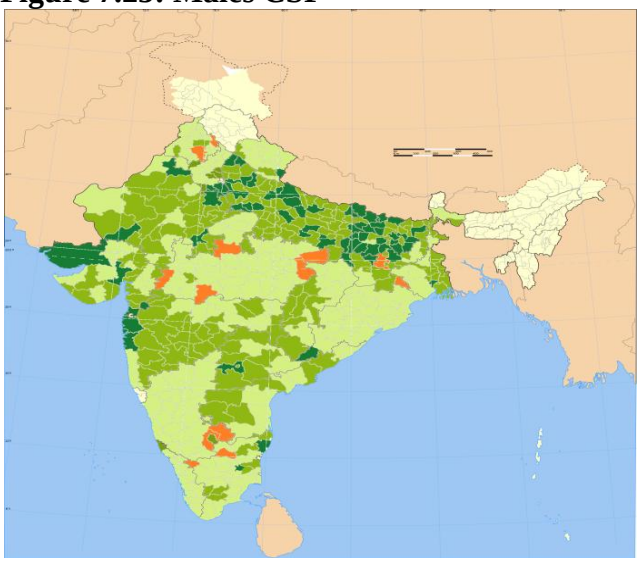
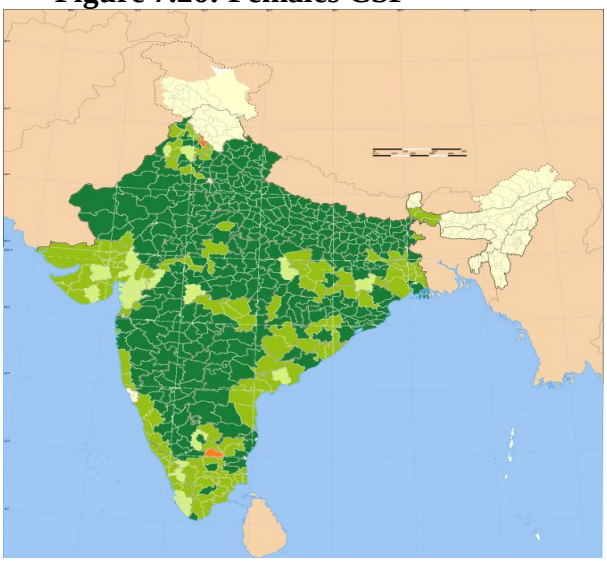


Figure 7.26: Females CSP

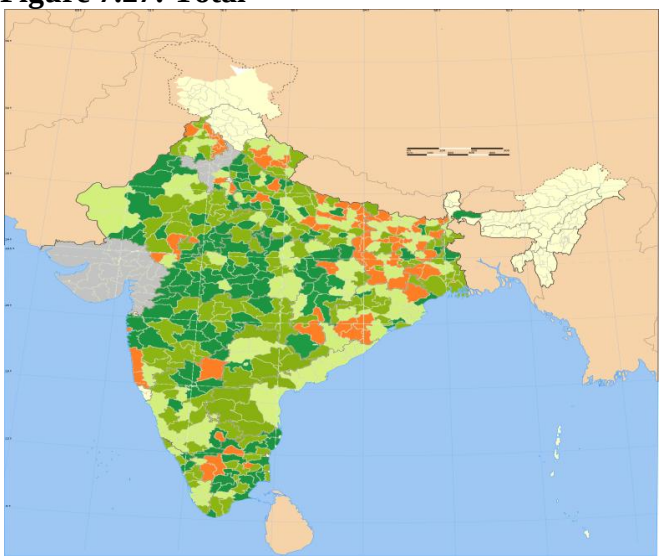


Source: Author's analysis from Census data

Employment Elasticity: District Level

This section looks at employment elasticity at the district level, given the structural transformation moving away from agriculture and manufacturing in general, and under evident deindustrialization in terms of workers. Figures 7.27, 7.28 and 7.29 map employment elasticity at district level for persons, male and females[69]; employment elasticity has become negative in parts of Eastern India in general, while overall, employment elasticity has been moderate.

Figure 7.27: Total



	Decline (Negative)
	<0.04
	0.04 to 0.08
	>0.08

[69] GDP is not available at the district level for rural and urban areas. District level at GDP is also not available for Gujarat and Haryana.

Figure 7.28: Male

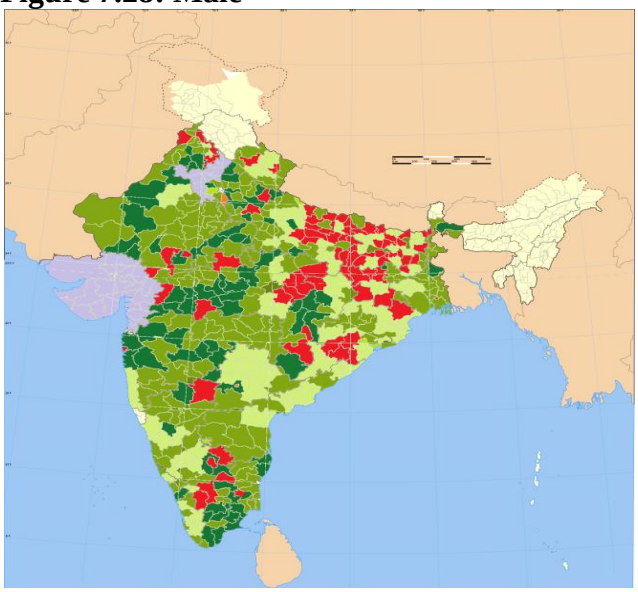
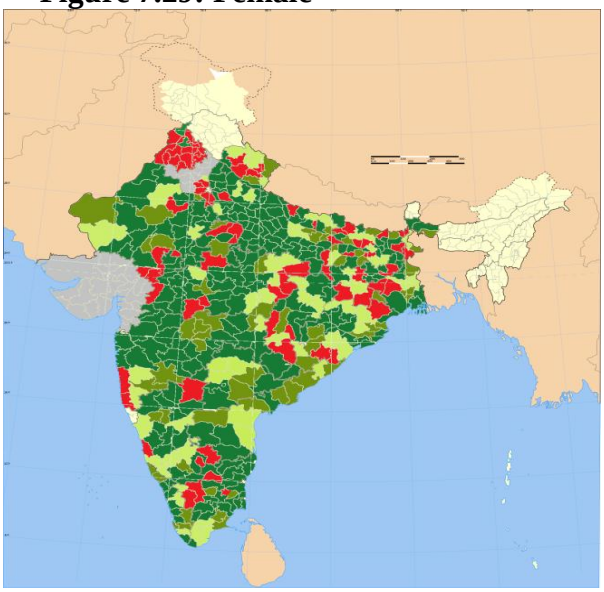


Figure 7.29: Female



Source: Author's analysis from Census data

The employment elasticity in the case of males has remained underwhelming, while it became negative in parts of Bihar, Jharkhand and Odisha. Meanwhile, in the case of females, although the increase in GDP at the district level did not increase employment significantly, the ratio was relatively higher than in the case of males between 2001 and 2011, especially in the southern and central parts of India in the more developed regions.

Workforce diversification and growth of employment have no doubt been slacking over the years in terms of a significant structural change, and there is visible evidence of increasing deindustrialization, not just in the manufacturing sector, but also in FBR. Any shift from agricultural work is seen to be towards construction or services sector activities, as seen in earlier chapters as well. This raises the question of the nature of jobs in terms of *occupations* and *tasks* that have been evolving over time.

7.6. Evolving Nature of Jobs: Occupational structures

The occupation structure within different industrial categories is an indication of the kinds of jobs that have been evolving within different sectors of work, and whether the workforce diversification patterns that have been witnessed in the last decade have given rise to higher category tasks or in more elementary and basic low-skill occupations. This is shown in Table 4, which lists the types of occupations that workers engaged in within the industrial sector of their

work, and the changes between 2001 and 2011. This kind of analysis is more feasible using Census data due to the complete concordance between occupations, which is lacking in the NSS data for comparisons over rounds especially since 2004-05. Since the post 2000s have proved to be another major time period in the post-reforms period with major changes in structural transformation in the form of declining shares of work in agriculture and rise in rural construction work following the NREGA, as well as an increased casualisation and informalisation in the labour market as discussed in the previous chapters, Census 2001 and 2011 data have been studied in this section exclusively to understand the occupational structure within the different sectors of work and the changes in these patterns. With the changing scenario observed in the PLFS data of 2017-18, it may well be expected that the Census data in 2021 will present a more detailed picture.

Table 7.13 classifies the occupation categories into high, medium and low categories across all workers. The 'high category' consists of occupations and jobs/ tasks such as legislators, senior officials and managers, professionals, technicians and associate professionals. The 'medium category' consists of skilled agricultural and fishery workers, craft and trades workers, and occupations related to plant and machine operating and assembling. Finally, the 'low category' occupations consist of clerks, service workers, sales tasks and elementary occupations not requiring high levels of skills.

Table 7.13 suggests that at the all-India level, across all workers, shares of high category occupations in the CSP sector increased. In the medium category occupations, a high share of crafts and trade work especially in industrial sector (16.5 per cent) was seen in 2001, which decreased to 11.7 per cent in 2011. In the services sector, (13.6 per cent service and shop workers in THR and TSC and 4.5 per cent in CSP as well as 3.5 per cent in elementary occupations in CSP), a high share of low category occupations was seen in 2001, which has remained high in 2011 as well and increased in CSP, which had a high share of 9.5 per cent of workers not classified by occupations. Professionals in CSP constituted 3.5 per cent across all workers. Across all workers, in 2001, legislators, senior officials and managers formed 1.1 per cent, which increased to 1.6 per cent in 2011. In the professionals' category of occupation, 3.7 percent professionals in the CSP sector were found overall which fell to 3.5 per cent in 2011. Technicians and associate professionals in CSP constituted 4.5 per cent of all workers in 2001,

which increased to 5.8 per cent in 2011. Overall, high category jobs in industry which constituted 1.5 per cent of all work in 2001 increased marginally to 1.8 per cent in 2011. High category jobs were highest in CSP sector (9.1 per cent in 2001, which increased to 10.5 per cent in 2011. Overall, high category jobs in 2011 constituted only 18 per cent of all work. Among the medium category jobs, skilled agricultural and fishery workers fell from 4.2 per cent in 2001 to 2.6 per cent in 2011. Crafts and trades workers in industry constituting 16.5 per cent in 2001 fell to 11.7 per cent in 2011. Plant and machine operators in industry fell from 3.9 per cent in 2001 to 3.3 per cent in 2011 and the share of such jobs in THR and TSC saw an increase. Overall, medium category jobs in 2011 constituted 30 per cent of all work. Share of clerk positions in FBR and CSP declined, as did the share of service work in THR, TSC and CSP. Elementary occupations retained a high share of 17 per cent overall. The low category occupations have dominated over time. Half of the jobs are still in low category and the trend has been continuing.

The situation of occupational transformation as seen in Table 7.13 presenting the all-India scenario has been very limited, with an increase in share of low category jobs from 48 per cent in 2001 to almost 52 per cent in 2011. A summary of state wise analysis across sectors of work and occupations across time is given in the following section, where the states have been grouped as in the previous chapters based on their per capita income levels. The groupings are as follows:

- ***Group 1 (Laggard States):*** States with lower per capita income including Bihar, Jharkhand, Madhya Pradesh Chattisgarh, Rajasthan, Uttar Pradesh and Uttarakhand along with Odisha, Jharkhand, Chattisgarh and West Bengal.
- ***Group 2 (Developing States):*** States with higher per capita income including Tamil Nadu, Maharashtra, Gujarat, Punjab, Haryana, Andhra Pradesh, Karnataka and Kerala.

Table 7.13: NIC and NCO- A cross-tabulation describing the quality of jobs

INDIA	INDUSTRIAL CATEGORY 2001							INDUSTRIAL CATEGORY 2011						
NCO	**Agri**	**Ind**	**Cons**	**THR, TSC**	**FBR**	**CSP**	**Total**	**Agri**	**Ind**	**Cons**	**THR, TSC**	**FBR**	**CSP**	**Total**
LEGISLATORS, SENIOR OFFICIALS AND MANAGERS	0.1	0.6	0.3	1.1	0.3	0.9	**3.3**	0.0	0.8	0.3	1.6	0.4	1.2	**4.3**
PROFESSIONALS	0.0	0.5	0.1	0.3	0.8	3.7	**5.3**	0.0	0.5	0.1	0.9	0.6	3.5	**5.6**
TECHNICIANS AND ASSOCIATE PROFESSIONALS	0.1	0.5	0.1	0.4	0.9	4.5	**6.4**	0.0	0.5	0.2	0.6	1.0	5.8	**8.0**
High Category	**0.2**	**1.5**	**0.5**	**1.7**	**2.0**	**9.1**	**15.0**	**0.1**	**1.8**	**0.6**	**3.0**	**1.9**	**10.5**	**17.9**
SKILLED AGRICULTURAL AND FISHERY WORKERS	4.2	0.1	0.0	0.3	0.0	0.2	**4.8**	2.6	0.1	0.0	0.2	0.0	0.1	**3.0**
CRAFT AND RELATED TRADES WORKERS	0.0	16.5	3.5	2.7	0.2	0.4	**23.3**	0.0	11.7	4.0	1.7	0.0	1.0	**18.4**
PLANT AND MACHINE OPERATORS & ASSEMBLERS	0.3	3.9	0.2	4.1	0.2	0.4	**9.0**	0.1	3.3	0.2	4.9	0.0	0.5	**9.0**
Medium Category	**4.6**	**20.5**	**3.6**	**7.0**	**0.4**	**1.0**	**37.1**	**2.7**	**15.2**	**4.2**	**6.7**	**0.1**	**1.6**	**30.3**
CLERKS	0.1	0.7	0.1	0.9	1.2	1.8	**4.8**	0.0	0.5	0.1	0.7	0.6	1.7	**3.5**
SERVICE WORKERS & SHOP & MARKET SALES WORKERS	0.2	0.9	0.1	13.6	0.6	4.5	**19.8**	0.1	0.6	0.1	12.6	0.1	3.7	**17.1**
ELEMENTARY OCCUPATIONS	1.8	3.1	3.9	4.1	0.6	3.5	**17.0**	1.5	3.1	6.1	3.2	0.1	3.1	**17.0**
WORKERS NOT CLASSIFIED BY OCCUPATIONS	0.3	2.5	0.1	0.9	1.8	0.8	**6.4**	0.2	3.2	0.1	0.9	0.2	9.5	**14.1**
Low Category	**2.3**	**7.1**	**4.1**	**19.6**	**4.1**	**10.6**	**48.0**	**1.7**	**7.4**	**6.3**	**17.4**	**1.0**	**17.9**	**51.8**
TOTAL	**7.1**	**29.1**	**8.2**	**28.4**	**6.6**	**20.7**	**100.0**	**4.5**	**24.4**	**11.1**	**27.2**	**3.0**	**29.9**	**100.0**

*AGRI: Agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's computations from Census of India, 2001 and 2011.

Table 7.14: NIC X NCO: *Group 1 states*

BIHAR	2001			2011		
	High	Med	Low	High	Med	Low
Agri	0.3	4.9	2	0	1.4	0.3
Ind	0.6	19.8	8.1	0.5	10.9	6.8
Cons	0.4	2.6	2.5	0.5	2.8	6
THR, TSC	0.9	5.6	25.2	1	4	19.1
FBR	1.8	0.3	4.5	1.6	0.1	0.8
CSP	10.2	0.4	9.9	13.4	1.4	29.4
Total	**14.1**	**33.6**	**52.2**	**17**	**20.6**	**62.4**

JHAR-KHAND	2001			2011		
	High	Med	Low	High	Med	Low
Agri	0.3	2.8	1.4	0.1	0.8	0.9
Ind	2.6	26	10.1	2.3	13.9	11.9
Cons	0.6	2.4	4.2	0.7	3.1	9.5
THR, TSC	1.2	7.2	18.9	1.8	5.7	19.4
FBR	1.4	0.4	2.6	2	0.2	0.9
CSP	8.8	0.8	8.4	10.7	2.2	14.1
Total	**14.9**	**39.6**	**45.6**	**17.6**	**25.8**	**56.7**

UTTAR PRADESH	2001			2011		
	High	Med	Low	High	Med	Low
Agri	0.1	2.9	1.2	0.1	2.1	1
Ind	0.8	23.1	9.3	0.8	15.2	8.6
Cons	0.2	2.8	4	0.4	2.8	6.1
THR, TSC	1	5.7	21.5	1.7	4.5	18
FBR	1.8	0.5	5.9	1.6	0	0.8
CSP	8.3	0.8	10.2	9.1	1.5	25.7
Total	**12.2**	**35.7**	**52.1**	**13.7**	**26.2**	**60.1**

UTTARA-KHAND	2001			2011		
	High	Med	Low	High	Med	Low
Agri	0.5	2.5	2.8	0.2	0.9	1.4
Ind	1.8	12.1	7.6	1.7	7	6.7
Cons	0.8	4.2	6	0.7	4.2	6.5
THR, TSC	1.5	5.4	18.4	2.6	6.4	18.4
FBR	1.9	0.5	4.3	1.9	0.1	1
CSP	13	1.4	15.5	16.3	2.6	21.7
Total	**19.4**	**26**	**54.6**	**23.4**	**21.1**	**55.6**

MADHYA PRADESH	2001			2011		
	High	Med	Low	High	Med	Low
Agri	0.2	4.8	0.6	0	2.5	0.5
Ind	1.3	21.1	6.7	1.2	14.2	7.3
Cons	0.4	1.7	6.6	0.6	2.7	9.5
THR, TSC	1.7	6.3	19.3	1.8	5.8	19.6
FBR	1.7	0.2	2.6	1.8	0.1	0.8
CSP	12.2	1.2	11.5	11.6	1.6	18.4
Total	**17.4**	**35.2**	**47.4**	**17.1**	**26.8**	**56.2**

CHATTIS-GARH	2001			2011		
	High	Med	Low	High	Med	Low
Agri	0.2	4.9	1	0.3	2.5	0.8
Ind	1.8	18.8	9.1	2.1	11.8	8.1
Cons	0.4	2	5.9	0.6	2.8	9.1
THR, TSC	1.3	6.6	19.9	2	7.5	17.7
FBR	1.3	0.2	1.9	1.7	0.1	0.6
CSP	12.2	0.9	11.8	13.4	3.3	15.6
Total	**17.2**	**33.3**	**49.5**	**20.1**	**28**	**52**

RAJAS-THAN	2001			2011		
	High	Med	Low	High	Med	Low
Agri	0.3	7.4	0.7	0.1	4.7	0.4
Ind	1.1	18.5	8.4	1.1	12.7	9.1
Cons	0.4	4.2	7.1	0.4	4.2	9.9
THR, TSC	1.3	7.4	19.7	1.6	8.4	17.3
FBR	1.5	0.4	2.6	1.9	0.1	0.8
CSP	9.4	0.6	9	10.8	1.7	14.9
Total	**14**	**38.4**	**47.6**	**15.8**	**31.8**	**52.4**

ODISHA	2001			2011		
	High	Med	Low	High	Med	Low
Agri	0.4	5.4	1.5	0.1	3.2	0.7
Ind	1.6	17.9	6.6	1.9	11.1	10.6
Cons	0.6	3.1	6.9	0.8	3.1	9.6
THR, TSC	1.8	5.1	19.2	2.1	6.1	18.5
FBR	1.7	0.4	3.7	1.7	0.1	0.9
CSP	12.9	1.1	10.4	12.8	1.5	15.4
Total	**18.8**	**32.9**	**48.2**	**19.3**	**25.1**	**55.7**

WEST BENGAL	2001			2011		
	High	Med	Low	High	Med	Low
Agri	0.1	3.1	2.4	0.1	2.6	1.4
Ind	1.1	25.3	5.5	0.6	20.2	6.3
Cons	0.3	4.1	2	0.4	5.2	4.5
THR, TSC	1.3	5.8	24.7	1.4	4.6	23.5
FBR	1.7	0.6	3.9	1.2	0.1	0.9
CSP	7.9	0.7	9.8	8.8	1.1	17.2
Total	12.3	39.5	48.2	12.5	33.8	53.7

*AGRI: Agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's computations from Census of India, 2001 and 2011.

Across the Group 1 states with lower per capita income shares, Table 7.14 shows the situation of different categories of occupation across the major industrial sectors of work. In Bihar, across all workers, share of high category CSP jobs increased from around 10 per cent in 2001 to over 13 per cent in 2011. Share of medium category industrial work decreased from 20 per cent to11 per cent. Share of low category THR and TSC jobs which was high in 2001 (25.2 per cent of all work), declined to 19 per cent in 2011 and instead the share of low category CSP jobs increased from 10 per cent in 2001 to over 25 per cent in 2011. In 2011 in Bihar, low category jobs accounted for over 62 per cent of all work. In Jharkhand which split from Bihar in 2000, high category CSP jobs increased from 8.8 per cent to 10 per cent of all work. Share of medium category industrial jobs fell from 26 per cent in 2001 to 14 per cent in 2011. Low category THR and TSC jobs formed around 19 per cent of all work. Overall in Jharkhand, low category jobs accounted for 57 per cent jobs.

In the case of Uttar Pradesh, high category CSP jobs increased, while medium category industrial jobs declined to 15 per cent in 2011. Share of low category jobs in CSP increased from 10 per cent in 2001 to 26 per cent in 2011. Share of low category jobs in Uttar Pradesh in 2011 was as high as 60 per cent. Meanwhile, in Uttarakhand which split from Uttar Pradesh in 2000, high category CSP jobs increased, while medium category manufacturing and industrial jobs decreased. Low category THR and TSC jobs decreased and increased in CSP. Although low category jobs dominated in 2011 (with 56 per cent share of all work), an increase in high category jobs was notices from 19 per cent in 2001 to 23 per cent in 2011.

In case of Madhya Pradesh, high category CSP jobs declined, and share of medium category industrial jobs also declined (from 21 per cent in 2001 to 14 per cent in 2011). An increase in general in shares of low category jobs was seen in Madhya Pradesh between 2001 and 2011, driven majorly by the increase in low category THR and TSC jobs. Chattisgarh, which split from Madhya Pradesh in 2000, high category CSP jobs increased but share of medium category jobs in manufacturing declined from 19 per cent in 2001 to 12 per cent in 2011. High category jobs accounted for 20 per cent of all work, while low category THR and TSC jobs drove the high share of low category jobs overall to 52 per cent. A similar case was also noted for Rajasthan, West Bengal and Odisha but with marginal decline in low category THR and TSC jobs.

Table 7.15: NIC X NCO: *Group 2 states*

PUNJAB	2001			2011		
	High	Med	Low	High	Med	Low
Agri	0.1	10.6	1.1	0.2	2.7	1.3
Ind	1.4	16.9	8.2	2.3	10.4	10.2
Cons	0.2	2.7	5.3	0.2	3.4	9.3
THR, TSC	2.2	6.8	16.4	2.1	6.7	17.3
FBR	1.4	0.3	3.8	2	0.1	0.8
CSP	7.6	1.4	13.8	10.6	1.6	18.9
Total	**12.8**	**38.7**	**48.5**	**17.3**	**24.9**	**57.8**

HARYANA	2001			2011		
	High	Med	Low	High	Med	Low
Agri	0.1	7.5	1.6	0.2	2.5	1.3
Ind	1.7	16.4	10	2.2	9.6	9.5
Cons	0.6	2.3	5.9	0.4	2.5	7.7
THR, TSC	2	6.7	17.7	2.7	7.2	16.2
FBR	1.8	0.3	3	2.3	0.1	1
CSP	8.7	1.4	12.5	12.6	2.2	19.9
Total	**14.8**	**34.6**	**50.6**	**20.5**	**24.1**	**55.5**

GUJARAT	2001			2011		
	High	Med	Low	High	Med	Low
Agri	0.2	8.3	0.6	0	5.8	0.4
Ind	2.1	25.4	5.9	3	22	9.4
Cons	0.5	3.6	3.8	0.6	4.9	3.5
THR, TSC	1.3	8.4	19.6	1.7	5.7	18.5
FBR	1.6	0.3	3.2	1.6	0	1.1
CSP	6.6	0.7	8.1	7.1	1.6	13.1
Total	**12.2**	**46.7**	**41.1**	**14.1**	**40**	**46**

MAHA-RASHTRA	2001			2011		
	High	Med	Low	High	Med	Low
Agri	0.2	2.8	1.1	0	1.1	0.1
Ind	2.4	19.4	7.1	3.4	13.8	8.5
Cons	0.7	3.6	4.2	0.8	3.6	5.2
THR, TSC	2.1	9.1	19.2	6.4	7.9	14
FBR	3	0.4	4.5	2.5	0.1	1.5
CSP	8.8	0.9	10.5	10.6	1.5	19.2
Total	**17.3**	**36.2**	**46.6**	**23.7**	**27.9**	**48.4**

ANDHRA PRADESH	2001			2011		
	High	Med	Low	High	Med	Low
Agri	0.1	5.4	0.9	0.1	2.3	0.3
Ind	1.3	21.5	6.8	1.4	16.2	6.4
Cons	0.4	2.7	5.9	0.6	4.7	7.3
THR, TSC	2.6	7.9	18.2	2.9	8.3	16.6
FBR	2.1	0.3	4.5	2.1	0.1	1
CSP	8.8	0.8	10	10.4	1.5	17.9
Total	**15.2**	**38.6**	**46.2**	**17.5**	**33**	**49.6**

KARNA-TAKA	2001			2011		
	High	Med	Low	High	Med	Low
Agri	0.2	4.1	5.9	0.1	2.9	5.1
Ind	1.9	19.5	6.8	2.6	16.6	6.2
Cons	0.6	5	3.3	0.8	5.1	4.8
THR, TSC	2.9	7.7	17.4	5	8.3	15.9
FBR	2.4	0.5	4.7	2.5	0.1	1
CSP	8.8	0.9	7.7	8.9	1.1	13.2
Total	**16.8**	**37.6**	**45.7**	**19.8**	**34**	**46.2**

KERALA	2001			2011		
	High	Med	Low	High	Med	Low
Agri	0.3	8.3	7.4	0.1	6	5.9
Ind	1.1	16.2	3.9	1.8	12.4	3.5
Cons	0.5	6.8	4.2	0.7	10.6	5.6
THR, TSC	1.5	9.5	19.1	4.1	9.6	15.5
FBR	2.1	0.2	2.4	2.2	0.1	1.6
CSP	9.9	0.4	6.3	10.9	0.9	8.6
Total	**15.3**	**41.4**	**43.3**	**19.7**	**39.7**	**40.6**

TAMIL NADU	2001			2011		
	High	Med	Low	High	Med	Low
Agri	0.2	2.9	2	0.1	2.6	2
Ind	1.5	24.5	8	2.2	21.9	5.6
Cons	0.5	5.6	1.7	0.5	4.9	6.4
THR, TSC	1.8	6.9	16.8	4.5	8	14.3
FBR	2.3	0.8	5.5	1.9	0.1	1
CSP	7.4	1.3	10.3	9	1.6	13.6
Total	**13.8**	**42**	**44.3**	**18**	**39.1**	**42.9**

*AGRI: Agriculture and allied; MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's computations from Census of India, 2001 and 2011.

Among the high per capita income states in Group 2 (Table 7.15), a similar scenario has been witnessed but with slightly different shares. A higher share in low category activities has been visible over time, although some increases in share of high category activities in these states has also been witnessed. In case of Punjab, share of high category CSP jobs increased over time from 7.6 per cent in 2001 to 10.6 per cent in 2011, while share of medium category manufacturing and

industrial jobs declined from 17 per cent in 2001 to 10.4 per cent in 2011. Low category THR and TSC jobs decreased while low category jobs in CSP increased. Low category jobs in Punjab had an overall share of 58 per cent in 2011. In Haryana, neighbouring Punjab, a similar trend was seen. The share of low category jobs in Haryana increased to 55 per cent in 2011 and high category jobs accounted for 20 per cent. The case in Gujarat shows higher share of medium category jobs around 40 per cent, which is also the case in Andhra Pradesh, Kerala and Tamil Nadu. The overall trends in all these states in Group 2 with higher per capita incomes follows a similar trend of increase in high category CSP jobs, with declining shares of medium category industrial jobs and low category jobs distributed between THR and TSC and CSP sectors.

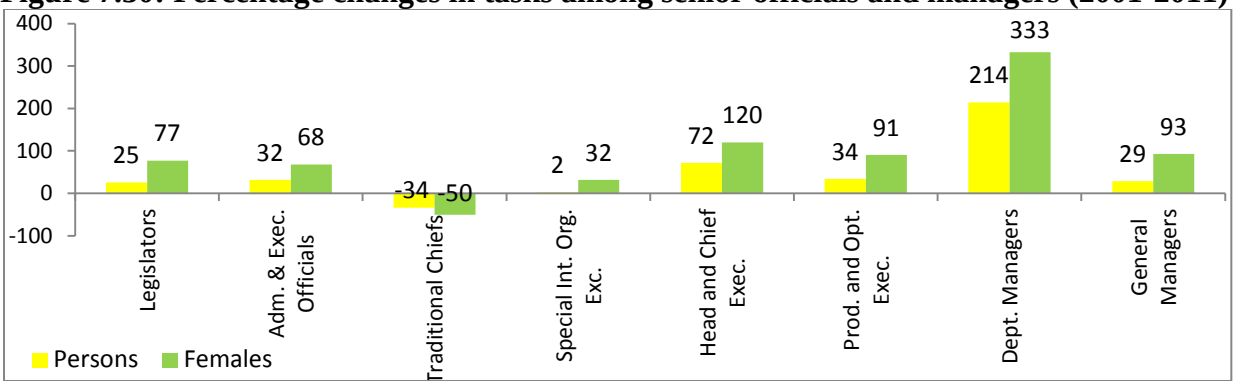
While these states too show increases in low category jobs, a declining trend in medium category jobs has been witnessed overall, with increasing shares of high category jobs as well. For instance, high category CSP jobs in Maharashtra (including increases in shares of technicians and associate professionals) contributed to an increase in overall high category jobs from 17.3 per cent in 2001 to 24 per cent in 2011. In case of Kerala and Tamil Nadu, rising shares of high category jobs was accompanied by a slight decline in share of low category jobs that was witnessed between 2001 and 2011. When analysing the sectoral distribution, it is apparent that while low category jobs in industry and THR and TSC declined, there was also some increase in low category CSP jobs while Tamil Nadu saw an increase in low category construction jobs from around 2 per cent in 2001 to 6.5 per cent in 2011. In sum, there is only marginal improvement in occupations across different sectors of work on an average in Group 2 states as compared to Group 1 states. Workforce diversification and occupational structures are important associates of the structural transformation process of the economy, and the all-India as well as spatial trends show a sluggish pattern in both.

7.7. Changing Patterns in Tasks Performed

The following section looks deeper into the kind of jobs and tasks that have been growing on an average, as well as in the case of females especially, given the discourse on falling female labour force participation rates. The tasks performed by females and the growth in tasks for the overall populations are shown below. This is followed by a brief section pertaining exclusively for rural males and females and growth of occupations in rural India, as an indication of how (if at all) the

growing discourse on 'Rural non-farm employment' has resulted in changing the nature of jobs and tasks.

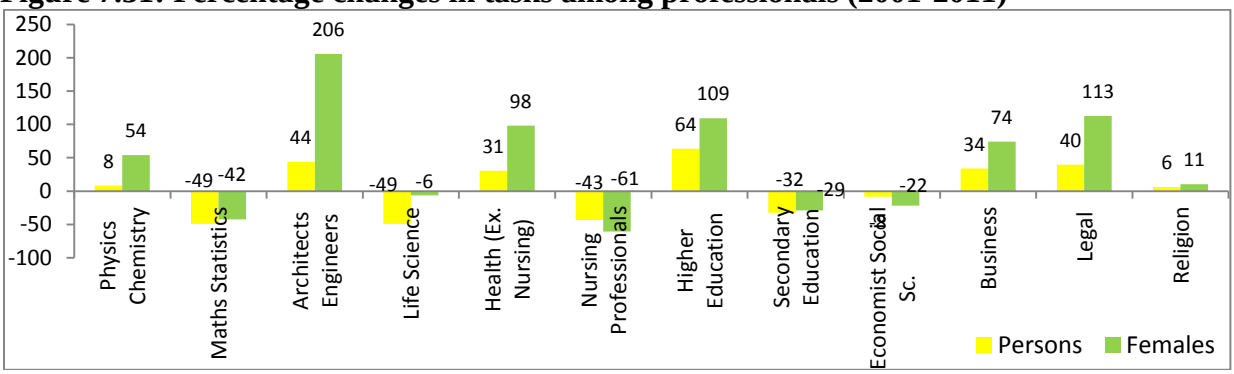
Figure 7.30: Percentage changes in tasks among senior officials and managers (2001-2011)



Source: Author's computations from Census of India, 2001 and 2011.

In Figure 7.30, the percentage changes in occupation division 1, mainly consisting of senior officials and managers for the year 2001 and 2011 are plotted. As seen in the above figure the highest growth is seen in the case of Departmental managers, overall and for females. In case of female Departmental Managers, increase was more than triple in 2011, while overall it was more than double. The other occupation that showed significant increase was Head and chief executive officers; here too growth in females increased by 120 percent, while for overall persons it was just over 70 percent. Though it is heartening to see females registering high growth in each of the occupations, it is essentially due to the initial low base that the increases seem to be so high. The major occupations showing decline included traditional chiefs which are mainly in rural India; however as development progresses and villages come into the mainframe of the economy, the role of the traditional village chiefs heads role was bound to come down as shown in the figure above. Interestingly, remarkable growth for females is seen in the case of international organizations executives, where growth was 120 percent. Above all even for legislators, the growth of female legislators is higher than the overall growth, however again due to their initial low base.

Figure 7.31: Percentage changes in tasks among professionals (2001-2011)



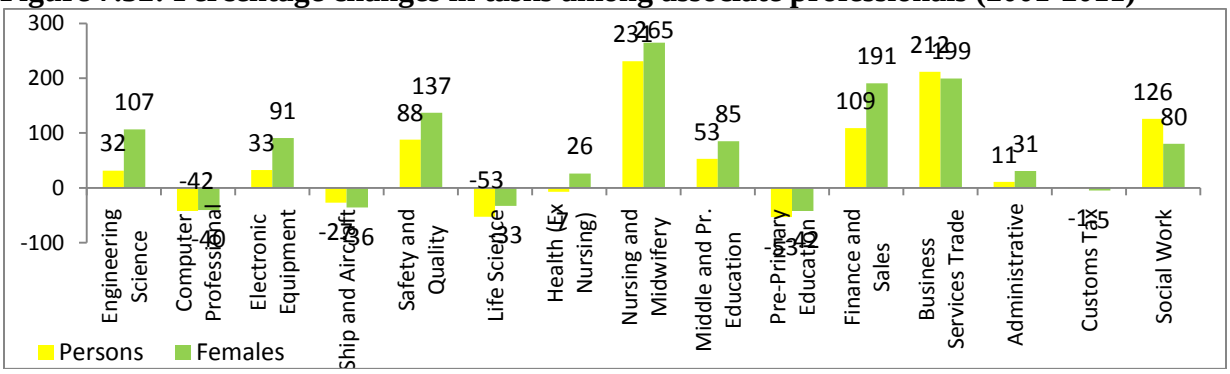
Source: Author's computations from Census of India, 2001 and 2011.

In case of Professionals (Figure 7.31), overall highest growth is seen in the higher education category, followed by engineering and architect professionals, and legal professionals. Overall there was also significant increase in health professionals and business professionals. However, only marginal increase was seen in physicists, chemists and religious professionals. Overall there was negative growth in mathematicians and statisticians, life sciences, nursing professionals, secondary professionals, economists and social scientists. In case of females, highest growth was seen in case of engineers and architects, higher educational professionals, health professionals, legal professionals, and physics and chemistry professionals. The highest decrease in employment for females was in case of nursing professionals, followed by mathematics and statistics stream professionals, secondary education stream professionals, Economic and social science stream and Life sciences stream professionals. It is apparent that not only did social science stream jobs diminish but a decline was also witnessed in major science fields.

Employment in secondary education needs to increase as India seems to be heading towards achieving universal primary enrollment while also aiming to close the gender gaps in primary education sector. The next goal therefore ought to be achieving universal enrollment in secondary education along with achieving gender parity in secondary education. This is not possible if employment of teachers and professionals in secondary sector is not increased, especially in sciences, life sciences, mathematics and social sciences which need to be prioritized. Unbalanced growth of just doctors and engineers is bound to bring disequilibrium in the employment market. It is also noticeable that apart from secondary education workers, nursing stream workers too have significantly declined, which is worrisome given the fact that

provisioning of health for all and education for all is one of the major socio-economic goals of any developing economy.

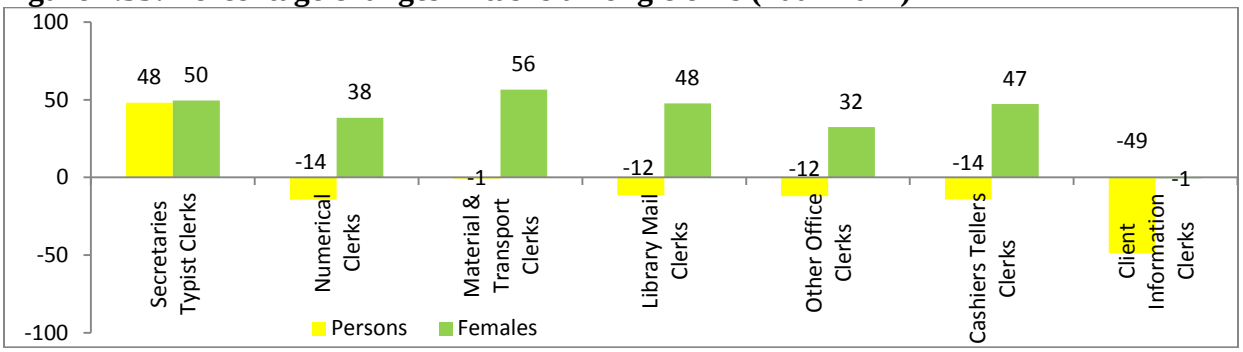
Figure 7.32: Percentage changes in tasks among associate professionals (2001-2011)



Source: Author's computations from Census of India, 2001 and 2011.

In Figure 7.32, percentage change in the employment of Associate Professionals across 2001 and 2011 has been plotted. In Figure 7.31, in case of professionals, healthcare nurses showed a significant decline, and overall there was a decline of 40 percent and in case of females it was over 60 percent. But in case of associate professionals, the highest increase was seen in case of nursing. Also, while there was a decline in professionals in middle and primary education, but at the same time there was also a decline of associate professionals in pre-primary education. It is interesting to note that decline in employment was also seen in computer associate professionals, apart from ship and aircraft industry and life sciences. Among associate professionals, there was overall a one-third increase in engineering sciences and for females it was over 100 percent. Apart from nursing, major growth was seen in case of business services and trade, finance and sales, and social work tasks. There was substantial growth in technology sector especially in electronic equipment; and safety and quality occupations.

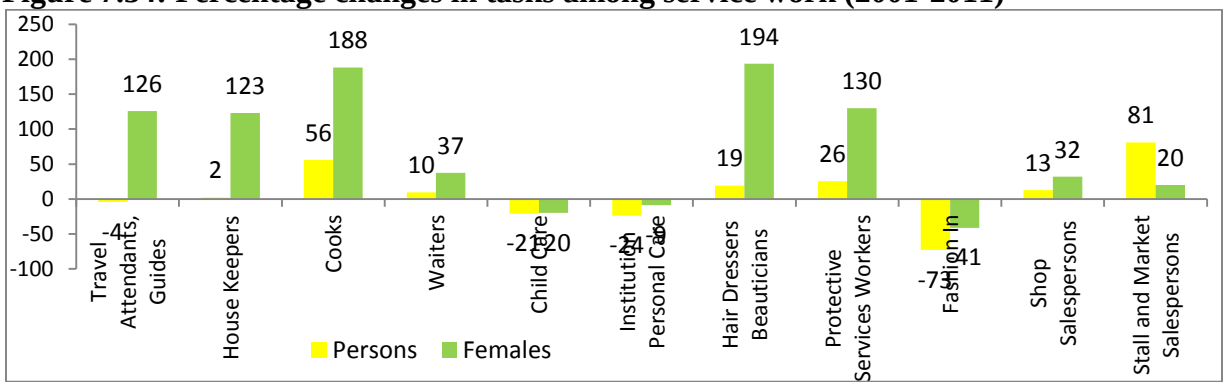
Figure 7.33: Percentage changes in tasks among clerks (2001-2011)



Source: Author's computations from Census of India, 2001 and 2011.

In case of clerks (Figure 7.33), overall there has been a decline in all type of clerical occupations except for secretaries. It was expected that there would be substantial increase in clerical occupations as the economy grows, as businesses and government sectors rely on clerks to perform basic support services that are vital for operations of the institutions. Overall, there has been nearly 50 percent increase in secretaries but also nearly 50 percent decline in client information clerks. Even though there is decrease in overall workers in clerk's occupation, there is evident rise in female workers in clerical occupations. The highest rise is seen in the case of material and transport clerk followed by secretaries, cashiers and tellers, library and mail clerks, numerical clerks and other office clerks. Even though there was overall decline in client information clerks, female client information clerks just marginally declined by 1%. It is also expected that in due course this kind of work may also diminish as more and more automation, use of Information Technology is integrated in operation to enhance efficiency and cut costs. This has become the trend across the world, and is bound to impact the Indian labour market since in India Technology penetration is low but businesses have been fast adapting to technological innovations.

Figure 7.34: Percentage changes in tasks among service work (2001-2011)

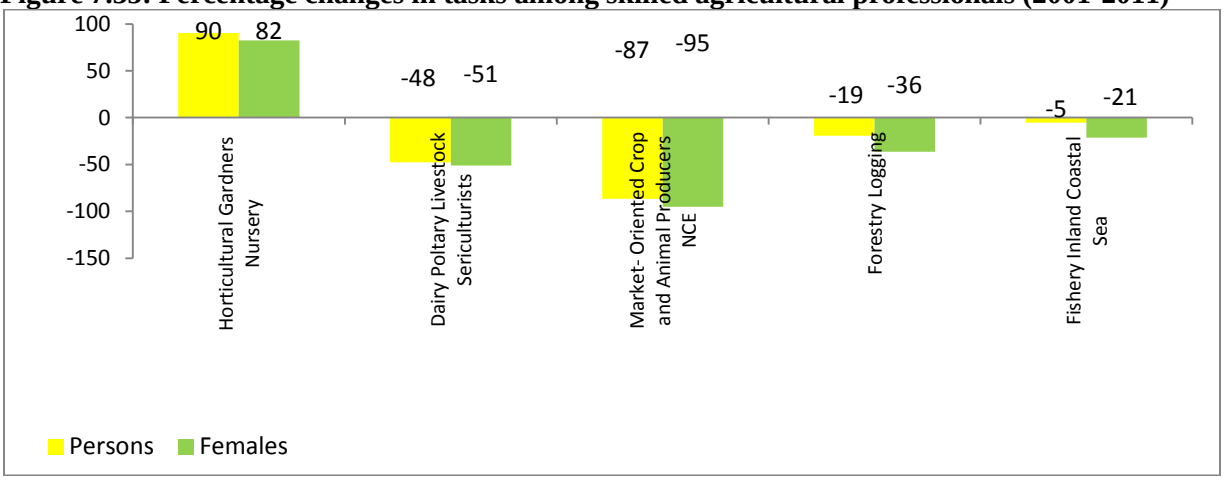


Source: Author's computations from Census of India, 2001 and 2011.

In the service work category (Figure 7.34), overall employment growth remained bleak and for many occupations there was negative growth. This is contrary to what is generally perceived that there is significant employment growth in services. Occupations such as housekeepers, waiters, hair dressers and beauticians, protective service workers and stall and market sales persons registered insignificant growth. There was also decline in overall employment in tasks such as travel attendants, child care, institutional professional care and in fashion industry. Despite evident stagnancy in overall employment, there were select occupations, weather of significant

employment growth of women worker. As expected, the highest percentage of growth female workers is seen in hair dressing and beautician followed by cooks and housekeepers. These are mostly female dominated occupations. Significant employment growth for females is also seen in occupations such as protective services which include guards and security personnel. There is also marginal increase for female workers in occupation such as waiters and shop sales persons.

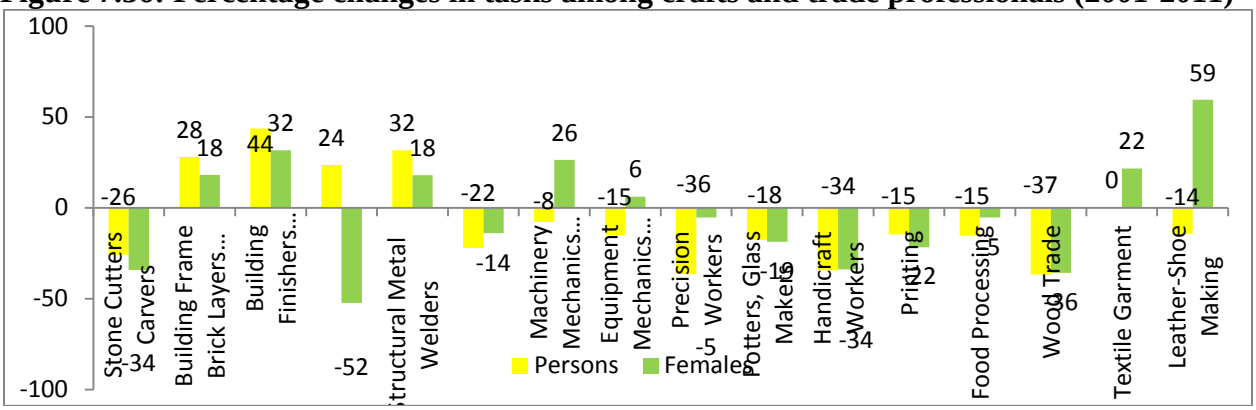
Figure 7.35: Percentage changes in tasks among skilled agricultural professionals (2001-2011)



Source: Author's computations from Census of India, 2001 and 2011.

In case of skilled agriculture tasks (Figure 7.35), there has been a decline in percentage of workers for most of the occupations, given the limited productivity and employment generation capacity of agriculture sector. As can be seen, there has been a decline in workers engaged in dairy, livestock and poultry; market oriented crop and animal produce, forestry and logging; and inland fishing and coastal fishing. The only occupation in skilled agriculture that registered growth were the tasks of horticulture, garden and nursery occupations which was in the range of 80 to 90 percent, while decline was noticed in market oriented crops and animal produce occupations. The next largest decline was in poultry and livestock followed by forestry and logging, while the least decline in employment was in coastal fishing. Not very significant gender differential was seen in apart from forest and logging occupation; and fishing occupation. Also in these two categories of occupation, the percentage of females' employment decline was far greater than the overall decline in employment.

Figure 7.36: Percentage changes in tasks among crafts and trade professionals (2001-2011)



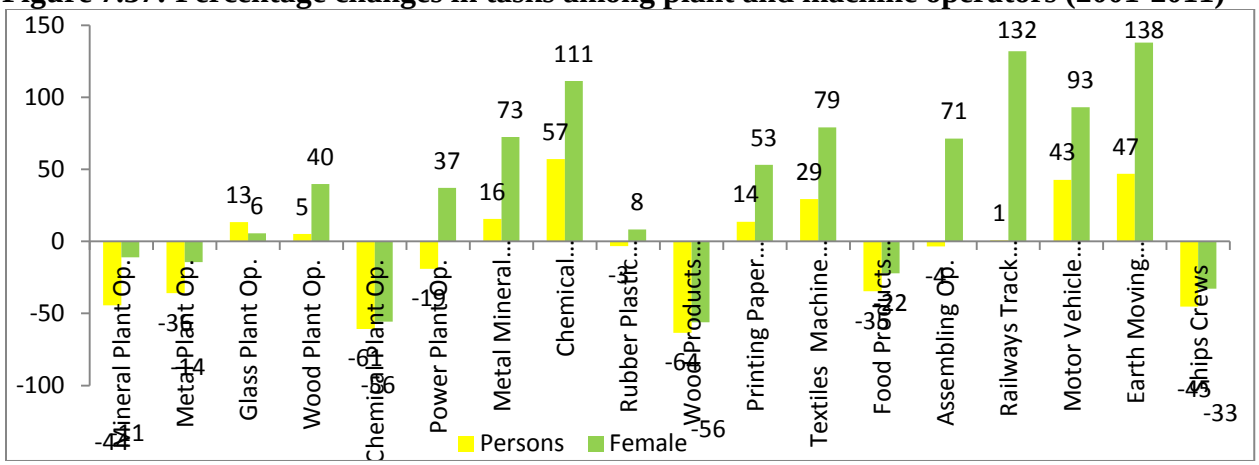
Source: Author's computations from Census of India, 2001 and 2011.

Crafts and works division (Figure 7.36) consists of key occupations across different industries. Overall there was negative growth in employment across different occupations shown above. This is one of the major concerns of the economy, as these occupations form the vital operations process across all the industries, and 'jobless growth' is bound to affect the entire economy. The key occupation that had the overall highest job loss was wood trade, followed by precision work, handicrafts, stone cutting and carving, blacksmith, hammer-smith and tool making; machinery mechanical fitting, mechanical fitting, bottles and glass making, printing, food processing; and leather and shoe making. There were only a few occupations in which there was increase in employment, such as building frame work, bricklaying, concrete work, building finishing work, roofing and plasters work and plumbing, painting and building cleaning and production metal and welding work. Overall only three occupation categories in Craft and trade work had an overall employment growth.

In case of female workers in craft and trade occupation division, highest growth was seen in leather and shoe making occupation, which was around 60 per cent even though overall employment in leather and shoe making occupation came down by 15 per cent. The next second highest occupation for females was in building finishing, roofing, and plastering occupations. Also, in machinery mechanical fitting occupation, there was over 25 per cent increase in female employment, even though there was nearly 10 per cent decline in overall employment. One of the key occupations in which a larger share of females is found is the textile garment sector in which there was a 20 per cent increase. The share of female workers came down in tasks such as

stone cutter and carvers, painters and building cleaners, handicraft workers, potters and glass makers, printing, food processing and wood trade.

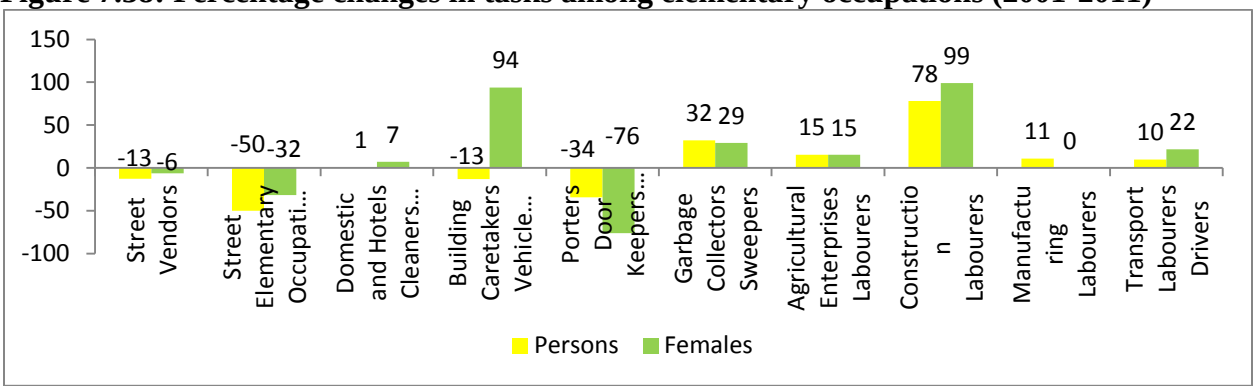
Figure 7.37: Percentage changes in tasks among plant and machine operators (2001-2011)



Source: Author's computations from Census of India, 2001 and 2011.

In Plant and Machine Operations Occupation Division (see Figure 7.37), only a few of the occupations witnessed rise in total number of workers. As expected, there has been substantial increase in motor vehicle and cab drivers by more than 40 percent. Also, chemical machine operations, earth moving, crane and farm machinery operations also increased by 47 percent and 57 percent respectively. The highest decline was seen in wood product machine operations and chemical plant operations, which was more than 50 percent, while in case of shipping crew and mineral plant operations it was around 45 percent in each industry. There was also marginal decline in mineral plant operations; metal plant operations; power plant operations; rubber plastic machine operation; food product machine operations; and assembling operations. Even though there was limited growth in overall employment in many of these occupations, but in case of female workers there was significant growth of employment in many occupations. The highest increase in female workers was seen in case of earth moving crane and farm operations, railway track and signals, and metal mineral machine operations. Also, motor vehicle cab drivers, textile machine operations, and assembly operations also had significant women employment growth.

Figure 7.38: Percentage changes in tasks among elementary occupations (2001-2011)



Source: Author's computations from Census of India, 2001 and 2011.

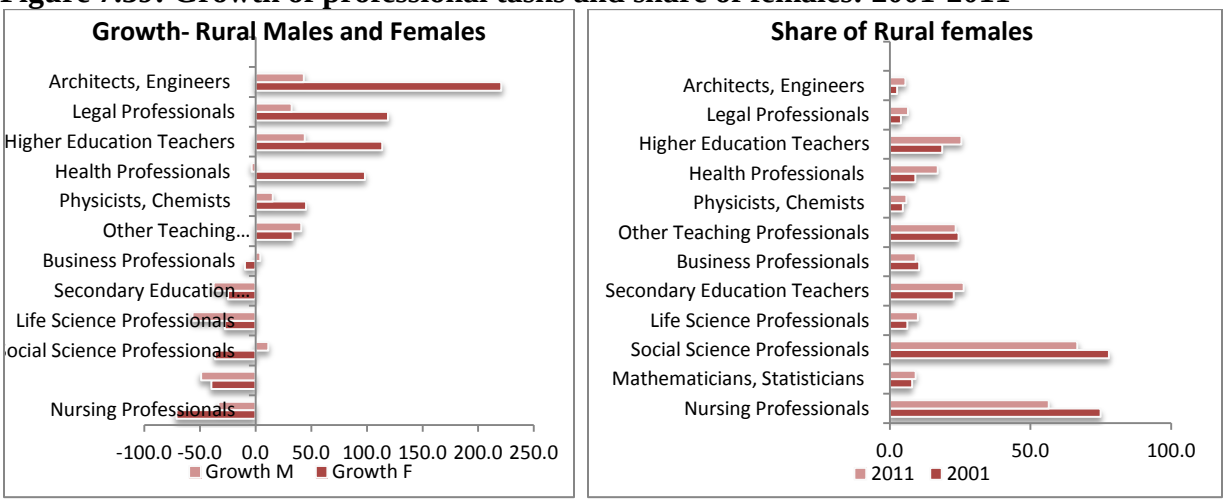
Elementary occupations mostly constitute as a part of community social and personnel industry. It can be also stated the residual nonfarm sectors frequently provide self employment and casual employment. This occupation division is of utmost importance for the marginal income groups and their livelihood depends upon the income generated from this sector. In this occupational division, overall employment increased mostly for agricultural labourers, garbage collectors and sweeper's occupations. Also there has been marginal increase in manufacturing labourers, transport labourers and drivers. There was employment decline in street vendors, street elementary occupations, building caretakers and vehicle cleaners, and potters door keepers and watchmen. There has been dismal growth in employment and in most cases negative employment which is nothing job-loss growth. In case of female workers in elementary occupations, highest increase in employment was seen in case of construction laborers, building caretakers and vehicle cleaners. While a marginal increase was also seen in case of garbage collectors and transport laborers and drivers, there was job loss in case of female employment in occupations such as street vendors, street elementary occupations, potters, doorkeepers and watchmen. There was also not much employment generation for female workers in manufacturing laborers; and domestic and hotels cleaners and helpers.

Occupations and Tasks in Rural India

In rural areas, the discourse and literature on 'growing' rural non-farm economy discussed in earlier chapters suggests the need to examine the kind of tasks and occupations that have evolved in such areas over time. This section examines some of the major tasks and the growth for males and females in these occupations between 2001 and 2011, as well as the relative share of females

in these tasks to get an overall snapshot of rural trends. This is because the growth rates often tend to show high values due to initial base effect and therefore must be looked at in tandem with the share in such occupations to get a better and clearer picture.

Figure 7.39: Growth of professional tasks and share of females: 2001-2011

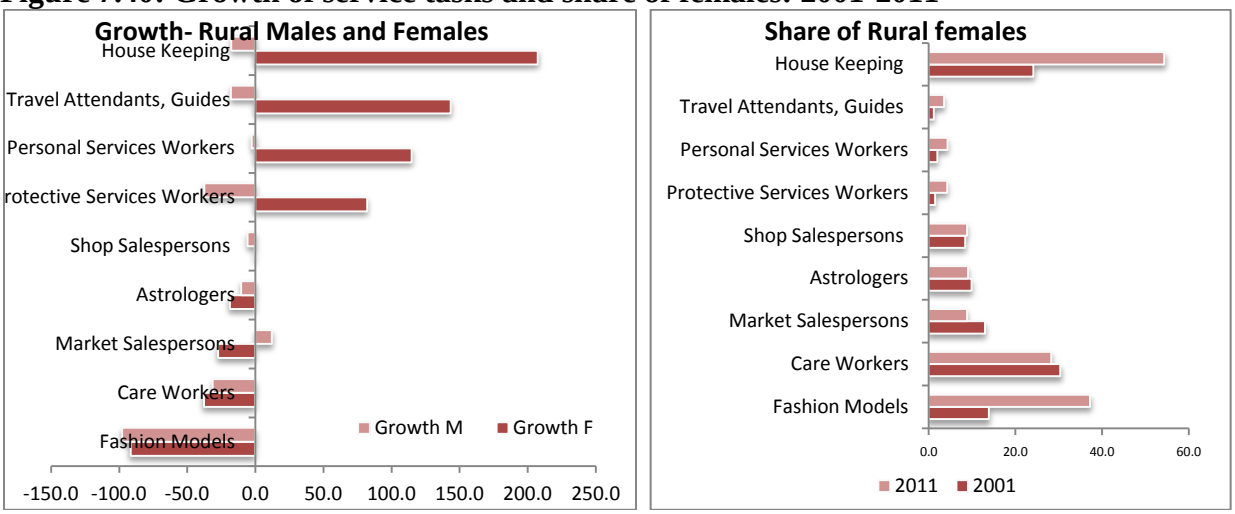


Source: Author's computations from Census of India, 2001 and 2011.

In Figure 7.39, the percentage changes in professional tasks for rural males and females between 2001 and 2011 are plotted on the left panel. The panel on the right plots the share of females in such tasks. It is evident that growth of females as compared to males between this period in professional work in engineering, legal, and health sectors was higher as the base for women's education increased. The share of rural females in employment however continues to remain high for social science and nursing professions, although there is a slight decline accounted fro by corresponding increase in health professionals.

Figure 7.40 shows that in service tasks, growth of rural women was highest in tasks such as housekeeping, travel attendants and personal service workers, and the share of rural females was the highest and showed increases in housekeeping, care work and fashion related tasks. There was a decline across most such service tasks in case of rural males, and the care economy continues to be dominated by females.

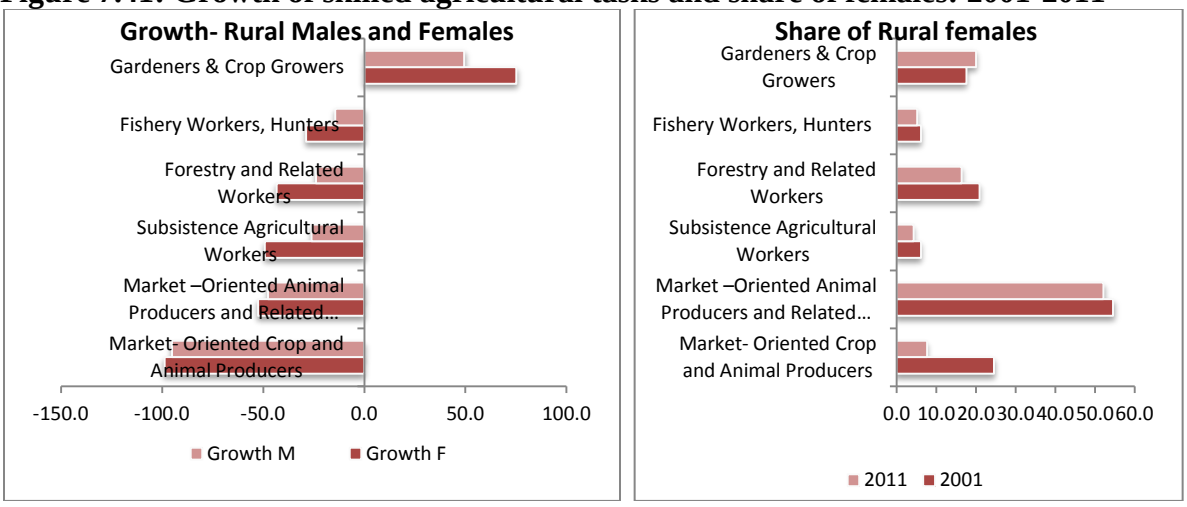
Figure 7.40: Growth of service tasks and share of females: 2001-2011



Source: Author's computations from Census of India, 2001 and 2011.

Across skilled agricultural occupations (Figure 7.41), the growth of rural females in gardening has been higher than for rural males. Across all other skilled agricultural tasks such as fishery, market oriented crop and animal producers etc, there has been a decline. The share of rural females has remained higher in market oriented animal producers (including rural women engaged in poultry and so on).

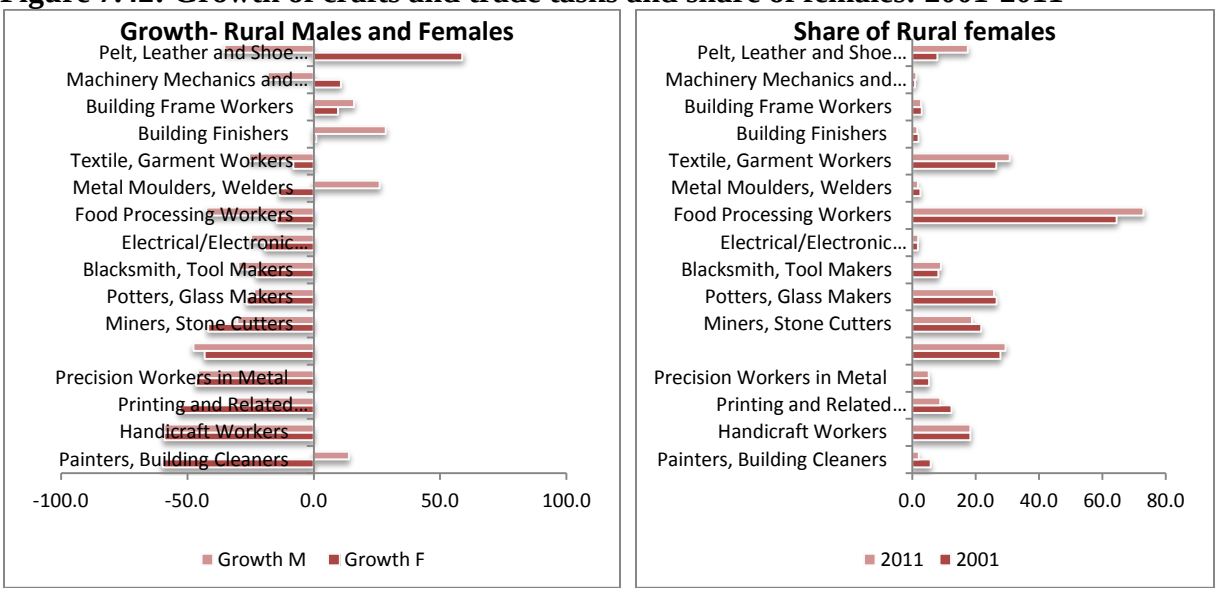
Figure 7.41: Growth of skilled agricultural tasks and share of females: 2001-2011



Source: Author's computations from Census of India, 2001 and 2011.

Meanwhile, in case of crafts and trade occupation (Figure 7.42), a general declining trend was seen, pre-empting the trends in rural artisans declining. The only increases for rural males were seen in metal work and building, while increase for rural females was noted in leather and shoe work. The largest share of rural females was found to be in food processing although the growth showed a declining trend.

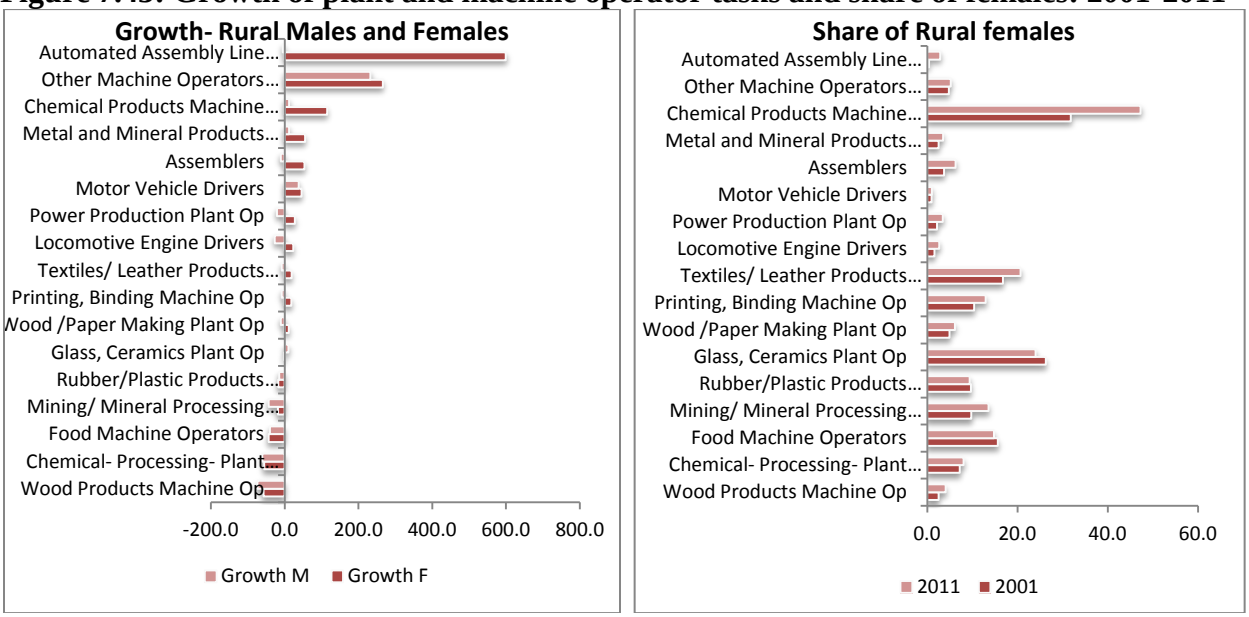
Figure 7.42: Growth of crafts and trade tasks and share of females: 2001-2011



Source: Author's computations from Census of India, 2001 and 2011.

In Figure 7.43, growth of plant and machine operator tasks is plotted. The growth for rural females has been majorly in automated assembly work and other machine operators, while major changes have not been noticeable for rural males. The share of rural females in chemical products and machines and glass work have been noticeably high, while their share in automobile sector shows a slight increase, indicating that rural women have been very slowly entering the fray of manufacturing work

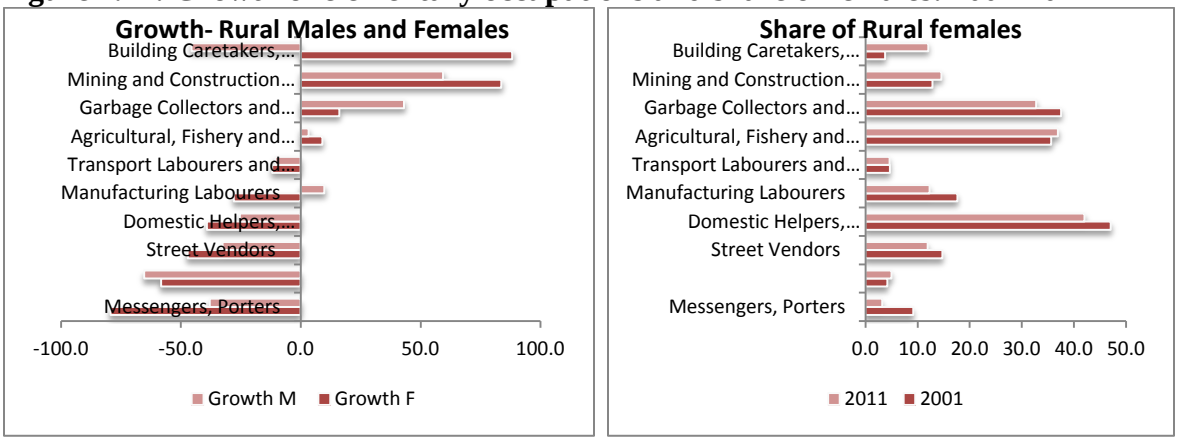
Figure 7.43: Growth of plant and machine operator tasks and share of females: 2001-2011



Source: Author's computations from Census of India, 2001 and 2011.

Lastly, Figure 7.44 shows the growth of elementary occupation in rural areas, where rural males as building caretakers have been declining and rural females have been entering. Mining and construction show a higher growth in rural females as compared to rural males; while messengers, domestic helpers etc have seen a decline for both rural males and females. In terms of share of rural females in elementary occupations, the highest (although declining) share continues to be domestic help, agriculture and fishery and garbage collection.

Figure 7.44: Growth of elementary occupations and share of females: 2001-2011



Source: Author's computations from Census of India, 2001 and 2011.

It is amply evident that rural non-farm work as clear from all the sections in this chapter, has been not s much in the manufacturing sector (which has seen absolute decline in participation), as in services, but more in elementary occupations. Although rural females have also started entering different non-farm activities, there is still a long way to go, especially under the threat of deindustrialization, growing informality and casualisation as well as 'job-loss' growth.

Concluding remarks and a Glimpse of the following chapter

This chapter attempted to analyse spatial trends in employment growth across major sectors using district level Census data for the decade 2001-2011 in order to also gain some insight into the scenario of deindustrialization. The general trends in data suggest that agricultural labour and cultivators are rising (especially for females) in northern parts of India suggesting some level of feminisation of agriculture there. Meanwhile, deindustrialization in manufacturing is evident throughout rural areas, suggesting rural non-farm sector moving towards more informal service sector activities. There is also a general evidence of 'deindustrialization' in real estate, business

and financial services across districts. Construction has been a major employer in rural areas, while (informal) services in CSP seem to be rising especially for females. In terms of quality of jobs or occupation/ task diversification, half of the jobs still remain in low categories across the major states and the trend only seems to be increasing. Though there is some level of increase in participation of females in technical jobs, rural females in particular still seem to be in traditionally 'feminine' occupations such as care services, nursing, textile workers, teachers and so on. Handicraft work and street-vending have witnessed declines in general. Overall, the need to create more job avenues seems to be the need of the hour. The following chapters look at case studies from the field to further probe the findings from all the analysis presented till now.

Chapter 8: A Tale of Two States: Tamil Nadu and Bihar

'...A diversified economy is a central pillar of economic security...' Oscar Auliq-Ice

Recapitulation

Findings from Census data in the previous chapter suggest interesting variations between and within states, and some clustering of regions based on the growth in the number of workers in a particular sector. Having looked at the trends and patterns of workforce (and workforce diversification) for the major Indian states through different lenses and along with various correlates, this chapter addresses the relevance of field based case studies to understand the processes and issues in workforce diversification at the grassroot level, which are ultimately reflected in the form of intra and inter-state differentials.

Outline of this chapter

The evidences on growth of non-farm employment in India at the macro level based on secondary data sources such as the NSS and Census data only at best partially capture the nature of structural transformation process in different areas, being greatly heterogeneous. The grassroot level truths may only be visible through micro level studies. Though there are a number of village level studies, the focus has been largely on rural farm to non-farm transitions. This study tries to delve deeper into the situation within the non-farm sector (rural as well as urban), by not just looking at a village or a town, but by understanding the rural-urban continuum through industrial clusters. Given the threat of 'premature deindustrialisation' in India and growth (of economy as well as employment) being led predominantly by (informal) services, this chapter focuses on regions within two states in particular, having gained meaningful insights into the situation in major states in India.

8.1. The Case of Tamil Nadu and Bihar

Tamil Nadu is a rapidly developing state with high level of urbanisation, good infrastructure and investments and a significant share of manufacturing as well as services. Bihar on the other hand, has been among the more laggard states and has only been showing improvement in the recent decade. The purpose of choosing the two differing states of Tamil Nadu and Bihar with two conjunct but varied districts in each is to provide an insight into economic systems to then see

how they impact workforce/livelihood diversification. This study thus attempts to study the case of the following regions based on the findings from the mappings in the previous chapter:

Tamil Nadu - Erode district and Coimbatore district

Bihar - Munger district and Bhagalpur district

8.1.1. Understanding the backdrop

Tamil Nadu in particular is a rapidly developing economy with good infrastructure and investments and a historical pace of industrialising. Erode was chosen for the primary reason that it is has both an industrial cluster (Textiles, Paper etc., with increasing number of migrant workers from Bihar) along with services (retail trade mostly by migrants from Rajasthan, Xerox services) as well as it is a region in Kongunadu (surrounded by agricultural activities in the nature of turmeric cultivation, honey etc.) as well as proximity to Salem (steel hub), Tiruppur etc. Perundurai block in Erode has an Industrial Estate (SIPCOT) with units that come essentially under '*Modern SSI*' segment. Since the environmental concerns arising out of Tiruppur's textile factory effluents, the textile markets have been expanding in Erode and beyond. Another interesting block in Erode is Chennimalai, which has shown some growth potential in the 6th Economic Census data. Coimbatore on the other hand has been even rapidly growing and has become a major IT hub as well as industrial site for foundries. South Indian Textile Research Association is also headquartered in Coimbatore.

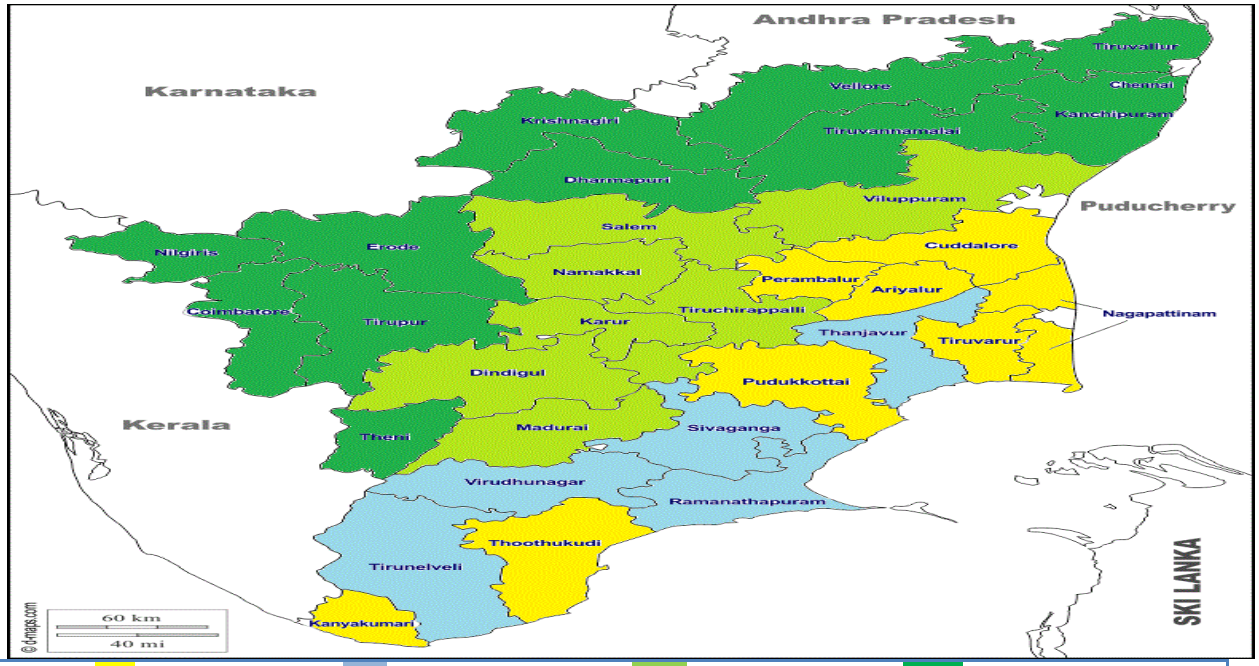
Bihar on the other hand, has been among the more laggard states and has only been showing improvement in the recent decade. Out of the many districts in Bihar, one that has historical presence is Munger, which has been deindustrialising rapidly despite its past tryst with British rule and ensuing 'infrastructure'. Munger had one of the oldest gun factories in India, which is no longer functional. Jamalpur block, which had the first coach factory in India since before Independence, is now reduced to only maintenance. Other industries have also died out, despite its proximity to Bhagalpur. Bhagalpur is now also a "Smart" city, and is still a major hub for Silk handlooms and weaving, dyeing etc.

'Industrialization' in Bihar & Tamil Nadu: Increase in Main Workers in Industry (2001-11)

BIHAR

Legends	Decline >20 per cent	Decline <20 per cent

TAMIL NADU



Legends	Decline >10 per cent	Decline : 5 to 10 per cent	Increase <20 per cent	Increase >20 per cent

The trends in these states show evidence of increasing deindustrialization in terms of employment in industry and manufacturing sector; Munger in Bihar is witnessing disturbing trends of decline in industrial employment, while Bhagalpur in Bihar is experiencing moderate decline. Coimbatore and Erode show increase in industrial employment.

Design of this chapter

1. Delving into the geographical and historical background of the selected regions
2. Investigating the present scenario of industrial, economic and employment situations
3. Understanding the socio-economic backdrop of these regions for a better grassroot investigation.

These regions have the peculiarity of historically starting from similar situations and diverging vastly in their economic and employment structures over time. This section provides a brief description of the historical and geographical background and some striking similarities across the selected regions to give an initial backdrop.

8.2. Historical Background of the chosen regions

The Munger-Bhagalpur region was a part of the 'Anga Pradesh' under the Magadh Empire in ancient India. In the medieval period, it served as the capital of the Pala dynasty, and was also very prominent later in the Mughal and British colonial period. Meanwhile, the Erode-Coimbatore region was a part of the 'Kongu Nadu' region under the Chera Empire of ancient "Tamilakam" during the Sangam period. This region was under the rule of the Rashtrakuta Empire as well as the Vijayanagara Empire during the medieval period, and later on formed an important part of Mysore before coming under the British rule.

Although there have been many historical factors impacting the economic scenario of these regions, and some of these factors have even been more or less similar, the economic progress of these regions has been diverging instead of converging. A brief description of the historical backgrounds of these regions which may have directly or indirectly influenced its patterns of growth and transformation is given in this section[70].

Bhagalpur-Munger region

The Bhagalpur and Munger region were known as the Anga Pradesh in ancient history. Prior to this, Munger was known as the Madhyadesh (*midland*) under the Aryans. Munger became part of

[70] These discussions and facts have been referred from District Census Handbooks of the respective districts, as well as along with MSME (Micro, Small and Medium Enterprises) and DIC (Department of Industries and Commerce) reports

the Anga Pradesh with its capital Champa at Bhagalpur. The region formed part of various dynasties and empires such as the Magadh Empire during the rule of the Nanda dynasty, followed by the Mauryan Empire during which the 'Arthashastra' was written by Kautilya, and most importantly the Gupta empire between 320 and 455 A.D, which paved the way for great economic and cultural transformations and progress in the society. This region was also visited by Greek and Chinese explorers and scholars such as Megasthenes and Hiuen Tsang. The University of Vikramshila was also set up here around 755 A.D.

The cultural transformation of this region continued with the origins and spread of Buddhism in Bihar, as Munger is believed to be associated with Maudagalya, a disciple of Buddha. It is further believed then even Jainism originated in this region, with the birth of Mahavira Tirthankar in a place called Lachchuar in the southern part of Munger district. This has also been a contributing factor to the tourism industry to some extent.

The region further changed under the Muslim rule when during the Twelfth century, Bakhtiar Khilji ransacked the Vikramshila and Nalanda universities in Bihar, destroying the cultural and educational hub that the region formed. Under his Viceroyship on behalf of the Turkish-Afghan rule in Delhi, South Bihar and this region became more linked to the administration in Delhi, which was later taken over by Akbar and brought under Mughal rule. During this period, Bhagalpur came to be a part of the Munger 'Sarkar'. In the late 1500s, a rebellion rose in Bhagalpur, which was quelled by Akbar's finance minister, where all local zamindars or landholders were ordered to cut off supplies to insurgents. The economy and land relations of the region are mostly a result of these cultural and dynastic changes.

The region saw another major change during the British rule and was one of the major and initial strongholds of the British East India Company. Post the Mughal rule the 18th century saw Bihar and Bengal under the British after the famous Battle of Plassey where the Nawab of Bengal, Siraj-ud-Daula was betrayed by Mir Jafar who became a puppet king for the East India Company. Gradually, the capital was shifted from Murshidabad to Munger. Munger however became witness to mutinies with the British troops raiding Munger Fort on suspicions of deserters, and finally taking over in 1763. Mir Kasim, Mir Jafar's son, fled to Patna from Munger, only to be defeated in the Battle of Buxar in 1764.

An integral part of the Bengal Presidency under the British Rule, there was constant political turmoil, but the British rule's imposition of Indigo cultivation only impacted the agrarian economy of the Munger-Bhagalpur region to a limited extent, but tobacco continued to remain an important crop. In fact, the ITC factory (Imperial Tobacco Company of India Limited, which became India Tobacco Company post-independence) was set up during the British rule in Munger. Munger was also a major arms manufacturing hub during the British rule, a trend which became almost a cottage industry in the region until recently.

The Munger-Bhagalpur region ended up playing an important part in the freedom struggles against the British politically as well as culturally. The Brahma Samaj was established in Munger in 1864, following which Munger came to be visited by several socio-cultural leaders such as Ramakrishna and Vivekananda, Dayanand Saraswati etc. The Arya Samaj also extended its branches to Munger. The Munger-Bhagalpur region also played its role in the Swadeshi movement of 1906, The Home Rule League Movement in 1917, as well as The Non-Cooperation Movement of Mahatma Gandhi, and finally in the Quit India Movement of 1942. The Satyagraha method was very prominent in this region, but was eventually suppressed.

Coimbatore-Erode region

The history of the Erode-Coimbatore region is very inter-connected. Erode was formed through a bifurcation of Coimbatore district in 1979. Erode and Coimbatore together formed part of the 'Kongunadu' region right from the Sangam era. This region used to be dominated by the 'Kosar' tribes, and hence the name *Kosamputhur* which gradually became Coimbatore. These tribes came to be overpowered and ruled by the Chola kings. Erode and Coimbatore further developed under RajaRaja Chola, and subsequently came under the rule of several dynasties such as the Chalukyas, Pandyas and Hoysalas.

There was a brief period of interference of the Turkish-Afghan influence from Delhi (which had a strong hold on the Munger-Bhagalpur region by the time), which was also sought after by the Vijayanagara Empire. The Kongunadu region consisting of both Erode and Coimbatore regions remained under the rule of Madurai Nayakars between 1530 and 1700. The region then came under the Mysore ruler Chamaraja Wodeyar, who was later overthrown by Hyder Ali. During his reign as well as his son Tipu Sultan's reign, the region flourished with houses, soldiers and fertile

lands supported by the Cauvery River. With Tipu Sultan's downfall in 1799, the Erode-Coimbatore region fell under British rule following the Anglo-Mysore wars, restoring the Maharaja of Mysore on the throne on their behalf.

The British East India Company annexed Coimbatore and Erode region into the Madras Presidency and all districts were merged as one for administrative efficiency in 1804. In 1865, this new Coimbatore district was given a municipality status with capital at Coimbatore city, and shortly after, the Nilgiris were bifurcated from Coimbatore. The then Coimbatore region rapidly industrialised under the British Rule in the late 1800s and by the 1920s had become one of the major textile hubs. As a result of this initial boom, Coimbatore till today continues to be a frontrunner in industrial growth, especially in the sectors of textiles and garments, foundries and motor pumps.

Further administrative changes also took place in Coimbatore, with the formation of the Avinashi Taluk in 1910 (which is today one of the major industrial hubs in Coimbatore district), while Karur (the financial capital of Tamil Nadu) was transferred to Tiruchirapalli district. During the latter half of the 1920s, some villages from Bhavani and Salem Taluks were transferred under Salem district from Mettur area. These have also been major industrial belts; while Salem has been famous for steel, Bhavani which now comes under Erode district is famed for its GI tag for rugs and dhurries. While the British rule continued in Kongunadu till 1947 and administrative changes kept taking place, industrial development and transport and connectivity were being developed rapidly as well. Their revenue systems were systematic, as was the development of the railways, with a Coach factory in Erode.

Erode was finally separated from Coimbatore in 1979, and its name seems to have originated from the words 'Eru' and 'Odai', which signify two rivers in Tamil, namely the Perumpalayam Canal and the Kalingarayan Canal. Erode's irrigation is much dependent on the canal systems, the efficiency of which is also visible in its agrarian diversification and increased focus on cash crops such as turmeric, groundnut, tapioca and so on. Erode and Coimbatore, as well as the railway routes between them, namely Mettupalayam-Coimbatore, Coimbatore-Pollachi and Coimbatore-Erode railway lines have been found to be rich sites on excavations by the Archaeological Survey of India as well as the Tamil Nadu State Department of Archaeology,

revealing Iron Age urns, Roman coins, and brick and terracotta structures, signifying the socio-cultural and economic development of the region across the ages.

8.3. Geographical Background: Similarities between the chosen regions

Munger and Bhagalpur are neighbouring districts of South Bihar, while Erode and Coimbatore are located on the West of Tamil Nadu bordering Karnataka. These regions are agriculturally advanced regions in the respective states due to their locational advantages, with the Munger-Bhagalpur region adjoining the Ganges River in Bihar and the Erode-Coimbatore region adjoining the Cauvery River in Tamil Nadu. Geographically, these regions are also well connected, giving them a locational advantage for the setting up of industries.

For instance, the Munger-Bhagalpur region in Bihar is a link between north and south Bihar which is divided by the Ganges River and at the same time also serves as a gateway to Bengal and north-eastern India via the Farakka link through waterways, railways as well as roadways. This region was also an important riverside port since ancient times and it had direct trade links with South-East Asia. It also remained an important river port in British India and facilitated Bengal in both internal and international trade. Presently, this region has been revamped as a multi modal transport hub under the National Waterways Development Programme.

Similarly, the Erode-Coimbatore region is a bridge between Tamil Nadu and Kerala via the Palghat Gap, facilitating internal as well international trade through the Madras and Cochin economic centres. Coimbatore is also linked and provides connectivity through six major national highways. Moreover, Coimbatore is a major air base for transit, while Bhagalpur is more of a regional connecting air base, which is however under consideration for expansion.

The major point of similarity of ‘initial conditions’ in these two regions is the connectivity through railways. It is a very significant and important point to note that the Munger-Bhagalpur route (in addition to Calcutta) was the first planned railway link planned by the British East India Company in 1849, whereby the Jamalpur Locomotive Workshop was established in the district of Munger in 1862, becoming one of the first railway coach care and service facilities in India. Along with this, the Indian Railways Institute of Mechanical and Electrical Engineering

(IRIMEE) was founded in 1888 at Jamalpur, which also has the oldest Centralised Training Institutes (CTIs) for training officers of the Indian Railways since 1927.

At the same time, the Erode-Coimbatore region also proved to be of strategic and commercial importance and Erode has been one of the major commercial centres linked via rail to Madras. In fact, the Erode-Nagapattinam (The most important commercial port of Madras) was laid by the Great Southern India Railway Company (GSIR) in 1868. The British East India Company further extended Erode Junction to be a connecting link between the East and West coasts of India. Like Jamalpur, Erode has been serving as a premier Locomotive workshop for diesel and electric engines since 1966, and houses the largest fleet of WAP-4 catering to long distance trains of the Indian Railways.

8.4. Administrative set-up of these regions

The administrative set-up of regions is also an important factor influencing the pathways and progress of the development and structural transformation process of the economy as well as employment of any region. As already highlighted in the previous sections, historical changes in political, socio-cultural and administrative scenarios have impacted these regions in different ways. Although the basic administrative set-up across India has been standard as per the Constitution since India's independence, the progress of urbanisation, and other relevant issues in administration remain important aspects even today. This section describes in brief the administrative set-up of the two regions, and interesting aspects regarding the same.

Bhagalpur-Munger region

Bhagalpur shares its border with Jharkhand, and is situated in the eastern tip of Bihar. In 1991, Bhagalpur was bifurcated and its sub-division Banka was carved out as a separate district. As the present day district of Bhagalpur is constituted, it was equivalent to the south-eastern Subah of Bihar during the Mughal period, and was a huge region south of the Ganges River when the Revenue collection or "Diwani' of Bihar, Bengal and Orissa were handed over to the British East India Company in 1765 post the Battle of Buxar. This region also included Munger at the time, which was only separated in 1832. The British rights over Diwani greatly influenced the revenues as well as land holding patterns in the region. With the removal of the Santhal Pargana in 1856 and a significantly large area north of the Ganges River which was formed into the new

Saharsa district in 1954, the area of the district was reduced by a great extent. This in a way reduced the administrative burden and initiated more focus on the district. Bhagalpur district is in the Central Bhagalpur division, with its headquarters at Bhagalpur city. It has 3 sub-divisions (Naugachia, Bhagalpur Sadar and Kahalgaon), which further consist of 16 Community Development Block-cum-Anchals. As of present, Bhagalpur district consists of 1515 villages having 242 Panchayats and 4 Statutory Towns.

Munger was earlier part of Bhagalpur. After its separation in 1832, Munger continued to be a major district with large sub-divisions including Begusarai, Khagaria, Jamui, Lakhisarai, and Sheikhpura which were formed into separate districts in the early 1970s. As of present, Munger district lies in eastern Bihar sharing its northern boundary with Khagaria, southern boundary with Lakhisarai, western boundary with Jamui and eastern boundary with Bhagalpur district. There are 3 sub-divisions in Munger district (Munger Sadar, Kharagpur and Tarapur), with 858 villages forming 103 Panchayats. Munger district consists of 3 Statutory Towns and 4 Census Towns. The 9 Community Development Blocks in the district have Block Development Officers to take care of development and welfare schemes and projects.

Coimbatore-Erode region

Coimbatore was bifurcated into Coimbatore and Erode districts in 1979. Further, in 2008, 4 taluks from Coimbatore district (Tiruppur, Udumalpet, Palladam and a part of Avinashi) along with 3 taluks from Erode district (Dharmapuram, Kangeyam and a part of Perundurai) were constituted into the Tiruppur district, reducing the size of the erstwhile Coimbatore district considerably. Presently, Coimbatore has 2 revenue divisions (Coimbatore and Pollachi), 6 taluks, 12 Community Development Blocks, 237 revenue villages out of which 219 are inhabited, I Municipal Corporation, 6 Municipalities, 44 Town Panchayats and 18 Census Towns, showing high potential for urbanisation. Coimbatore is also the connecting link between Kerala and Tamil Nadu, as well as a transit for The Nilgiris and Ooty tourism industry.

Erode, as mentioned above, was earlier attached with Coimbatore district and later also lost 3 taluks to the new district of Tiruppur. Currently, Erode district consists of 2 revenue divisions, 5 taluks, 306 revenue villages out of which 287 are inhabited, 1 Municipal Corporation, 8

Municipalities, 225 Village Panchayats, 44 Town Panchayats, 6 Census Towns and 14 Community Development Blocks for the development of the district as a whole.

8.5. Economic Background: Similarities and Differences between the regions

The economic scenario of the two regions has been diverging over time, partly due to historical factors and partly owing to current regimes and policy space. In addition, as discussed in the previous section, urbanisation in terms of number of towns has been higher in the Coimbatore-Erode region as compared to the Bhagalpur-Munger region. Industrialization has also been following similar trends in these regions, which is discussed in detail in the following section.

Bhagalpur-Munger region

In terms of the economy, the Bhagalpur region is the second-largest economy following closely behind Bihar's capital city of Patna. The major industry in Bhagalpur is the textile industry (silk and cotton), Bhagalpur produces high quality Tussar silk textiles, prompting the government to establish a handloom park for the same. Bhagalpuri silk is renowned for its quality and known as Tussar silk, and is an export item. The handlooms and powerlooms of Bhagalpur produce different types of cotton textiles, mainly for consumption in the local markets. A large industrial cluster and estate is situated at Barari in Bhagalpur, with over 40 units in production. In fact, the erstwhile Bhagalpur-Munger region was known as the 'Lancashire of the East'.

In addition, there is a thermal power plant of the National Thermal Power Corporation Limited (NTPC) at Kehelgaon around 35 kilometres from Bhagalpur. Bhagalpur also has some agro-based industries and a government established Food Park for its facilitation. Its geographical conditions also allow this district huge potential in agriculture, industry and commerce. Bhagalpur has now also been included as a 'Smart City'.

On the other hand, Munger was one of the earliest districts to initiate industrialisation under the British rule, and became renowned for its ordinance industry and guns manufacturing since 1762 which also gained prominence during the First World War for its manufacture and supply of cartridges for the British Indian government. Besides the ordinance industry being a Public Sector Undertaking, Munger is certainly the only place in India where gun manufacturing took shape of a cottage industry. This was recently shut down, as most of the old factories in Munger.

As mentioned earlier, the railway coach locomotive workshop in Jamalpur (Munger) established in 1862, has stopped manufacturing coaches and is now limited to maintenance and repairs.

Presently, the major 'industry' in Munger is also one of its oldest factories that remains, namely cigarette factory established by the Peninsular Tobacco Company in 1907 in Munger due to easy availability of tobacco crops. In 1910, the Imperial Tobacco Company of India Limited came into existence for selling and distribution of cigarette. Subsequently, ITC's printing facility was established in 1925, paving way for its first non-tobacco business.

The industrial development in Munger district has not been completely neglected; agro-based industries do have some support in the form of institutional and credit facilities especially in rural areas. There has also been some effort on the part of the government in setting up industrial 'estates', which has not resulted in a big boost to industry in the district. Agriculture however has been simulated in some areas by consumption linkages as well as canal based irrigation. It is the dairy industry segment which is more prominent in the district, as a result of which ITC has now also set up a dairy plant in Munger. However, Munger's industrial scenario has been worsening, with closure of several of the oldest industries, while only a limited number of industries remain.

Interestingly, the Bhagalpur-Munger region in Bihar is one of the major educational hubs of the state. While the Bhagalpur University was formed in 1960 and continues to be one of the frontrunners in Bihar, Munger University was set up more recently in 2018. There are several colleges and technical institutions for engineering, medicine, etc., along with polytechniques and Government it is focused on skill development and vocational development. However, there is still a long way for this region to develop in terms of industry as well as social transformation.

Table 8.1 enlists some major (small) enterprises in the Bhagalpur-Munger region in Bihar. The important point to notice is that a majority of the enterprises are still agro-based, followed by repair and servicing, other small enterprises and the garment industry. Bhagalpur also has a significant silk and cotton textile industry.

Table 8.1: Details of (Small) Enterprises in Bhagalpur and Munger in Bihar (2012-13)

Enterprises	Bhagalpur			Munger		
	No. of Units	Investment amount (Rs. Lakhs)	Employment in each sector	No. of Units	Investment amount (Rs. Lakhs)	Employment in each sector
Agro based	490	565.5	2494	215	138.85	589
Wool, Silk based clothes	200	285.9	650	1	0.5	3
Jute & jute based	10	11.5	30	2	0.85	6
Ready-made garments/embroidery	125	130.6	500	150	35.67	357
Wood/wooden based furniture	75	88.9	300	132	35.35	313
Paper & Paper products	10	15.6	40	38	12.3	100
Leather based	125	200.7	500	94	6.86	133
Chemical/Chemical based	15	15.4	60	130	58.51	309
Rubber, Plastic & petro based	110	116.7	440	2	1.02	6
Mineral based	25	25.73	100	75	60.45	247
Metal based (Steel Fab.)	116	97.18	500	170	89.76	462
Engineering units	15	50	60	74	30.05	177
Repairing & servicing	400	100	1600	538	312.16	1602
Others	381	700	1200	51	52.2	151
Soda water (Bhagalpur)	5	7.5	40			
Cotton textile (Bhagalpur)	110	270.5	334			
Electrical machinery & transport equipment(Munger)				60	64.15	255

Source: MSME and DIC Reports on Bhagalpur and Munger

Coimbatore-Erode region

On the other hand, Coimbatore is considered to be amongst the most industrially and commercially developed districts of Tamil Nadu. There are several small, medium as well as large industries in Coimbatore. The Coimbatore District Small Industries Association (CODISSIA) is an important platform in the district providing support as well as networks for small industrial growth. In addition, the South Indian Textiles Research Association (SITRA) is based in Coimbatore, which along with the textile college has been contributing immensely to the development of the textile industry in Coimbatore.

As a result, Coimbatore (which earlier included Erode as well) has been known in history as the 'Manchester of South India', as well as the textile capital of South India with a well-developed textile industry among other industries. Though the initial textile mills in Coimbatore were set up under the British Rule in 1888, they have grown exponentially to over a 100 mills as of present. Further support from the Hydro-electricity from Pykara Falls in the 1930s also led to a further boom in cotton production, which in turn resulted in Coimbatore's thriving textile industry.

Currently, Coimbatore city is counted amongst the most industrialized cities of Tamil Nadu. In addition to the textile industry, Coimbatore is also known for the manufacture of motor pump sets and various engineering goods. In fact, with the closure of several factories in China in 2017 following environmental concerns, the foundry sector in Coimbatore has grown larger and employs a considerable population. Coimbatore has over 25000 small, medium as well as large industries and textile mills. It is also rapidly growing as an Information and Communication Technology hub.

Coimbatore city is the third largest city of Tamil Nadu. The district of Coimbatore according to Census 2011, ranks 7th in terms of population size in Tamil Nadu with a remarkably high urban population of 75.7 per cent. The population density of Coimbatore also exceeds the state average, and the district actually has a better sex-ratio (1000) as compared to Tamil Nadu's average of 996. Even the literacy rate of Coimbatore (84 per cent) is higher than the state average of 80 per cent. Coimbatore is one of the districts in Tamil Nadu with the lowest share of agricultural labourers to total workers.

Erode district (earlier part of Coimbatore) is a fast growing economy in itself, showing rapid development. Some of the block in Erode that have burgeoning industrial clusters include Perundurai block, Chennimalai block and the Erode block. Perundurai is one of the fastest industrialising blocks in Erode district, with the formation of SIPCOT and TAHDCO industrial estates due to its locational advantage of proximity of Erode town as well as being situated on the National Highway towards Coimbatore. It has potential for agriculture and poultry as well apart from having powerlooms and other industries such as Paper etc.

Chennimalai block in Erode district is a major hub for handloom weaving, engaging as much as 60 per cent of the population. It is also blooming with possibilities for developing horticulture and various cash crops such as cashew, cotton, tamarind etc., and has further opportunity for developing more agro-based and poultry based industries. The Erode block is also a major hub of textiles and powerlooms, as well as tanneries. Erode has several Small Scale Industries and Household Industries on the one hand, and larger powerlooms and textile industries which after a recession have picked up great speed owing to the Technology Upgradation Fund.

Table 8.2: Details of (Small) Enterprises in Erode and Coimbatore in Tamil Nadu (2012-13)

	Erode			Coimbatore		
Enterprises	**No. of Units**	**Investment amount (Rs. Lakhs)**	**Employment in each sector**	**No. of Units**	**Investment amount (Rs. Lakhs)**	**Employment in each sector**
Food Products, Beverages	3539	46090.7	11786	1430	13565.75	5610
Manufacturing of Textiles	4406	249370.07	25296			
Weaving Apparel; Dressing	3659	118811.66	13628			
Tanning and Leather work	954	15108.86	1016			
Wood and Products of Wood	219	5723.79	727	575	5756.5	4026
Paper and Paper Products	577	4796.88	1540	1145	20230.2	7557
Publishing, Printing	257	5401.47	1607	625	4852.55	1565
Coke, Refined Petroleum Products	10	314.19	130			
Chemicals and Chemical Products	502	3615.19	710	702	8723.65	3329
Rubber & Plastic Products	888	6648.39	1364	1265	13848.7	8402
Non- Metallic Mineral Products	464	5772.85	2763	465	4593.3	1860
Basic Metals/ Castings	761	4697.38	485	425	58450	8500
Fabricated Metal Products	710	21774.49	5708	4795	62525.35	19325
Machinery & Equipment N.E.C	212	2837.13	772	4155	84148.9	35317
Office and Computing Machinery	14	60.85	13			
Electrical Machinery & Apparatus	209	3175.94	633			
Communication Equipment	6	153.64	91			
Medical and Optical Instruments	13	244.2	546			
Motor Vehicles	311	4081.43	661			
Furniture, Manufacturing	228	1978.21	1079			
Recycling	75	2598.05	227			
Collection, Purification of Water	24	397.12	80			
Maintenance of Motor Vehicles	573	5273.76	620			
Maintenance of Personal Goods	17	254.05	190			
Land Transport	2	208.75	150			
Supporting and Auxiliary Activities	4	380.38	144			
Post & Telecommunications	3	1113.4	557			
Computer and Related Activities	171	1534.28	1556	785	11775	3690
Other Business Activities	233	1859.94	1202	203	1955.5	415
Recreational and Sporting Activities	10	1497.36	208			
Other Service Activities	461	8483.31	1866	5115	46564.5	23015
Soda Water				51	215	90
Cotton Textiles				2175	200100.9	24105
Jute and Jute based				23	175.5	47
Ready-made garments/ embroidery				5567	374638.75	23545
Transport equipments				275	27500	1375
Other misc. manufacturing				770	16500	3972
Supporting transport activities				33	1099.8	75
Financial intermediation services				11	842.1	27
Real Estate services				5	26.5	15
Electrical and electronic				915	30395	4117

Source: MSME and DIC Reports on Erode and Coimbatore

Table 8.2 enlists some major (small) enterprises in the Coimbatore-Erode region in Tamil Nadu. It is evident that a wider range of industries exist in this region as compared to the Bhagalpur-Munger region in Bihar, with significantly higher investment and employment as well. The major enterprises commonly found in the Coimbatore-Erode region include food and beverages, textiles and garments, wood and paper, chemicals, metal fabrication, and computer related products among others. It is noteworthy that the investment patterns in these enterprises is much higher compared to the Bhagalpur-Munger region (as presented in Table 8.1), perhaps indicating one of the major reasons for their diverging trends in industrialization.

8.6. Socio-political and economic differentials

These regions may have started on a similar footing in terms of nature of industries, but gradually their widening socio-economic differences, some stemming from historical factors, have led to wide divergence in their current scenario of 'industrialization'. Given the threat of 'premature deindustrialization' in India, a much deeper analysis at the grassroot levels in required. This section therefore lists the socio-economic issues in the selected regions to further explain the emerging patterns of work.

It is imperative to understand the entire background of these regions in order to be able to make better sense of the findings from the field. The historical, geographical, and administrative backgrounds discussed above have direct bearing on the socio-economic transformation of these regions. For instance, administrative factors have resulted in different forms of land relations and agrarian practices in the two regions. While the British rule in Bhagalpur and Munger resulted in exploitative Zamindari systems of landholding which later became fragmented lands, land in Coimbatore and Erode region was colonised in substantial estates (For instance, see Harriss-White, 2003) which exploited the landless migrant labour force available, while rural agrarian systems grew along with industrialisation, which was slower in the Bhagalpur-Bihar region.

These social and political systems also influenced cropping patterns to some extent. The booming textile industry in the erstwhile Coimbatore region used cotton as input from local fields initially, and later began to draw inputs from other nearby regions while agro-based engineering industry grew with horizontal and vertical links to agriculture, including its dependence on agriculture for seasonal and part-time labour (Baker, 1989). This region saw a

spurt in industrial activity and a diversification of agriculture towards cash crops; for instance, the present Erode district produces turmeric, tapioca, sugarcane, and groundnut apart from paddy. Likewise, depending on the nature of these crops, workforce diversification towards industries has also been widespread.

Table 8.3 provides average daily agricultural wages in these regions for some major occupations; the Coimbatore-Erode region again fares better overall. The wages for harvesters, sowers, weeders etc., are higher for the Coimbatore-Erode region, while wages for other agricultural labour are even more significantly higher. Table 8.4 provides details on ***rural*** household characteristics in these regions at the block level. This includes percentage of households with land, percentage of households with assured irrigation for two crops (in acres), percentage of households owning mechanized three/four- wheeler agricultural equipment, percentage of households owning irrigation equipment (including diesel/ kerosene/ electric pumpset, sprinkler/ drip irrigation system) and percentage of households having Kisan Credit Card with credit limit of Rs 50,000 or above. Interestingly, although landholding sizes on an average across these 4 districts of Bhagalpur, Munger, Erode and Coimbatore do not vary largely, the amenities such as irrigation equipment, agricultural vehicle equipment and so on are much higher in the Coimbatore-Erode region than in the Bhagalpur-Munger region, signifying the gap in the status of those engaged in agriculture between the two regions.

Table 8.3: Average Daily Agricultural Wages (in Rs, Annual Average)

	Ploughman	Harvester		Sower		Weeder		Herdsman	Other agri labour	
		M	F	M	F	M	F		M	F
Munger & Bhagalpur region	150	183	148	110	143	234	179	144	150	100
Erode		285	152	308	139	272	146		290	154
Coimbatore		293	149	228	157	275	151		345	
Source: Directorate of Economics and Statistics, 2015-16; M: Male, F: Female										

Table 8.4: Rural household characteristics at the Block Level

	% of Households with Land	% With assured irrigation for two crops (in acres)	% of Households owning Mechanized Three/Four Wheeler Agricultural equipment	% of Households owning Irrigation equipment (including diesel/ kerosene/ electric pumpset, sprinkler/ drip irrigation system)	% of Households having Kisan Credit Card with credit limit of Rs 50,000 or above
Bhagalpur District	**23.74**	**33.89**	**1.61**	**3.56**	**1.67**
Narayanpur	17.84	36.03	1.85	2.85	1.3
Bihpur	17.08	17.67	1.86	3.01	2.73
Kharik	15.1	50.51	2.19	3.49	2.39
Naugachhia	24.75	28.05	3.59	3.6	1.74
Rangra Chowk	20.18	33.15	0.75	1.38	0.59
Gopalpur	13.4	34	1.6	2.07	1.51
Pirpainti	28.72	33.65	1.22	3.83	2.04
Colgong	21.89	32.02	1.18	2.06	0.95
Ismailpur	16.77	24.63	2.77	3.59	2.11
Sabour	29.16	43.06	1.33	3.91	1.21
Nathnagar	22.25	34.2	2.09	4.51	2.98
Sultanganj	28.43	35.15	1.83	4.29	1.99
Shahkund	39.2	39.87	1.5	5.33	1.32
Goradih	29.33	34.14	0.94	3.68	1.04
Jagdishpur	8.27	44.27	0.91	3.05	1.97
Sonhaula	28.36	25.77	2.17	5.2	1.37
Munger District	**21.2**	**39.32**	**0.87**	**2.47**	**1.35**
Munger	10.69	32.69	0.56	0.96	0.29
Bariarpur	17.45	22.96	0.62	1.18	0.65
Jamalpur	19.09	30.2	1.24	1.65	0.73
Dharhara	14.85	19.33	0.51	0.94	0.49
Kharagpur	31.98	46.19	1.27	2.55	1.49
Asarganj	14.78	48.88	0.87	1.85	0.66
Tarapur	27.44	35.76	1.32	7.87	6.43
Tetiha Bambor	29.24	84.28	0.47	1.66	0.71
Sangrampur	20.51	32.74	0.65	3.84	0.5
Coimbatore District	**17.09**	**29.95**	**4.98**	**9.34**	**1.49**
Mettupalayam	19.7	34.06	1.19	10.32	0.54
Sulur	15.87	19.19	3.93	7.74	1.86
Coimbatore North	18.06	9.14	1.11	7.26	1.27
Coimbatore South	10.84	44.52	1.39	4.39	0.65
Pollachi	18.03	33.49	10.53	12.6	2.06
Erode District	**26.13**	**28.87**	**11.2**	**13.21**	**2.7**
Sathyamangalam	30.15	11.6	11.94	11.76	4.64
Bhavani	24.93	43.24	14.65	13.28	1.93
Gobichettipalayam	27.03	56.52	11.83	15.01	2.82
Perundurai	26.6	18.32	11.11	13.08	2.09
Erode	21.59	4.74	3.64	12.74	2

Source: Socio-Economic Caste Census, 2011

As Harriss-White (2003) has argued, urbanisation and socio-economic transformation have been co-dependent over time. While the kind of urbanisation from agrarian commercialisation sans social transformation under the British rule increased insecurity and poverty, the current trends of increasing urbanisation in the Coimbatore-Erode region has been developing and attracting migrants in search of jobs in various industries. While the migratory patterns earlier led to transient urbanisation, Post-Independence era saw active state participation in establishing more sustainable conditions on growth, industrialization and urbanisation, with increased focus on basic amenities viz electricity, public health, credit availability through banks and redistribution through taxation, infrastructure, information, markets, as well as research and skill development.

Table 8.5 highlights details on the average amount outstanding as an indicator of bank credit in these regions to various sectors. This clearly shows the wide difference between bank credit and investment in the Bhagalpur-Munger region and the Coimbatore-Erode region; while Erode has higher bank credit, Coimbatore shows even higher presence, and the divergence between this region with the Bhagalpur and Munger region (with relatively much lower bank credit) is widening over time.

Table 8.5: Details of Bank Credit (Average Amount Outstanding, Rs Crore)

	Bhagalpur			Munger			Coimbatore			Erode		
Period	**Agri**	**Ind**	**Serv**	**Agri**	**Ind**	**Serv**	**Agri**	**Ind**	**Serv**	**Agri**	**Ind**	**Serv**
1984-1994	21	13	17	20	6	18	103	638	141	96	59	41
1994-2005	53	31	54	21	10	30	426	4434	851	322	577	190
2005-2011	199	62	199	70	17	117	2832	20407	5512	1356	2720	883
2011-2018	728	425	525	318	54	197	7061	29774	10837	4381	5284	2490

Agri: Agriculture; Ind: Industry; Serv: Services
Services include: Transport Operators, Professional and Other Services, Trade and Finance

Source: Economic and Political Weekly Research Foundation (EPWRF)

While local governments have limited resources in the form of meagre municipal taxes, the states' role would need a boost from higher governments. However, with a limit to the extent of expanding markets due to financial constraints etc., towns often saturate and growth spills-over to suburbs and peri-urban areas which is not easily captured in data (Rukmani, 1996). This has been the case in the Coimbatore-Erode clusters, with a move of traders in cotton, groundnut and tobacco towards textile manufacturing, oil presses or cigars (see Harriss-White, 2003). While small industries and trade have grown in this region, leading to a socio-economic transition by way of altered demand-patterns for more consumer goods such as mobile phones, bikes and so on, a similar large-scale impact remains missing in the case of Bhagalpur and Munger.

In fact, the scenario in Bhagalpur and Munger seems to be the reverse, with the fears of the evolving demands of the population being met by a capitalist structure of agriculture through credit (See Singh, 1999 for instance in the case of Punjab). While agricultural diversification on the one hand towards more cash crops rather than rice and wheat is not evident in Bhagalpur and Munger, industrial development also seems to have taken a backseat, with a lower focus on industrial investment by the state in comparison to the Coimbatore-Erode region. There is an increasing trend of migration of workers from Bihar into Tamil Nadu for work.

Table 8.6 shows details of ***rural*** households' income sources and nature of jobs including percentage of households engaged in cultivation, percentage of households engaged in manual casual labour, percentage of households having a non-agricultural own-account enterprise, percentage of households engaged in other activities, percentage of households with monthly income of highest earning household member greater than Rs. 10000, percentage of households with salaried jobs and percentage of households with salaried job in the government sector. Broadly, percentage of households engaged in cultivation is slightly higher for the Coimbatore-Erode region, suggesting that agricultural households are better off and not engaged in agricultural labour instead. Also, the Bhagalpur-Munger region shows high dependence of rural households on manual casual labour, and the percentage is comparatively lower in Coimbatore and Erode. On an average, the rural trends are more or less similar, with the exception of Coimbatore having a higher percentage of households with monthly income of highest earning member over Rs 10000.

Additionally, while socio-cultural factors still play some role in the agrarian as well as industrial participation in Coimbatore and Erode; it is much significantly visible in the Bhagalpur-Munger region. Dependence on agriculture for work is outweighed by manual casual labour, mainly in construction or manufacturing. However, industry itself is much different in these regions, and patterns of work within these are also affected by various factors. For instance, in the Bhagalpur-Munger region, lower caste and Muslim workers are mainly engaged in the textile cluster. At the same time, gender aspects are even more evident in the tasks and roles performed by women in agriculture as well as industry. These factors are addressed in greater detail in the field survey. Prior to this, Table 8.7 gives a snapshot of the major industrial clusters in these districts.

Table 8.6: Details of Rural Households' Work and Job Nature at the Block level

	% Cultivation	% Manual Casual Labour	% Non-agricultural Own Account Enterprise	% Others	% of Households with monthly Income of highest earning household member > 10000	% of Households with Salaried Job	Hh with Salaried Job % Government Sector
Bhagalpur District	**13.42**	**73.78**	**1.86**	**8.24**	**7.49**	**6**	**4.95**
Narayanpur	14.33	71.55	1.58	9.99	7.84	6.61	5.99
Bihpur	14.94	69.68	3.56	9.23	11.32	8.99	7.88
Kharik	14.16	77.46	0.95	5.11	5.57	5.95	4.33
Naugachhia	14.97	67.07	1.84	14.41	10.25	6.25	5.53
Rangra Chowk	10.96	78.14	0.13	8.74	7.35	7.71	6.99
Gopalpur	14.23	74.83	1.71	4.97	4.3	5.54	4.93
Pirpainti	19.41	68.87	0.56	8.69	11.4	3.52	2.86
Colgong	14.41	76.58	1.33	5.12	7.28	4.88	3.74
Ismailpur	12.07	79.38	1.88	4.31	4.03	2.75	2.63
Sabour	8.58	63.4	8.46	18.04	11.73	11.75	9.93
Nathnagar	11.73	73.1	2.86	9.53	5.08	4.39	3.12
Sultanganj	10.96	73.26	0.31	13.82	11.3	12.03	10.82
Shahkund	11.03	82.5	0.27	4.31	5.4	4.23	3.42
Goradih	16.78	79.1	0.23	3.14	4.64	4.01	3.59
Jagdishpur	6.28	73.62	4.93	8.62	3.43	3.88	2.94
Sonhaula	15.56	72.53	1.11	5.92	4.61	4.77	2.71
Munger District	**7.68**	**78.03**	**0.33**	**12.57**	**9.8**	9.13	8.4
Munger	5.11	77.73	0.17	15.05	11.26	12.22	10.96
Bariarpur	8.17	77.89	0.15	12.63	9.8	11.08	10.84
Jamalpur	5.28	71.03	0.54	21.49	15.14	17.6	16.74
Dharhara	3.92	78.43	0.66	15.82	9.61	10.23	9.72
Kharagpur	10.04	81.65	0.57	6.94	7.07	7.89	7.25
Asarganj	6.89	82.24	0.12	9.02	6.36	5.25	4.35
Tarapur	9.63	71.62	0.19	16.45	15.28	5.75	4.32
Tetiha Bambor	9.51	82.43	0.07	7.46	6.35	5.74	5.42
Sangrampur	10.59	78.53	0.09	8.95	7.28	4.49	4.13
Coimbatore District	**14.86**	**54.98**	**4.41**	**22.26**	**8.8**	**25.9**	**3.46**
Mettupalayam	22.15	45.71	5.8	20.18	6.77	35.91	3.72
Sulur	13.23	49.69	2.93	32.04	7.26	31.74	2.66
Coimbatore North	11.2	54.25	3.44	26.17	10.17	34.84	3.8
Coimbatore South	10.24	51.41	3.12	27.35	9.64	31.85	3.62
Pollachi	16.5	62.94	5.65	14.02	9.28	11.54	3.51
Erode District	**19.69**	**63.99**	**3.76**	**11.42**	**6.46**	**9.03**	**3.71**
Sathyamangalam	20.32	66	4.47	8.07	4.65	6.83	3.32
Bhavani	19.39	65.9	3.36	10.41	6.59	8.55	3.97
Gobichettipalayam	20.9	63.76	3.83	10.56	6.25	8.39	3.6
Perundurai	16.93	63.33	4.39	14.09	6.33	9.95	3.46
Erode	20.43	59.12	2.88	15.93	8.9	12.54	4.13

Source: Socio-Economic Caste Census, 2011

Table 8.7: Major Clusters in the Districts

District	Name of the Cluster	Location	Major Items manufactured	Special Purpose Vehicle	No. of functional units	Turnover (Rs.)	Employment Nos. (Direct/ Indirect)	Avg. Investment in machinery	Export (Rs.Crore)
Bhagalpur	Rice Mill	Jagdishpur	Arwa Rice		69	3450 lakhs	414	10 lakhs	
	Lahthi	Sanhola	Bangles		25	23 lakhs	100	2.5 lakhs	
	Handloom	Bhagalpur	Silk cloth,Cotton Fabrics,Home furnishing items		100	50.5 lakhs	300	25000	
	Powerloom	Bhagalpur	Shirting fabric,Silk cloth,sarees,Furnishing items		300	500 lakhs	700	5 lakhs	
Munger	Coconut handicraft	Lal Darwaza, Munger	Coconut handicrafts		25	75 lakhs	125	0.15 lakhs	
	Jute handicraft	Lal Darwaza, Munger	Jute Bags		25	30 lakhs	80	0.50 lakhs	
	Mushroom Production	Asarganj	Mushroom products		25		100		
Coimbatore	Motors and Pump	Coimbatore	Monobloc pumps - Jet pumps - Centrifugal pumps, Reciprocating pumps , Jet pumps, Gear pumps , Process pumps, Submersible pumps	COINDIA	1104	2150 crore	104500	15-25 lakhs	30 crore
	Foundry	Coimbatore	Castings to motor pumps, textile machineries valves and auto components sector	COINDIA	600	0.40 crore	2000	25-30 lakhs	
	Wet Grinder	Coimbatore	Wet grinders	COWMA	700	300 crore	70000	10 lakhs	20 crore
	Light Engineering	Coimbatore	Fabrication work to Pump and motor units and foundries		25000	300 crore	75000	3 lakhs	
	Electronic Products	Coimbatore	Automobile dash board instruments, UPS Stabilisers, Timers and Controllers, process & switch controllers, PCBs	CIEPDEC	2053	1455 crore	35000	10-15 lakhs	250 crore
	Gold Jewellery	Coimbatore	Plain Gold Jewellery, Gem Stone Studded Jewellery, Diamond Studded Jewellery		1600	9000 crore	180000	5 lakhs	900 crore
	Coir	Pollachi	Coir Fibre, mat mattings etc					10-15 lakhs	
Erode	Readymade Garments	Erode, Bhavani and Chennimalai	Shirts, bermudas, pyjamas, Ladies and kidswear, Home furnishing items	TGEA	2549	10000 crore	900000		1000 crore
	Rice Mill	Kangeyam	Rice		120	400 crore	7200		10 crore
	Coir	Natha Kadaiyur	Coir fibre composite panel manufacturing unit	Indian Coir Products (Erode) Pvt Ltd.	132	250 crore	2000		100 crore
	Oil Mill	Kangeyam, Vellakovil	Extraction of coconut oil, groundnut oil		196	150 crore	31500		5 crore
	Moonstone	Devangapuram	Moonstone			3 crore	1600		
	Leather	Erode	Leather footwear, Leather tanning		3000				

Source: MSME and DIC Reports

8.7. Diverging Patterns in Industrialization and Workforce Diversification

In an attempt to understand the diverging patters of workforce diversification pathways as well as diverse industrialization scenarios, this chapter has attempted to intensively study historical, geographical, social, administrative and economic concerns and features of the chosen districts. The districts themselves were chosen, as mentioned earlier, based on the findings in the previous chapter from detailed spatial level analysis of workforce diversification and industrialization patterns. In addition, various relevant factors have also been analysed at the district and block levels using data from the Census of India (2011), Department of Industries and Commerce and the Micro, Small and Medium Enterprises reports as well as District Census Handbooks for the chosen districts. The basic motivation has been to describe the initial scenarios and the current scenarios of these regions to compare and contrast the differences that have led to divergence in diversification as well as industrialization patterns at the grassroots, to suggest policy measures.

It is evident that structural change of employment in Bihar has been lagging behind, as has its urbanisation. The urbanisation in Bihar has been uneven, restricted mostly to Patna and the Bhagalpur regions. Despite some level of urbanisation in the Bhagalpur region, industrialization has taken a backseat, with only a few of the oldest industries remaining. The textile industry of Bhagalpur has not modernised extensively. Workforce diversification patterns have also similarly followed suit. The almost stagnant industry in the region implies that development and prosperity motives might not be dominant forces driving non-agricultural employment. The traditional textile industry is also suffering, and is becoming limited to supply in local markets.

In terms of population, as per the Census of 2011, Bhagalpur ranks 15th in terms of population and 17th in terms of area in Bihar, while Munger ranks 33rd in terms of population as well as area. In terms of population density, per square kilometer, Bhagalpur is the 16th most densely populated district in Bihar, while Munger ranks 26th. Bhagalpur and Munger have lower sex-ratios of 880 and 876 respectively as compared to Bihar's overall sex-ratio of 918. However, compared to Bihar's urbanisation ratio of 11 per cent, Munger is 28 per cent urban, while Bhagalpur is 20 per cent urban. It is evident that the socio-economic transformation of this region is occurring, but still incomplete, and needs to be given a strong boost.

Table 8.8 summarises the situation of urbanisation and provision of amenities in these districts as well as general socio-economic parameters such as percentage of main male working population in non-agriculture (MMWP), literacy rate (LIT), total fertility rate (TFR), amenities such as water, electricity and LPG availability as well as good housing conditions; and average percentage share of households possessing basic communication and transport assets such as telephone, computer and two-wheelers or cars. The Coimbatore-Erode region is much more urbanized as compared to the Bhagalpur-Munger region, and a similar trend thereby is also seen in the provisioning of basic amenities in this region. It is important to note here that the fertility rate in Bhagalpur and Munger is still much higher than the replacement level of 2 (which is also close to the National Average), while that of Coimbatore and Erode is much lower, signifying the differentials in social conditions.

Table 8.8: Socio-Economic Parameters

District	% Urban	Population Density per sq. km.	MMWP	LIT	TFR	Housing	Water	Electricity	LPG	% Households availing banking services	% Households with Assets
Munger	28.0	963.9	56.5	70.5	3.9	38.9	7.7	34.3	18.6	57.8	1.1
Bhagalpur	20.0	1182.5	47.7	63.1	4.3	35.5	8.2	31.0	11.2	45.5	1.5
Erode	51.0	390.9	61.6	72.6	1.4	72.3	77.7	90.4	56.3	54.2	5.7
Coimbatore	76.0	730.8	84.8	84.0	1.4	74.1	93.8	94.8	71.4	59.2	11.6

Source: Computed from Census, 2011

Tamil Nadu is one of the more developed states in India with highest urbanisation levels as well as a frontrunner in industry. The workforce participation is also significantly large in Erode and Coimbatore region, with a lower share of dependence on agriculture for work. These trends seem to be more driven by prosperity and aspirations than distress as in the case of Bihar. With increased stress on and spread of education, agriculture is not generally preferred especially among the youth for work, who are more inclined to work in industry or service sectors, and often vie for government jobs. Erode has an urban population of 51.4 percent, and as per Census 2011 ranks 15th in terms of population size in Tamil Nadu but with a comparatively lower population density per square kilometre. Though literacy rate and sex ratio of Erode district is slightly lower to Tamil Nadu's average, it has the third highest percentage of main workers to total workers (almost 93 per cent), as well as the highest work participation of 53.1 per cent across districts in Tamil Nadu.

What is interesting is the increasing in-migration of Bihari workers in Tamil Nadu in search of better job opportunities[71]. The textile industries as well as foundries in the Coimbatore-Erode region have a lot of Bihari migrant workers, which is in their favour due to local labour supply shortage. These workers are also benefitted in most of the cases when payments or wages are on piece-rate. However, they work for longer hours to finish more pieces to earn more, and have come to be preferred over local workers, as their potential is easier to exploit for these industries. In this context, Tables 8.9 and 8.10 below list the Industrial Areas in these districts, as well as the Industrial units and their investment and employment scenario over time.

Table 8.9: Industrial Areas in the Districts

	S.No.	Industrial Area	Land Acquired (Acres)	Land Developed (Acres)	No. of Plots	Allotted Plots	No. of Units in Operation
Bhagalpur	1	Barari Large Industrial Estate, Bhagalpur	51	43	112	111	42
	2	Growth Centre, Kahalgaon	1020				
Munger	1	Industrial Estate, Munger	8	8	82	70	44
	2	Industrial Estate, Jamalpur	24	24		44	
	3	Industrial Estate, Sitakund	18	18		10	
Coimbatore	1	SIDCO, Kurichi	88	88	238	237	238
	2	SIDCO, Malumichampatti	36	36	128	128	115
Erode	1	Govt. Industrial Estate, Erode	25	11	30	30	23
	2	SIDCO, Nanjai Uthukkuli	13	13	26	26	26
Source: DIC							

Table 8.10: Industrial Units and Investment and Employment Scenario

District	Year	No. of Units (Registered)	Employment	Investment amount (Rs lakh)
Bhagalpur	1984-1994	667	2668	670
	1994-2005	784	3136	804
	2005-2012	761	3044	1208
Munger	1984-1994	890	2330	279
	1994-2005	605	1815	425
	2005-2011	237	665	194
Coimbatore	1984-1994	24644	125121	162213
	1994-2005	29816	188437	170670
	2005-2011	16642	129896	736008
Erode	2007-2011	19521	77503	526440
Source: DIC				

On comparing the two regions overall, it seems that while the structural transformation of employment in Bihar has bypasses the manufacturing sector towards informal service activities,

[71] This is discussed in greater detail in the following chapter.

Tamil Nadu has more or less adhered to the stylised western models, with a declining dependence on agriculture for jobs matched by jobs in manufacturing as well as services sector which has been gaining more momentum. In (rural) Bihar, while the need for jobs drives workers to migrate to far off places, in (rural) Tamil Nadu it is more often their own choice to not participate in agriculture and seek non-agricultural jobs elsewhere, leading to high diversification. Although it has been attributed to the role of education in promoting capabilities (Drèze and Sen, 1995), as well as raising aspirations to work in more productive sectors (Reardon, 2001). However, social transformation has also been important in reducing inequalities in employment on the basis of caste, class and gender, with more women in Tamil Nadu working in manufacturing and service sectors. This transition is yet to be seen for Bihar.

Keeping these basic features and findings in mind, the field survey is therefore based on understanding workforce diversification patterns, pathways and correlates in these regions; at the same time investigating the premature deindustrialization hypothesis at the grassroot level. A host of relevant issues are discussed, ranging from the nature of diversification over time by existing as well as new workers, their aspirations and perceptions of the job market, as well as the outcomes of their job choices.

A Glimpse of the following chapter

From detailed field based case studies in the selected regions, there is some evidence of 'deindustrialisation' in Bihar, with only a few industrial clusters barely surviving. Tamil Nadu on the other hand has thriving clusters but workers seek high collar jobs and value education more, with better jobs coming up over time, most semi-skilled jobs nor performed by Bihari migrants. An interesting aspect of response was that income is not the only cause for diversification in these areas; education, values, society, future, priorities and way of life in general impact diversification. Growing mechanisation (e.g. from handlooms to power looms) leads to higher productivity increases but decline in traditional skills. Weaving was hereditary earlier but the next generation is not interested. With growing links and/or proximity to 'developing' or fast urbanising neighbouring districts and towns, changing preferences and demand patterns, small land ownerships may lead to less emphasis on agriculture. The following chapter discusses these findings from the field in depth.

Chapter 9: Some Aspects from the Field: Tamil Nadu and Bihar

'.....when one person's livelihood changes, it can impact an entire family, then a whole community.....' Tae Yoo

Recapitulation

The previous chapter gave an overall account of the four chosen districts based on spatial analysis in terms of their historical, geographical, administrative, socio-political and economic backgrounds. This was to set a basis for understanding the differences and diverging patterns in workforce diversification and industrialization patterns in these regions at the grassroot levels. Though the Bhagalpur-Munger region and the Coimbatore-Erode region had somewhat similar historical beginnings in industry and connectivity, their progress has since been diverging constantly, affecting the structural transformation of society as well as employment, which needs to be explored in greater detail.

Outline of this chapter

This chapter lays out in detail the findings from these regions from field surveys of industrial workers as well as structured interviews and discussions with factory owners and small industrial units. Such an analysis at grassroot levels is imperative for understanding the dynamics at the basic stratum of work, in order for policies to be more target-based and effective. While *village* level studies looking at shift from farm to non-farm activities are common, this study widens the purview and covers industrial workers in the *peri-urban* space under the looming threat of premature deindustrialization in the economy to understand the detailed nuances of the changing dynamics of workforce diversification for a better insight into the possibility of structural transformation of work in the future.

9.1. The Need for Micro-level Analysis

The analysis from secondary data sources presented upto now using NSS and Census data at the temporal as well as spatial levels have at the most limited scope for explaining workforce diversification and the roots of structural transformation, as these dynamics differ at the more disaggregated levels. Although these macro data have managed to capture significant part of the workforce diversification and structural transformation processes, a deeper micro level

understanding is essential at the block level within districts and further in towns and villages to understand the local dynamics that lead to diverging patterns spatially in terms of socio-economic transformations and progress, since the macro picture often tends to mask nuances at the micro level. Therefore, to comprehend the multi-faceted and multi-dimensional aspects of the process of structural transformation of society, economy, employment and industry, a deeper probe into more disaggregated micro levels would be helpful.

The comparison of more developed areas with lagging areas, their local level dynamics and the inter-state and regional socio-political differences in terms and the resultant patterns of industrialization and workforce diversification have not been captured in great detail in the literature. However, there are numerous village level studies on the growth of the rural non-farm sector, focussing on specific states. Given the debates on the non-farm sector employment being a *push* or a *pull* phenomenon, such micro analyses would help in clarifying which kind of processed dominate in which kinds of regions and situations , as also accepted by Vaidyanathan (1986).

9.2. Literature on prior micro-level analyses

Historically, Indian villages were essentially associated with subsistence farming and a variety of self-sustaining diverse economic activities that sustained the local economy as a whole. Romesh Dutt (1970) has pointed out that India prior to the Europeans' arrival generally had a diversified economy in agriculture as well as manufacturing, as well as a diverse occupation structure, and the flourishing trade and growing urban centres bore witness to this. Bipan Chandra (1991) argued that it was during the colonial rule in the nineteenth century that de-industrialization in India already originated, with the destruction of popular industrial centres as well as livelihoods of village artisans, thereby jeopardising the self-contained village units forming the Indian economy's nucleus.

Post-independence Indian economy witnessed a change in this situation as Development Planning was set into motion, with focus on the growth of heavy industries, transport, communication and basic infrastructure. This provided impetus for the promotion of non-farm activities along with agriculture. The scenario seemed to be improving throughout till the 1990s, when major changes and reforms were made in the economy, impacting patterns of public

expenditure as well. A slower growth of jobs in non-agricultural sector has since been becoming apparent, and the spurt in non-farm activities has been mostly in construction or self-owned enterprises.

There have been various primary level analyses pertaining to aspects of workforce diversification, especially in rural areas stressing on the rural non-farm sector. However, these studies do not focus as much on the pathways, outcomes and future aspirations of workers as on the distress versus prosperity arguments. This section gives a brief outline of some of the kinds of studies at the grassroot level that have given particular kinds of findings, which provide the basis for much deeper investigation on the issue of workforce diversification under the deindustrialization scenario in both rural as well as urban areas.

The basic debate on distress-push versus prosperity-pull induced workforce diversification which can not completely ascertained using secondary data, has been explored widely in literature using primary data on sources of household income, nature of activities and so on. The secondary data sources have often also been criticized for not capturing certain issues in the right perspective. For instance, while it has been noticed that rural non-farm employment expanded rapidly for males as compared to females, there is literature that argues about the under-enumeration of women in non-agricultural employment essentially due to the biased view of readily classifying women's work as agricultural labour by the Census (see for instance Hazell and Haggblade, 1991). On the other hand, it has been argued that rural employment is not correctly captured as households and individuals pursuing different seasonal activities tend to get mis-represented in most secondary data sources (Fisher et al, 1997). Some of these aspects which tend to be covered by the more aggregated picture provided by secondary sourced therefore find mention in various kinds of primary surveys.

Going back to the rural non-farm employment debate, it was suggested by Unni (1991) that agricultural productivity explained the share of non-farm employment to a significant extent as revealed by regional level NSS-EUS data in the late 1970s. Her study found agricultural productivity to be impacting non-agricultural employment for males in many industrial groups, along with landholding size and urbanisation. This was also supported by Saith (1992, quoted in Bhalla, 1997), who stressed on importance of rural-urban linkages harbouring the growth of transport and communications to be as important as agricultural growth and productivity and

concluded that inter-district differentials were caused by differentials in these factors. In addition, as argued by Vallapureddy (undated), Bhalla (2005) and Mitra (2008), 'diversification within agriculture from food crops to cash crops also meant commercialisation of agriculture: a shift from food production per se towards marketing, transport, logistics, education etc. While these resulted from rising rural income, this also led in workforce shift from core agriculture to non-agriculture'. Such a shift, however, was not uniform across states or even within a state.

With these macro-data based theories as basis, Harriss (1991) conducted an extensive primary survey in Arni (Tamil Nadu), but found low evidence of agriculture growth and demand leading to workforce diversification to non-farm activities and argued that while in rural areas, agricultural growth could possibly be a necessary condition for growth of non-farm sector involuntarily, it may not be a sufficient condition. Later, in a much detailed book containing further analysis on Arni[72], it was suggested that in these developing small towns, it was infrastructure rather than local economy, and their linkage and feedback mechanisms that led to growth of towns with industrialization and diversification of workforce.

The role of endogenous factors such as agricultural growth, landholding size, irrigation and commercialisation as well as exogenous factors such as urbanisation, increasing literacy and infrastructure development have also been stressed as important determinants of non-farm work in Uttar Pradesh (Ranjan, 1999). Such endogenous and exogenous factors have also been associated with household poverty reduction along with work diversification strategies, although the direction of the correlation has been debated; differentials in poverty have often been linked to differentials in the initial conditions of rural households in terms of human resources and the quality in terms of literacy of females, farm outputs, along with other factors such as urbanisation and consumption differentials between rural and urban areas (Ravallion and Dutt, 1999 for instance).

Such debates also spurred further research on household level data, which discuss in detail the complexity of diversification decisions of households for income expansion and poverty reduction under competitive non-farm jobs and inability to perform high-income non-farm work due to lack of education/ training or experience. For instance, Lanjouw and Shariff (2004) found

[72] Harriss-White (2016) ed, 'Middle India and Urban-Rural Development- Four Decades of Change"

on analysis of NCAER's survey data of 1993 that though households may diversify for better incomes, the result could not be determined exclusively due to non-farm activities often being residual sectors and only sometimes led to upward mobility.

In this context, migration appears to be an increasingly evident strategy for rural households in particular. This often rural-urban transition by changing place of residence generally for work is quite common at the household level with young adult members usually moving out for work and sending back remittances and sometimes visiting (de Haas, 2010)[73]. Since rural households are often agrarian with incomes being uncertain due to seasonal variations etc., (Chambers, 1995), they tend to diversify work to increase income, and migration is one such pathway. This is true even in the case of urban households, when incomes are uncertain (Ellis, 1998 and 2003) and remittances add to their diversified income sources (Scoones, 1998). Migration therefore can lead to diversification of household income, economic activity, and deployment of household members (Ellis, 2003).

It is also argued that incomes realised by households on diversification (or migration) could be reinvested in agriculture to improve productivity (for instance, Ellis and Allison, 2004; Evans and Ngau, 1991). This led to the classification of households into '*enduring*' households, *'resilient'* households and *'fragile'* households, based on the association of diversification with the households' upward mobility (see Oshaug, 1998 quoted in Maxwell and Smith, 1992 for instance). This further spurred debates and investigation of household-level factors influencing livelihood and income diversification.

For instance, Khatun and Roy (2012) in a study on West Bengal found and reiterated the *household factors* that influenced livelihood diversification patterns, stressing on household size, assets possessed by the household, level of education, skills and experience as the driving forces of work decisions. Their study suggests that lack of information and awareness, lack of credit and basic assets, poor infrastructure and lack of training and confidence often hampered rural workforce diversification to non-agricultural activities.

[73] These findings were also the basic predictions of the theories of development (Rostow, 1960 for instance) which considered 'deagrarianization' as a positive result of development, which also entails rural-urban migration (Lewis, 1954). This, in the current Indian context is biased towards big cities which attract hordes of migrants especially from poorer states such as Bihar, Odisha and Uttar Pradesh (Kumar and Bhagat, 2012).

Many studies reiterate these findings, especially stressing on levels of education in the household as an important driver of non-farm work (Ngheim, 2010; Owusu et al, 2011 etc.). The importance of human capital within the household including education, skills and the advantage of working age members often proved to be beneficial for households wanting to diversify by broadening the avenues for work. In addition, social capital has been found to be an important factor, but due to unavailability of data, has often been less discussed.

Drèze et al (1998) have tried to comprehend the role of social capital in non-farm diversification in Palampur in Uttar Pradesh; they found that when some village residents found non-farm work in some establishment, they tended to help others to enter using their personal connections based on family, caste and so on. It was thus concluded that personal contacts and social capital therefore was a major influence on diversification patterns, and to some extent also explained the gaps between farm and non-farm wages, and low turnover for non-farm jobs during that period.

In the same light, social status in terms of caste has also been considered an important local factor that influences work participation as well as diversification, especially in rural areas (Unni, 1997). Again, Drèze et al's (1998) work highlights the issue of personal connections highly impact work allocation enabled by bribery; they discovered that a few high-castes (Thakurs for instance who used to be landlords) could disproportionately acquire larger shares of productive non-farm work through their money and contacts. As a result, in many cases, it has been found that lower castes face barriers to enter productive non-farm jobs and are often stuck in informal work in manual occupations. For instance, Som el at (2002) in Madhya Pradesh and Rath et al (2002) in Odisha found activities such as tailoring, carpentry, shoe-making etc., were often performed by the lower caste and tribal people, which upper castes refused to engage in. The same trend was also noticed by Lanjouw and Shariff (2004), highlighting that lower castes and tribes were less likely to find high-paying productive non-farm work. In the case of Uttar Pradesh, Ranjan (2009) found that it was mostly the OBCs (around 54 per cent) who pursued non-farm activities in rural areas in the 2000s, followed by SC workers and finally the ST workers. The high share of SC workers in the rural non-farm sector in Uttar Pradesh could be explained by the higher share of SC population in the state.

The role of gender too is much better captured through local level dynamics. Women are often constrained by cultural factors and the fact that work may not always be available near their residence (Chadha, 1997), or social factors and family pressures such as cooking, child-rearing etc., which is only exacerbated in rural areas by their lack of education and skills, leading to lower wages in work even if they manage to find work (Singh and Kumar, 1995; Vyas and Bhargava, 1995). To improve female participation in non-farm activities, Srivastava et al (1995) suggest improvement in education levels, capacity building through vocational training, provision of incentives for self-employment, fuller utilisation of capacities in public and private sector manufacturing units, and reducing wage gaps.

In this context, the literature on cooperative societies and self-help groups as well as microfinance in supporting female non-farm participation by credit provisioning, reducing risks and providing the ability to build capacity and accumulate assets, is wide (for instance Hashemi et al, 1996; Zaman, 1998; Rabindranathan, 2005; Yogenrarajah and Semasinghe, 2013 and so on). On the flip side, though micro-credit schemes and SHGs help women the particularly poor women who are often the target–group of such schemes to some extent, it also must be supported by training, social and financial awareness and so on.

At the same time, to increase non-farm work in general, the role of the government is equally if not more important, especially through public spending on development programmes, infrastructure projects and so on (for instance, see Vaidyanathan, 2010). As argued by Hazell and Haggblade (1991), (rural) infrastructure is imperative in increasing income multipliers of farm growth to non-farm growth as well. Correspondingly, Sen (1997) found the rapid workforce diversification during the 1970s and 1980s was to a large extent the result of increased public spending. Visaria and Basant (1994) highlighted the caveat of increasing urbanisation and infrastructure providing stiff competition to small rural manufacturing by providing easy access to cheaper substitutes. However, at the grassroot levels, administrative and socio-economic development services such as electrification, roads etc., especially in rural areas, were found to improve trade, and increase non-farm activities directly and indirectly (for instance Harriss (1991); Eapen (1994) in Kerala; Shukla (1994 and 1992); Samal (1997) in Odisha and so on).

Although a wide variety of factors have been discussed in the literature at the micro-level, there is much yet needed to be understood on the *pathways, outcomes, impact and perception* of non-farm workers, especially given the present scenario of 'premature deindustrialization', and a focus on rural-urban interface rather than only focussing on rural areas. This study tries to address a few of these issues and fill some of the gaps in existing micro-level studies.

9.3. Objectives of the Field Survey

The field survey and case studies presented in this chapter have thus been conducted with the view to try and fill the gaps in understanding the micro-level and local dynamics of different types of regions in industrialization and the consequent workforce diversification, while at the same time also trying to gauge the drivers of such transformations as well as the outcomes of any mobility patterns. This study tries to add the dimension of perception and aspirations of the workers themselves so as to gain insights into future possibilities of diversification.

With this in mind, the present study aims to investigate and deliberate upon the structural dynamics of workforce diversification under the backdrop of level of industrialization, mainly in the districts of Bhagalpur and Munger in Bihar compared to the districts of Coimbatore and Erode in Tamil Nadu. The backgrounds of these districts were covered in detail in the previous chapter. This chapter presents the findings from the primary survey in these areas, essentially conducted with the ***objectives*** of understanding the following:

- The industrialization scenario and economic structure in these districts
- Whether workforce diversification has been distress or prosperity induced
- The nature, pathways and correlates of the structural transformation of jobs
- Outcomes and perceptions of workers in different industries in these regions

9.4. Methodology

As mentioned earlier, much of the evidence on growth of non-farm employment in India is based on NSS and Census data which give a macro picture and are often unable to capture the true nature of non-agricultural work in different regions; as such employment patterns are highly heterogeneous. More importantly, the complexities are often not completely captured even at the macro or meso levels. The analysis presented in this chapter is therefore both quantitative as well

as qualitative and tries to bridge any gaps and nuances that may have been missed in the macro and meso level analysis presented till now.

The primary surveys were conducted mainly in the four districts of Bhagalpur and Munger (Bihar), and Coimbatore and Erode (Tamil Nadu) covering mainly the workers in industrial clusters in these regions. In addition, factory owners were interviewed separately and some adjoining regions which showed inter-relations with these districts were also covered. The main method of the survey was multi-stage proportionate random sampling technique with snowball sampling in some case studies and focussed group discussions.

The stages of the survey consisted of *first*, identifying the main industrial clusters in each of these districts; *second*, selection of particular clusters for interviews; and *third*, interviewing workers in each identified cluster. This entailed detailed discussion on their sector and nature of activity/ occupation and time-spent on these, their previous and current work and a comparison of the same, their perceptions on the drivers as well as outcome of diversification, as well as *household* particulars such as monthly expenditure levels and patterns of demand. *Thirdly*, separate discussions were also carried out with small entrepreneurs as well as factory owners to know their perspective on the status of industrialization, changing labour supply and demand patterns and so on.

The main agenda behind the structured surveys and case studies has been to investigate and introspect on some important issues pertaining to structural transformation; such as the level of linkages of households and industrial workers with agriculture, patterns of industrialization, the rural-urban interface , markets and institutions, local capitalism patterns, credit availability, consumption and savings patterns, social factors such as caste, religion and gender in wage work, impacts of technology on work patterns within industry and its role in expansion/ suppression of informality, role of the governments, infrastructure in general and the general political and administrative set-up and incentives for factories to function properly. A lot of these aspects, providing explanation for the situation of 'premature deindustrialization' in India, have to be obtained and understood in a qualitative manner. These are some of the important aspects addressed in this analysis.

9.5. Findings from the Field: Workforce Diversification

The field survey was conducted between October and December 2018 in the four districts of Coimbatore and Erode (Tamil Nadu) and Bhagalpur and Munger (Bihar). The sample sizes of the survey are as follows:

Bihar: Bhagalpur- 96 respondents; Munger- 81 respondents Tamil Nadu: Coimbatore- 87 respondents; Erode- 98 respondents

Table 9.1: Basic Characteristics of the Surveyed Sample (in percentage terms)

Basic Characteristics	Bhagalpur	Munger	Coimbatore	Erode
Age				
15-29 (youth)	57.89	46.84	66.67	20.41
30-45 (middle aged)	33.68	37.97	32.18	53.06
Above 46 (elderly)	8.42	15.19	1.15	26.53
Gender				
Male	84.4	85	64.4	67.3
Female	15.6	15	35.6	32.7
Average number of Years of Participation in Work				
0-5 years	51.1	46.9	60.9	19.4
5-10 years	18.5	22.2	25.3	17.3
10-20 years	12	9.9	12.6	32.7
Above 20 years	18.5	21	1.1	30.6

Table 9.1 summarises the basic characteristics of the surveyed sample. In Erode, 20 per cent workers were youth, 53 percent workers were middle aged and 27 per cent of workers were over 45 years of age. Around one-third workers were women, while 67 percent were males. Over 60 per cent of these workers had been working for over 10 years in the labour market. In contrast, 67 per cent of the surveyed workers in Coimbatore were youth, with less than 5 years of work experience. 64 per cent of the surveyed workers were males. In the case of Bhagalpur and Munger as well, around half of the surveyed workers were youth with less than 5 years of participation in the labour market. Over 80 percent of the surveyed workers were males.

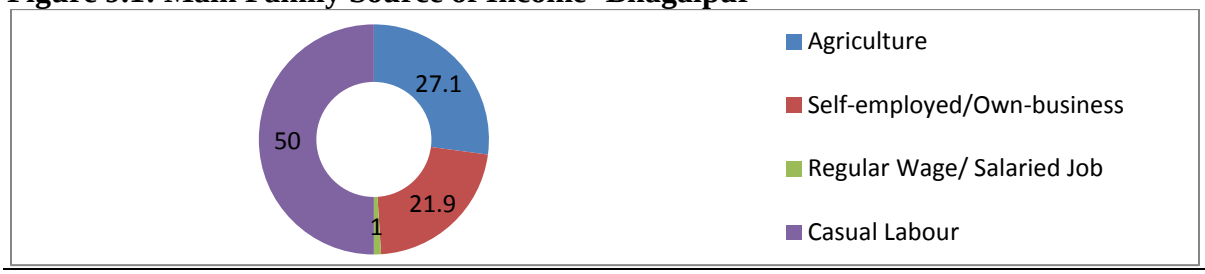
9.5.1 The Story in Bhagalpur

The major industries in Bhagalpur are silk and cotton handlooms and powerlooms, rice mills and bangle-making. The cotton (and silk) textile cluster in Bhagalpur is not very far from Munger district, and is one of the oldest and largest clusters in the region. There are various units within these clusters, involved in textiles weaving, bleaching, polishing Tussar silk and so on and

employ around 1000 persons[74] (including handloom and powerloom). Apart from this, there are also agro-processing and fabrication (foundry) units across Bhagalpur.

A random sample from the main industrial clusters (majorly handlooms and powerlooms) and a few other adjoining units comprising of 96 responses (apart from several group discussions and informal structured interviews with various stakeholders) was collected. This section gives a brief glimpse of the basic trends in 'diversification' patterns of the workers presently in these clusters and units. As Figure 8.1 clearly shows, the main source of family income for most of the workers in these clusters came from casual labour or agriculture with a little under one-fourth workers (or their families) having own-account businesses.

Figure 9.1: Main Family Source of Income- Bhagalpur

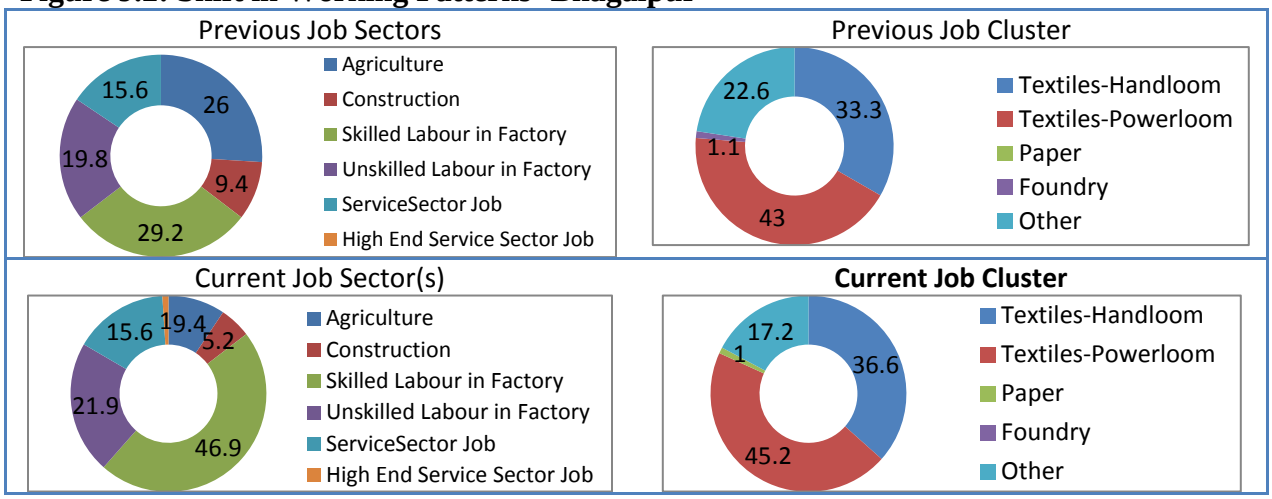


What would be more interesting is to look at the patterns of 'shifts or diversification' that these workers have or have not undergone for various reasons. This is shown in Figure 9.2, which shows the sector and cluster in which the workers were previously working (if at all associated with manufacturing earlier) as well as the current sector (to capture those who also work in other sectors simultaneously/additionally[75]) and industrial cluster that they work in. This is a broad way to capture any shifts (or none) across sectors and within the industrial sector in the region. For instance, it gives an indication of which sector the workers were involved in before, and how (if at all) they have shifted to the present sector and cluster.

[74]Also see Udyog Mitra, Government of Bihar

[75] For the 'Current Sector', workers were recorded into the sector which they were involved in apart from manufacturing; if they were only working in these factory units, they were recorded correspondingly.

Figure 9.2: Shift in Working Patterns- Bhagalpur



As Figure 9.2 indicates, around 26 per cent workers were previously engaged in agriculture and 49 per cent were already engaged in the manufacturing sector (as skilled or unskilled workers in factories). The remaining workers were engaged in services or construction. The major sectors for those previously engaged in manufacturing as well majorly included the textiles sector. Even in their present work scenario, these workers are generally skilled workers in these units, while a few also have some association with some service activity or agriculture. A majority of the workers (81.8 per cent) who were interviewed were majorly involved in the textile cluster, in handlooms or powerlooms.

This gives a brief of the nature and sector of work for these workers; a more important classification would be to understand the main and supplementary activities in case of workers also engaged in these. This is given in Figure 9.3, in order to capture the diversification of work in the region for industrial workers. Of the industrial workers interviewed in the clusters during the survey, around 49 per cent were involved in these manufacturing units as their main activity, while 47 per cent were in the manufacturing sector working in a supplementary status. For 26.7 per cent of the workers, agriculture was the main activity, and for 19 per cent workers, services formed the main activity. Agriculture was also recorded as a major supplementary activity after manufacturing.

Figure 9.3: Diversification of Jobs- Bhagalpur

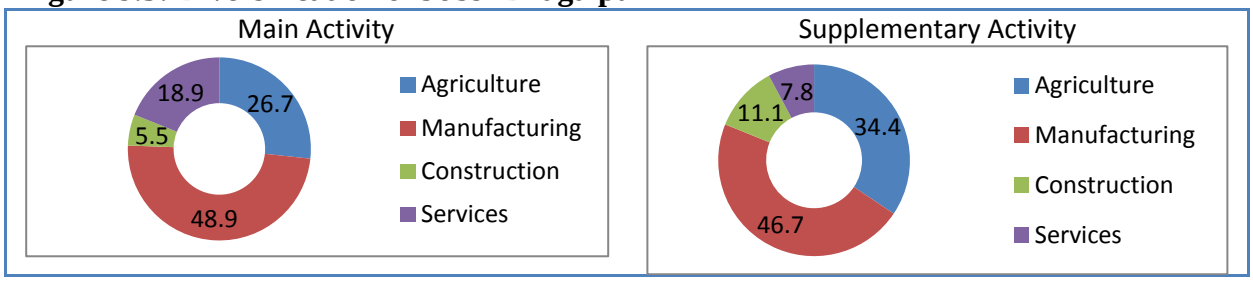
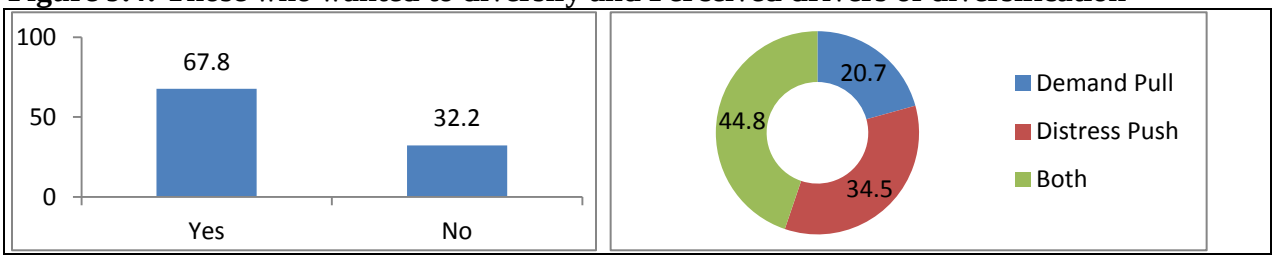


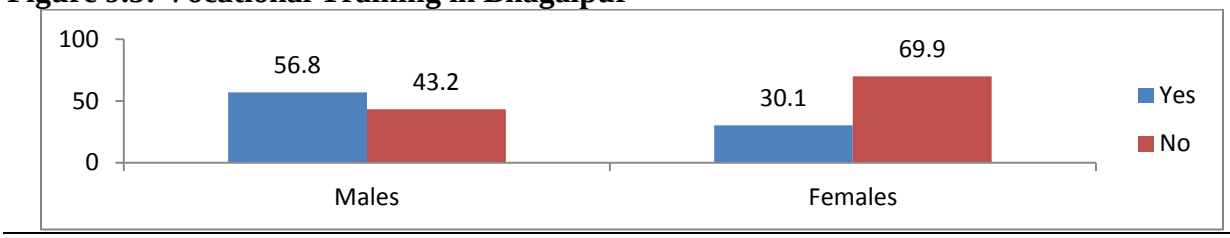
Figure 9.4 summarises the responses of workers when they were asked if had or wanted to diversify from their working status, and for workers who responded in the affirmative, the major driver in general that they felt instigated such a response from them were recorded. Around two-thirds of the workers responded that they would like to diversify, essentially due to a combination of demand-pull and distress-push factors, to increase household income.

Figure 9.4: Those who wanted to diversify and Perceived drivers of diversification



A majority of the workers in these units were skilled, while a few were unskilled; the percentage share of male and female skilled and unskilled workers is given in Figure 9.5. Around 57 per cent males had received some form of vocational training, while 70 per cent females were trained in their work.

Figure 9.5: Vocational Training in Bhagalpur



The average educational attainment levels in the households of these workers[76] and the main sources of training received by them are shown in Figure 9.6. This gives a general picture of the

[76] See Ngheim, 2010 and Owusu et al, 2011 for importance of household education levels on diversification.

household as well as individual level qualifications and impact of the same on finding skilled jobs in productive sectors. It is evident that the average levels of educational attainment were upto primary or middle level. What is important to note here is that the participation of most of these workers in the textiles sector in particular has been due to the training received through household's participation in the same sector; generational skills are a major qualification for these workers in the textiles sector in Bhagalpur. Figure 9.7 shows the responses of the workers when asked if they send all their children to school, to capture their perception of importance of education. Only 65 per cent of the workers send all of their children to school.

Figure 9.6: Educational attainment levels and Skills- Bhagalpur

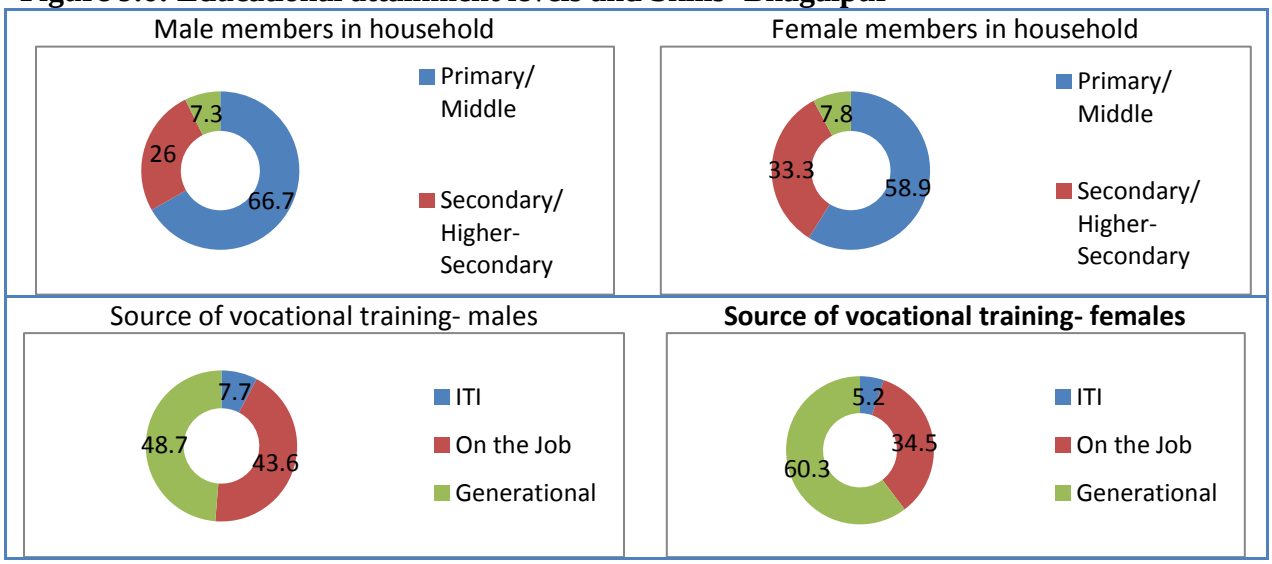
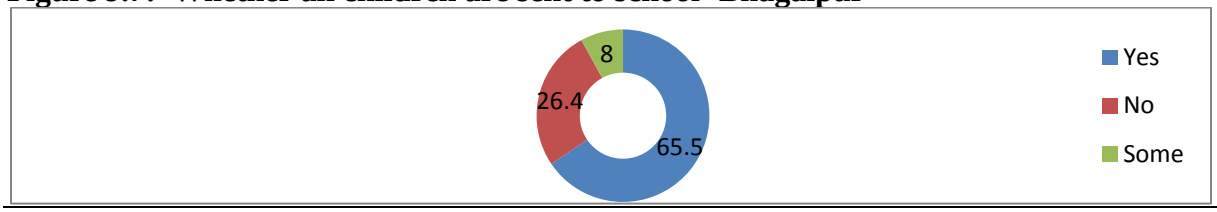


Figure 9.7: Whether all children are sent to school- Bhagalpur



Some Interesting Findings from Bhagalpur

The basic trends from Bhagalpur were listed above. In particular, the textiles units within the cluster employ a major chunk of the local population, and have been one of the oldest industries in Bhagalpur. Since this was the major cluster chosen for analysis due to historical as well as economic relevance and its similarity to the Coimbatore-Erode region, a more detailed qualitative research was carried out, an extract of which is presented here.

There are several small private units in the textile cluster in Bhagalpur, ranging from handloom weaving to powerloom weaving, to polishing and dyeing cloth. These are diverse activities with diverse skill sets, and there are specific gender roles in the same, a fact which will be compared with the case in the Erode region later in this chapter. The working conditions of these workers vary vastly from that of the Coimbatore-Erode region.

'Organisation' of Industry in Bhagalpur - Political Apathy?

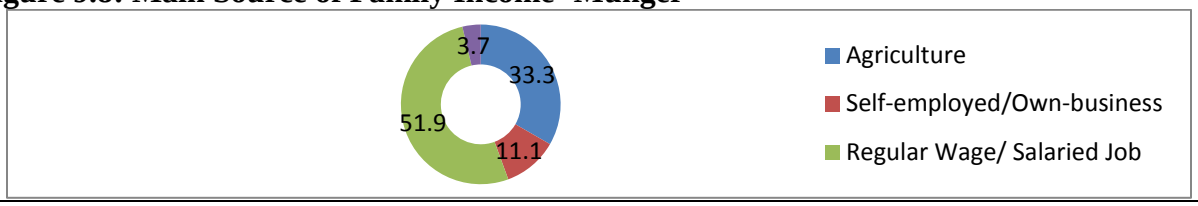
To begin with, it was evident that the condition of the handloom workers in Bhagalpur was pitiable, with the concept of 'Pit-looms' still functioning, where workers (all males) stand in pits in the ground in order to be able to work the handloom. These handlooms moreover, are very old, with no upgrades. These private handloom weavers have been working the same machine for generations, with little government support, and health issues such as stiff limbs. With no other avenue for work, they are stuck in these pit-looms. Women are mostly engaged in washing and drying cloth, working in the heat. The lack of government support and investment has contributed to reducing this once semi-formal cluster to almost informal.

The situation among private powerlooms does not seem to be much better. Most of these have been with the same family for generations, and workers have also been mostly hereditarily working in these looms, while others are also recruited through social and personal contacts (mostly landless or distress driven workers, who land from the frying pan into fire). Most of these families owning powerlooms have no land, and operate these looms in a rented one-room space. The lack of markets, obsolete machinery, lack of any government support, and erratic power supply are some of their issues. They sell their produce to middlemen, and obtain threads and raw material from them who procure it from Ranchi and Odisha. They realise that the industry is not doing well, and most of them send their children to school, hoping they get into government jobs later.

9.5.2 The Story in Munger

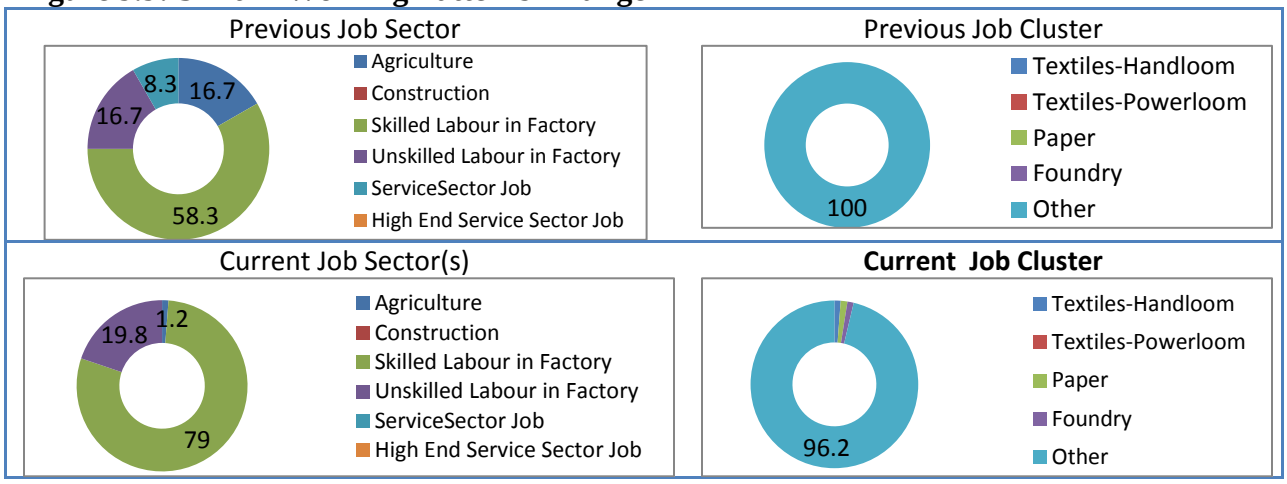
The major industries in Munger are mushroom production, some handicrafts and among the major industries, the ITC and its different plants. Therefore the major cluster chosen was the ITC Tobacco and Dairy Plants, due to lack of any 'Industrial' cluster. The characteristics of the workers (sample of 81) in these factories are summarised below.

Figure 9.8: Main Source of Family Income- Munger



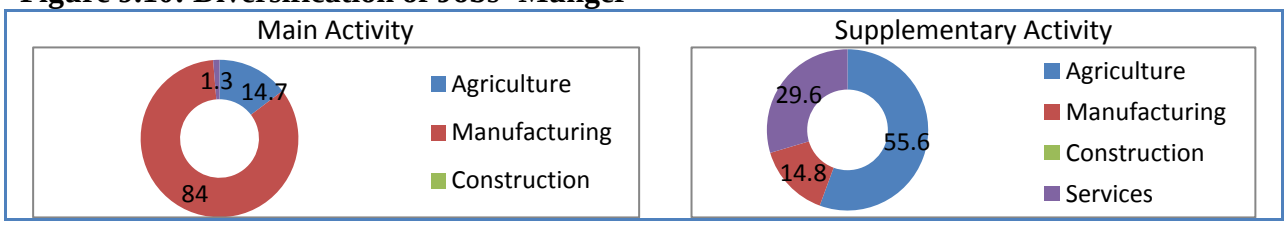
As Figure 9.8 shows, the main source of family income for the workers in these ITC factories is their own regular salary. For about one-third of such workers, family income comes primarily from agriculture. The shift in working patterns among these workers is given in Figure 9.9. Around 17 per cent of these workers were engaged in agriculture previously. The most significant point to notice here though, is that the only cluster in Munger consists of the ITC Cigarette and Dairy Plants, where most manufacturing sector workers are concentrated.

Figure 9.9: Shift in Working Patterns- Munger



More interestingly, the diversification patterns in Munger show that while the main activity for most workers is in the manufacturing sector (in the ITC divisions), the major supplementary activity where these workers are engaged in is agriculture.

Figure 9.10: Diversification of Jobs- Munger



Around half of these ITC workers said that they would like to diversify for demand-pull reasons for better incomes. This is also because their jobs in ITC are contractual .Most of these workers especially in the cigarette department of the ITC and in the printing for its boxes are males. As a result, the males have more vocational training in Munger as compared to females (within the survey sample mostly including workers in the ITC factories).

Figure 9.11: Those who wanted to diversify and Perceived drivers of diversification

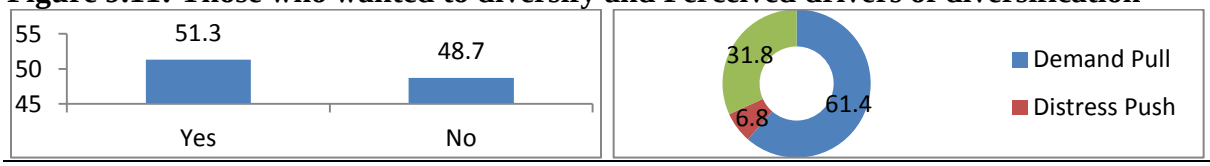
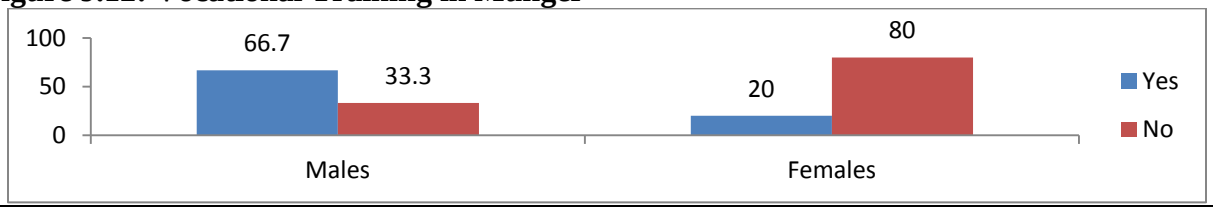
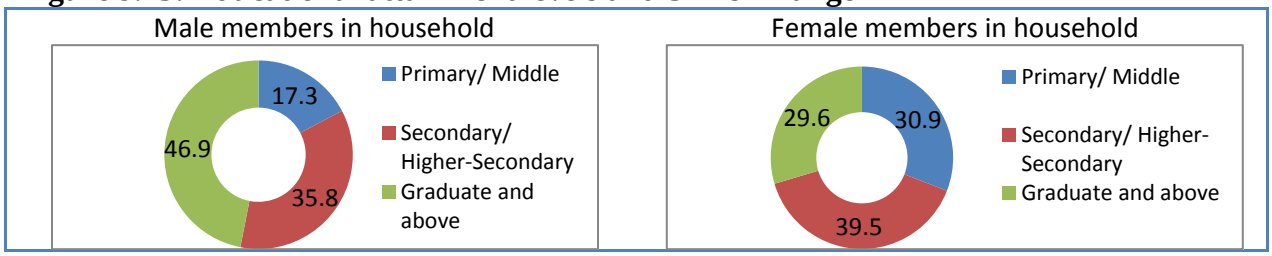


Figure 9.12: Vocational Training in Munger



The education levels and sources of training across these workers and their households is given in Figure 9.13. The education levels of workers' households in this cluster is higher than in the case of Bhagalpur, as the factory consists of local workers (who come from an agricultural background and have primary or upto secondary education), as well as more educated managers and supervisors (some of which are migrants from states like Punjab and Gujarat). The training for most workers in Munger is through ITIs. Munger has a large number of ITIs pertaining to various different vocations and is becoming a popular hub for skill development. The importance of education has become very relevant in Munger, and most workers send all their children to school. The only issue is that there are no other industries in Munger apart from the ITC chain, and for better jobs, migration is the way out.

Figure 9.13: Educational attainment levels and Skills- Munger



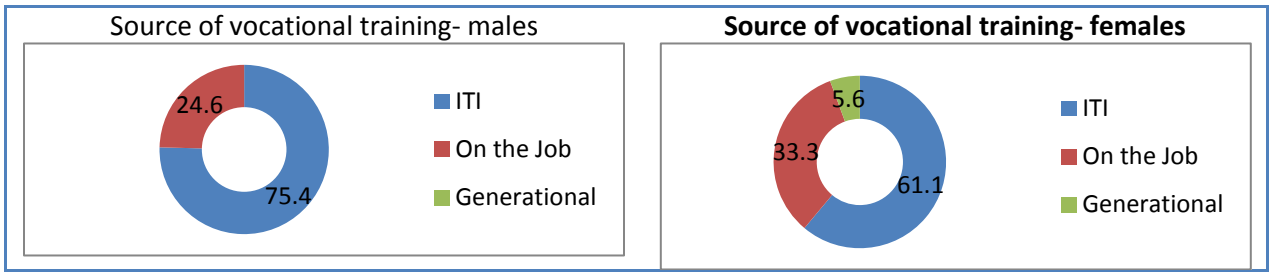
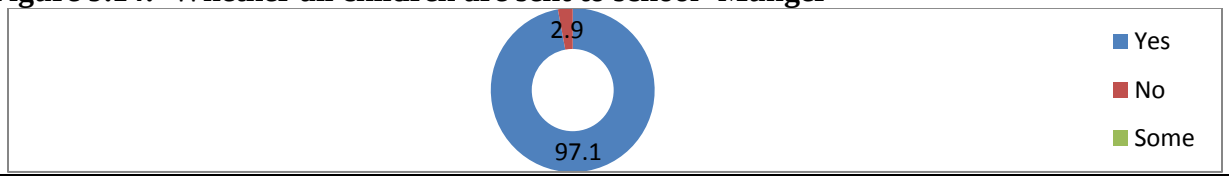


Figure 9.14: Whether all children are sent to school- Munger



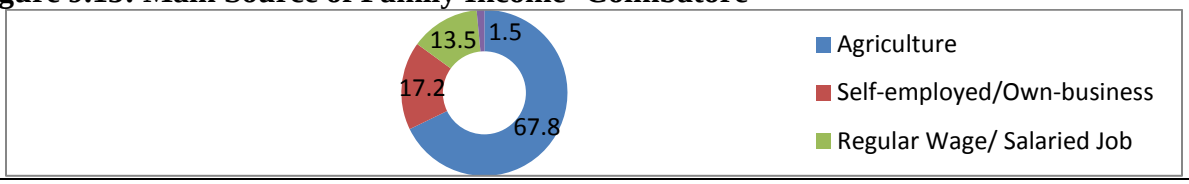
Some Interesting Findings from Munger

The ITC factory in Munger has a cigarette manufacturing plant, a unit that prints and manufactures packages for cigarettes (together employing 800 workers), and a recently set up dairy plant. The cigarette factory was set up by the British, and is the oldest and still the only 'industry' in the area. The workers in the cigarette plant are mostly local with a few workers from West Bengal (managerial and supervisory employees come from other states). The local workers are hired on contractual basis, and since it is a very old factory, those workers whose forefathers have worked here are often preferred. The ITC Dairy Plant also hires local workers on contracts for boiler work and other tasks requiring skills (those with prior skills are preferred). They are trained on site and offered PF, ESIC, canteen money cut and medical insurance. Several local workers here also engage in agriculture.

9.5.3 The Story in Coimbatore

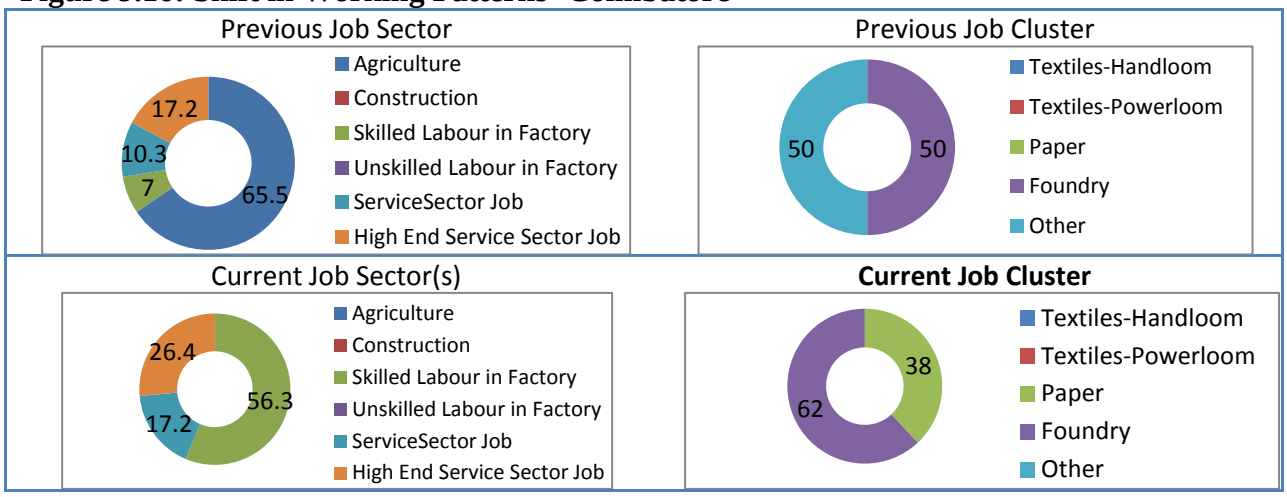
The major industries in Coimbatore include foundries, engineering and electronics, motors and pumps, and gold jewellery. Since the Chinese foundries and several industries shut down recently due to environmental concerns, the pressure on Coimbatore's foundries has increased, leading to huge demand for labour. This survey looks mainly at workers in the foundries and fabrication cluster as well as paper and related units mainly in the Arasur area (total sample of 87).

Figure 9.15: Main Source of Family Income- Coimbatore



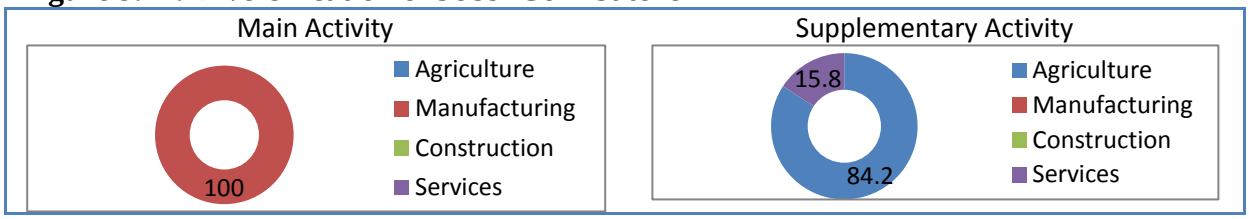
As Figure 9.15 shows, the major source of family income for the surveyed workers is agriculture. This is a very important point to note; most of the workers in Coimbatore's factories are migrants from Bihar with agrarian backgrounds.[77] Some of the higher level employees (supervisors and so on) also have experience in service sector activities.

Figure 9.16: Shift in Working Patterns- Coimbatore



The most interesting point noticed in Coimbatore was the huge levels of investment and focus on the building of new and expansion of old industrial clusters. Increasing education levels in general in Coimbatore and a growing IT hub, local higher level employees also have own service sector jobs ranging from trade to IT services (laptop repair shops and so on). The demand for workers in factories is thus met largely by migrants.

Figure 9.17: Diversification of Jobs- Coimbatore



[77] There are also employees in these factories with prior and current involvement with service sector (trade or small IT related work)

The workers interviewed in the industrial cluster were mainly associated with the respective factories they were working in, but for most of the migrant workers (mostly from Bihar), agriculture was the major supplementary activity when they returned home. On the other hand, some of the locals had small-scale supplementary own-account service sector activities.

Figure 9.18: Those who wanted to diversify and Perceived drivers of diversification

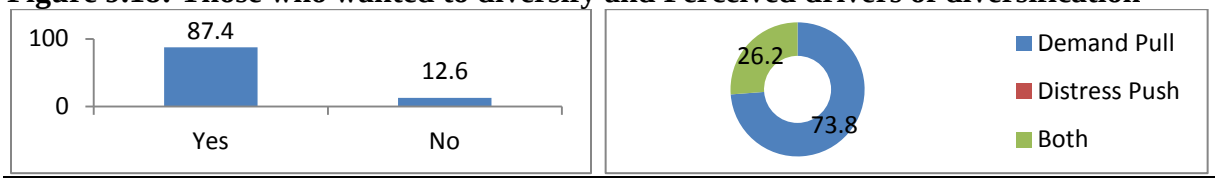
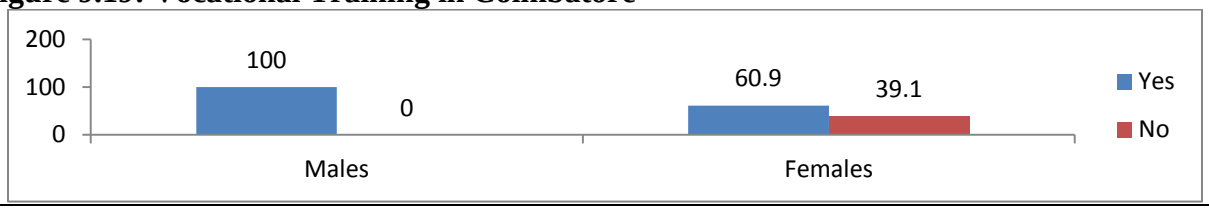


Figure 9.18 shows the responses of workers who had wanted to diversify, all the migrant workers affirmed to wanting to diversify for better incomes, which is why they has come to Coimbatore through social contacts, and would be willing to migrate anywhere to increase their incomes if given the chance.

Figure 9.19: Vocational Training in Coimbatore



The situation of vocational training is very high in Coimbatore, including for females (Figure 9.19). Further, Figures 9.20 and 9.21 show that the education levels for workers' families is generally upto or above secondary level for males, although in case of females primary level of education is dominant (this is the case of the migrant families, these women are left behind in agriculture while their husbands migrate to Coimbatore to work in these factories). In case of source of vocational training for male and female workers in Coimbatore, the major training is on received on the job. Most of the workers (barring some migrants) send their children to school.

Figure 9.20: Education attainment patterns and Skills- Coimbatore

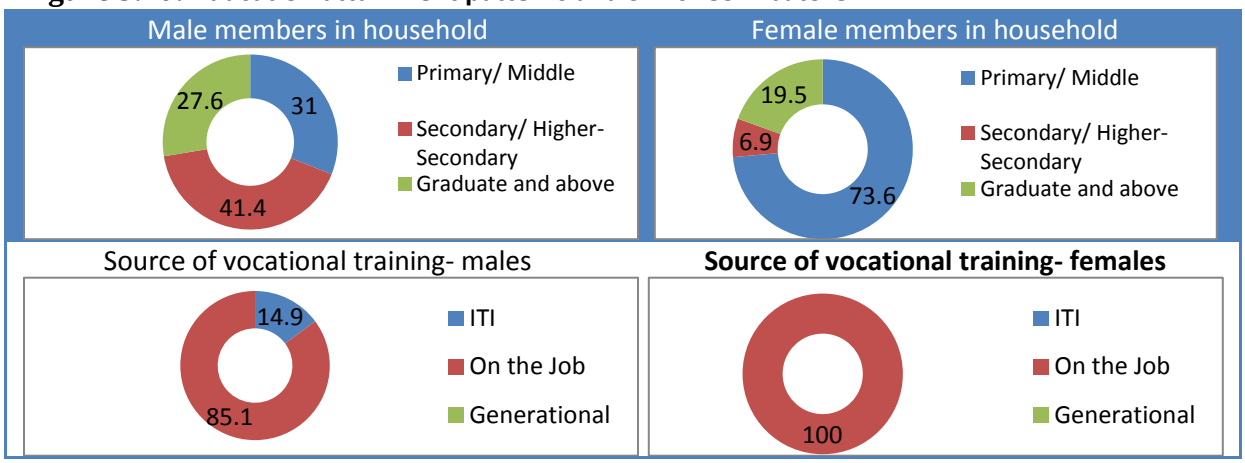
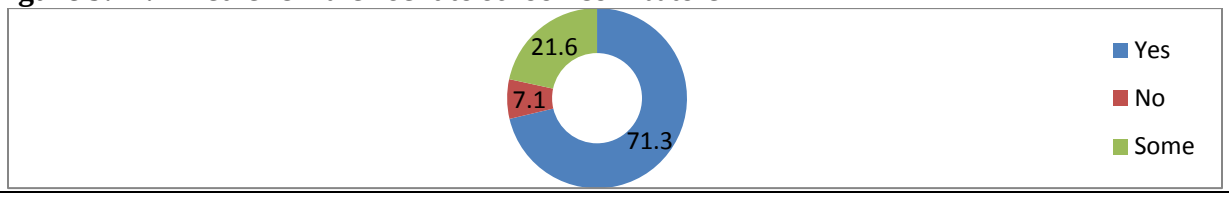


Figure 9.21: Whether Children Sent to School- Coimbatore



Some Interesting Findings from Coimbatore

There are many Industrial Clusters and Parks in Coimbatore (near the Avinashi highway area close to Erode) including SIDCO (for development of small industries), CODISSIA (which provides a market and platform for interaction and promotion of small industries), and TIDEL (which is a major service SEZ including major IT industries as well).

There is a growing Foundry Cluster in Arasur area (which comes under the wing of SIDCO), which mainly involves foundry, casting and fabrication work, tool making. The SIDCO Industrial Park in Madukkarai meanwhile is more focussed on cement and machinery manufacturing. Coimbatore also has paper mills and related industries. The Foundry cluster has specifically gained importance since the shutting down of Chinese foundries, which has shifted the demand to India and Coimbatore has seen a spurt in existing foundries with all raw materials available within 150 km radius. Interestingly, most of the foundries in the Arasur industrial cluster have a lot of Bihari migrants supplying labour (almost up to 70 per cent); these migrants come to Coimbatore periodically, get trained in the factories and work in less skill-intensive tasks while the local population aspires for higher incomes and are more skilled and demand highest posts in the industry. The benefits of PF etc. also mostly go to the local workers as migrants are transitory.

9.5.4 The Story in Erode

The major industries in Erode include readymade garments, textiles, leather, and oil and coir production. Erode has been an expanding market as well as industrial base over the years, with its linkages with Coimbatore and Tiruppur (where the textile industry is dying out due to environmental concerns). The textiles and readymade garments segment in Erode (Chennimalai block especially) is a burgeoning cluster, which has been surveyed for this very purpose, along with a few industries in SIPCOT industrial area such as Paper Mills (covering around 98 responses). The basic characteristics of workers in Erode are listed below.

The main source of family income for the workers in the Erode textile factories was recorded to be agriculture. This is also similar to the case in Coimbatore, with a majority of labour supply coming from Bihari migrants who come from agricultural households in search of better work. Their visits in Coimbatore and Erode are generally periodical, while they go back to visit their hometown and also engage in agriculture there which is managed by their households during their period of migration

Figure 9.21: Main Source of Family Income- Erode

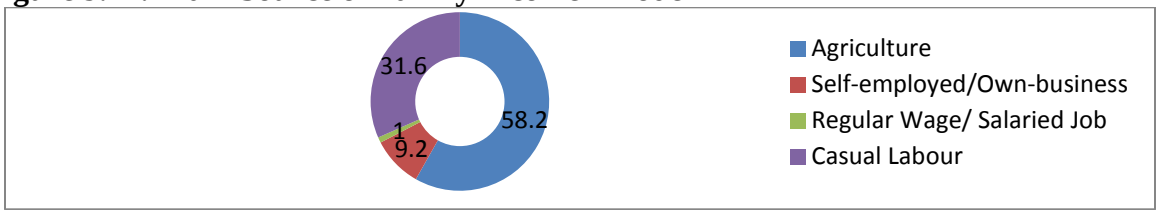
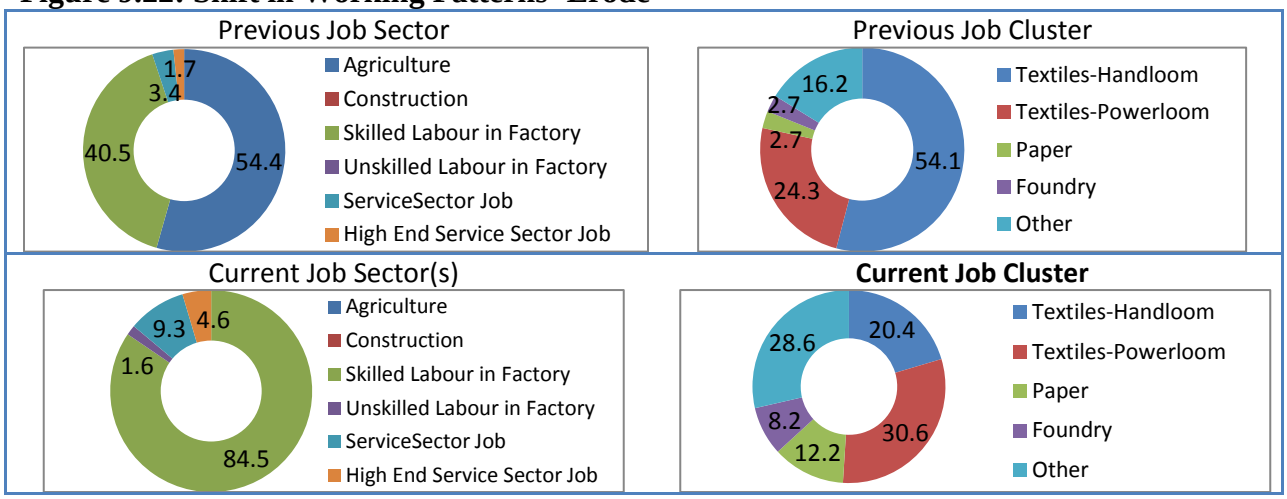


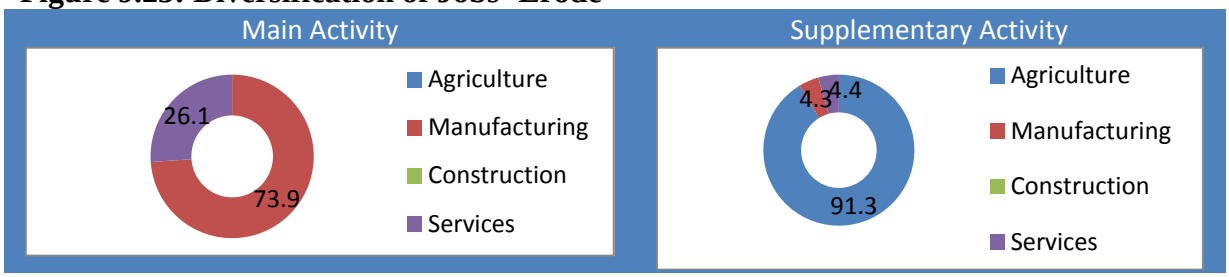
Figure 9.22: Shift in Working Patterns- Erode



The workers' survey in Erode yielded that around 54 per cent had previously worked in agriculture, while those with prior experience in skilled factory work were majorly involved in

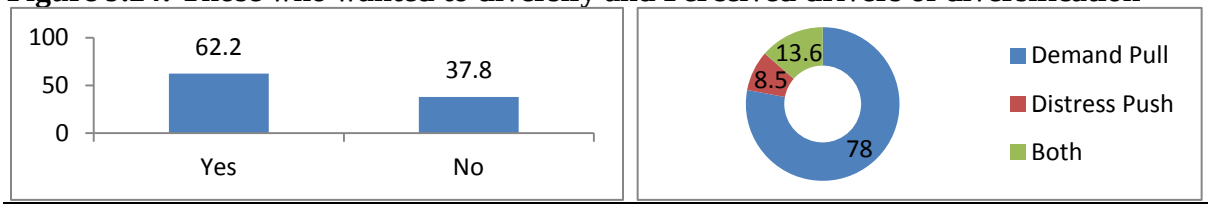
textiles (handloom or powerloom). The case in Erode is much similar to that of Coimbatore, with the exception of the large foundry cluster absent in Erode, which has more of textiles, paper, wood and coir and a few foundries.

Figure 9.23: Diversification of Jobs- Erode



These workers are mainly engaged in manufacturing sector, but most of the migrants also have agricultural activities in their household, in which they participate and contribute when they visit. Most of the migrants had wanted to diversify for better incomes and are still willing to do so if opportunities arise elsewhere.

Figure 9.24: Those who wanted to diversify and Perceived drivers of diversification



The vocational training for these workers is remarkable, although it is seen for a lower percentage of female workers (some of them are engaged in cleaning, bundling and non-skill required work in paper and textile industries). The educational pattern of the workers' households reveal that most workers' families have only primary education, which is evident as most of the migrant as well as local workers are from agricultural backgrounds or have been associates with weaving throughout their family history. Figure 9.26 shows that although most of the workers received their training on the job, there is a section of weavers who have been generationally trained. Many of these workers feel that the weaving and handloom industry will soon be overtaken by powerlooms and they urge their children to go to school and work towards getting better jobs in the future.

Figure 9.25: Vocational Training in Erode

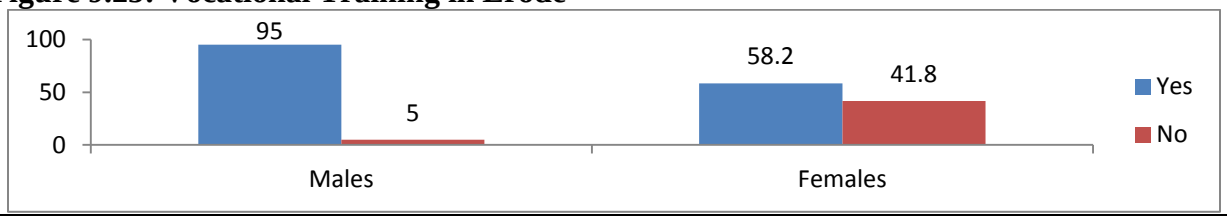


Figure 9.26: Education attainment patterns and Skills- Erode

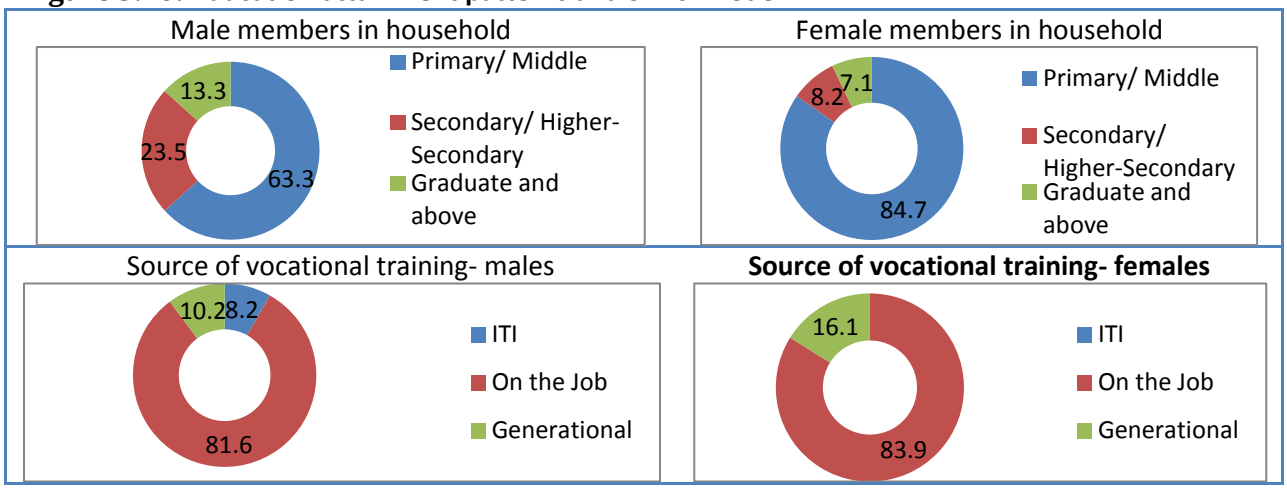
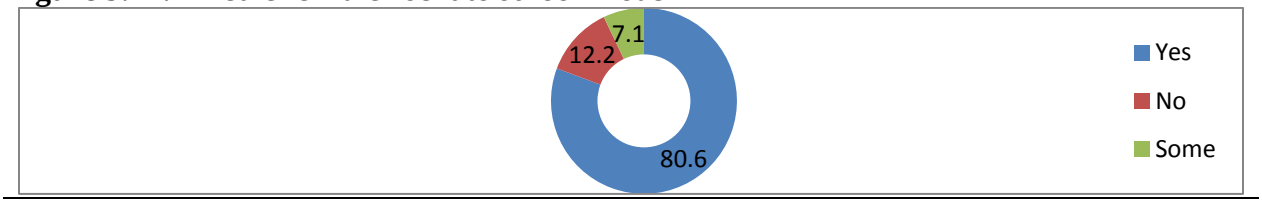


Figure 9.27: Whether Children Sent to School- Erode



Some Interesting Findings from Erode

Erode has been growing as a promising area for industrial growth, with a growing number of small and varied industries. The textile clusters in Coimbatore and Tiruppur have also had an impact on industry in Erode, which has developed several textile mills and more importantly, readymade garment units. Apart from textiles, Erode has also been developing its paper and leather industry through formation of Industrial clusters at SIPCOT and TAHDCO. There are also several independent units and industries in Erode such as oil-press, coir, etc.

Overall Economic Diversification and Creation of a Market Base

However, Erode has seen economic diversification in not just industry, but agriculture as well, with increased focus on cash crops such as turmeric, groundnut, tapioca, and so on. This was essentially a response to the lower agricultural returns, and has turned agriculture around by creating a market for turmeric and so on. Another aspect of this is that these require lesser

attention and free agricultural workers to work in other sectors, thereby promoting employment diversification. Thus, local workers in Erode who have come from agricultural backgrounds also engage in factory work (many of them are women who do not have to work in the field and themselves seek better occupations).

Erode is also becoming a 'test' market for many industries diversifying their products as well. This is essentially because it has been developing a huge market base, and access to markets is a key for manufacturing sector to thrive. The reason for the popping up of several new small industries in Erode is due to this very reason of testing the product in the local market and using the market base to further expand sales across Tamil Nadu. This in fact, has been a major pull for Marwari traders from Rajasthan, who engage in textiles trade and have also set up small industries producing pressure cookers etc. Many of these traders have settled in Erode and learned Tamil, and their children attend schools in Erode.

This has led to a cultural inter-mingling between Northern and Southern parts of India, which is a major enabling condition for the migration trends seen in the labour market. As a result, due to the huge labour demand by industries in Erode (and Coimbatore), these connections have directly or indirectly led to Bihari migrants coming to supply labour in these regions. Most of these Bihari migrants were earlier working in Surat (Gujarat) or Pali (in Rajasthan which is a major Marwari-ethnicity based region), both of which also have textile industries. These workers have, through their contractors in these factories and through their social and cultural linkages, helped in migration of large numbers of Bihari workers to the South.

Social 'Embeddedness' and 'Connections'?

The basic findings from the field discussed above lead directly to the very important question of *who* is able to diversify or migrate or generally be mobile in employment or (gradually) economic status in general. The question of 'Who' may well be inspected through the lens of Polanyi's theory on social and/ or cultural embeddedness in employment/ occupations/ labour market in general. Polanyi's theory suggests a (dis)embeddedness of the capitalist market from society but the informal market and economy as a whole are embedded in society and social

relationships[78]. The new Economic Sociology (for instance by Granovetter), believes in the network of inter-personal relations in society impacting economic relations as well.

Polanyi's argument on (dis)embeddedness of the capitalist market and society can be seen in terms of labour demand to meet production relying on the market forces of demand and supply as well as workers' own economic status and necessity for work to sustain life, rather than on social relations. At the macro level, this is much similar to the case in Coimbatore and Erode, where the increasing demand and shortage of labour has resulted in an acceptance of labour from different parts of the country. At the same time on the other hand, one can also witness Granovetter's social network and embeddedness theory in these very factories/ units where each migrant worker has brought in other workers from his own family/ hometown/ neighbourhood/ caste[79]. At some level, this is also a question of information asymmetry.

As it is very clear at this juncture that a multitude of intrinsic factors result in structural change and set its pace as well in different regions, therefore this field analysis tries to *First*, estimate and quantify the drivers, experiences, outcomes and aspirations of migration and diversification in general for Industrial Workers; and *Second,* engage in a deeper qualitative understanding for local level policies. This is discussed in the following sections, to determine policies at the local level, which would result in productive work for the demographic dividend and avert the situation of premature deindustrialization in India.

9.6. Findings from the Field: Diversification Drivers and Experience

The previous sections gave a snapshot of the diversification and working patterns of industrial workers in major industrial clusters in Bhagalpur, Munger, Coimbatore and Erode. This section gives a snapshot of the perceptions, experiences, outcomes and aspirations of these workers. Table 9.2 captures the experience of these workers in their previous job. Table 9.3 shows their experiences in the current job, thus providing a comparison. Figure 9.27 lists the sources of workers' introduction to current job.

The tables and graph above show that more than half the respondents had less than 5 years experience in their previous job while in Bhagalpur and Munger, about 20 percent had between 5

[78] Also see Machado (2011).

[79] A large Muslim population is engaged in the leather industry at Erode. Religion is also a factor.

and 10 years' experience. In Munger and Erode, around 17 per cent had more than 10 years' experience in their previous job. In Bhagalpur, more than 50 per cent thought their wages in the previous job was insufficient. 30 per cent in Munger were not satisfied with their wages (even those within the ITC sector). A large number of workers in Coimbatore and Erode said that their previous wages were inadequate. This includes migrant workers engaged in agriculture earlier. Very few workers were highly satisfied with their previous work.

Table 9.2: Experience in previous job

Characteristics	Bhagalpur	Munger	Coimbatore	Erode
0-5 years	60.8	51.2	100	47.5
5-10 years	21.6	18.6	0	11.9
10-20 years	0	18.6	0	16.9
Above 20 years	17.6	11.6	0	23.7
Wage sufficient	46.9	70.2	20.7	24.2
Wage inadequate	53.1	29.8	79.3	75.8
Low satisfaction	54.8	33.3	82.8	70
Medium satisfaction	37.6	47.9	17.2	30
High satisfaction	7.5	18.8	0	0

Figure 9.27: Introduction to current job

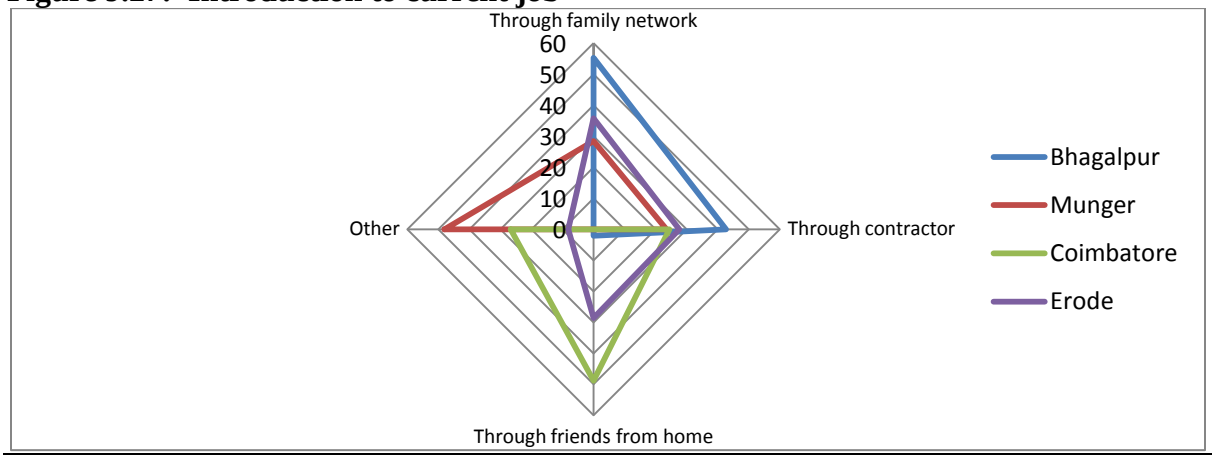
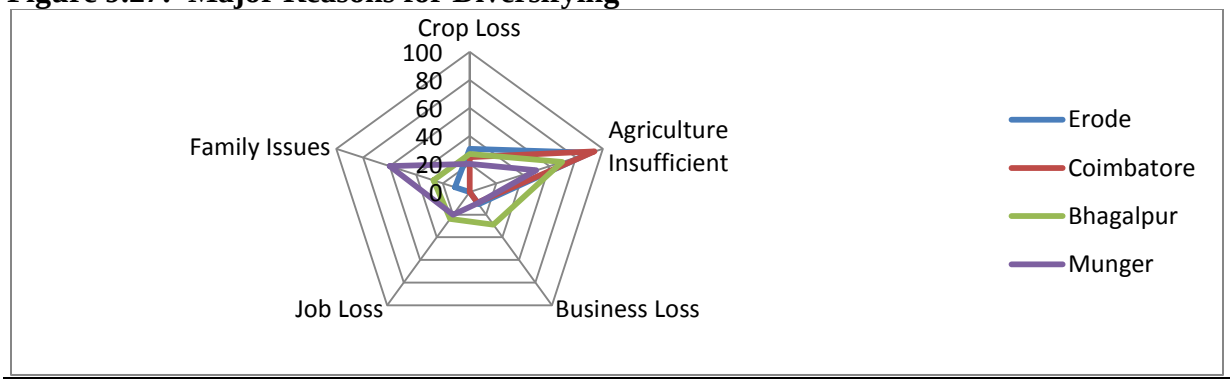


Table 9.3: Experience in current job

Characteristics	Bhagalpur	Munger	Coimbatore	Erode
0-5 years	59.6	71.8	69	22.4
5-10 years	19.1	15.5	28.7	30.6
10-20 years	0	1.4	2.3	25.5
Above 20 years	21.3	11.3	0	21.4
Wage sufficient	56.2	91.3	100	85.6
Wage inadequate	43.8	8.8	0	14.4
Low satisfaction	42.9	14.8	0	13.3
Medium satisfaction	49.5	51.9	20.7	41.8
High satisfaction	7.7	33.3	79.3	44.9

When enquired about how some of these workers came to migrate to a new job or shifted to the current job, the workers in Coimbatore and Erode (who were mostly migrants from Bihar) responded that they came to the current job through family networks or friends from home state. The same is also true in case of the workers in Bhagalpur (where workers in powerlooms came mostly through personal contacts). In the case of Munger, workers in the ITC came through contractors, while many of them were carrying on because their fathers workers there.

Figure 9.27: Major Reasons for Diversifying



The major reasons that the workers who had diversified in each of these districts quoted for their diversification, are summarised in Figure 9.27. In the case of workers in Erode and Coimbatore where many of the workers were migrants from Bihar, noted that insufficient income in agriculture was a major reason. This is similar in case of Bhagalpur. For workers in Munger, the main cause if they diversified was family issues and need for more income.

Table 9.4 lists the trends and patterns in migration across workers surveyed in the industrial clusters of Bhagalpur, Munger, Coimbatore and Erode. Three-fourths of the workers in Bhagalpur and Munger reported to having never migrated, and were working in their own hometown. In the case of workers in Erode and Coimbatore, about half of them had been migrants, with 25 per cent having migrated twice or more (these are the workers who had first migrated to Surat/ Pali etc., and then to Coimbatore/ Erode). The migrants to Bhagalpur and Bihar were mostly from West Bengal, as it is adjacent. Of those who had ever migrated, majority had migrated to another state.

Most of the migrant workers (over 80 per cent on an average) reported migrating for better income and were more or less satisfied with current wages after migration as compared to before Most of them had migrated through personal contacts. When asked about sending remittances

home, half of the migrant workers in Bhagalpur reported to sending their entire earning home (due to multiple members in a family working in the same factory), while workers in Munger reported to sending under half of their earnings as remittances. A majority of the (Bihari) migrant workers in Coimbatore and Erode reported sending entire or at least more than half of their earning home as remittances, as most of their expenses were taken care of by the units they worked in. It is evident that the condition of migrant workers (from Bihar) in Coimbatore and Erode seem to have improved, or at least not worsened.

Table 9.4: Migration Trends

Characteristics	Bhagalpur	Munger	Coimbatore	Erode
Migrated	23.1	24.7	56.3	42.9
Never migrated	76.9	75.3	43.7	57.1
Migrated only once	63	66.7	93.9	73.8
Migrated twice	18.5	25	6.1	14.3
Migrated thrice or more	18.5	8.3	0	11.9
Migrated within same district	0	15.4	0	0
Migrated to nearby district	51.7	30.8	0	29.3
Migrated to nearby state	13.8	38.5	18.4	0
Migrated to distant state	34.5	15.4	81.6	70.7
Migrated due to distress	27.6	8.3	0	10
Migrated for better opportunity	72.4	91.7	100	90
Migrated through contact	60.7	50	94.3	80
Migrated through contractor	39.3	50	5.7	20
Wages after migration satisfactory	53.6	61.5	89.8	82.5
Looking for better options	46.4	38.5	10.2	17.5
Entire remittances sent home	55.2	23.1	48.8	38.9
Over half remittance sent home	27.6	15.4	32.6	50
Under half remittance sent home	17.2	61.5	18.6	11.1
No. of responses	**29**	**13**	**49**	**40**

9.7. Amenities, Assets, Issues: Standards of Living of Workers' Households

This section covers the amenities publicly provided to households by the government, the assets possessed by households as an indication of standard of living, and issues they face.

Table 9.5: Amenities to Households

Amenities	Bhagalpur	Munger	Coimbatore	Erode
Household Type and Structure				
Kutcha	56.8	32.5	22.1	16.3
Pakka	43.2	67.5	77.9	83.7
Water Supply and Sanitation				
Pipeline	41.8	82.4	78.2	84.4
Well	40.7	12.2	21.6	15.6
Canal	17.6	5.4	0	0
Energy Use				
Modern Fuels for cooking (LPG/ PNG/ Electricity)	39.6	82.1	100	85.6
Traditional Fuels for cooking (Kerosene/ Firewood)	60.4	17.9	0	14.4
Connectivity				
Close to urban area	38.4	74.6	83.9	75.3
Far from urban centre but connected through roads/ other routes	46.5	21.1	16.1	24.7
Remote with connectivity issues	15.1	4.2	0	0

Table 9.5 shows amenities that household have. Over three-fourths of the workers in general have pakka houses, while the rest have kuchha or houses are under construction. When considering the public provisioning of amenities, water supply and sanitation, electricity supply, energy use and connectivity were recorded. A majority of water supply in all districts is through pipelines, while in Bhagalpur and Munger, wells and canals are other sources. While Erode also has a lot of canals, the water is generally used for irrigation. Most workers' households in these districts use modern sources of fuels, while 60 per cent workers' households in Bhagalpur still use traditional fuels. These include workers in extremely poor situations. All four clusters are close to or connected to major urban towns. This gives an indication of better public provisioning in general in the South than the North.

Table 9.6 lists the assets possessed by the workers' households in the four clusters. The physical assets and financial assets in general are low to moderate in Bhagalpur and better in Munger (as workers are in a larger better paying industry). The moderate shares in Coimbatore and Erode are explained by the high share of migrants in these clusters, who are provided basic living expenses and they do not require these assets where they were temporary migrants. Across all workers, most workers who had agricultural land were generally small farms. Since Bhagalpur and Munger are more agricultural regions than industrial, share of workers with agricultural and mixed farming assets is relatively higher. In the same context, issues faced by workers with own-

account business or agriculture are recorded in Table 9.7. In general, insufficient earnings and lack of government support are major issues. While they use up their savings in their business, they want to expand in general due to lack of jobs in the market, and migration is the other option.

Table 9.6: Asset possession by workers' households

Assets	Bhagalpur	Munger	Coimbatore	Erode
Physical assets				
Television	77.9	96.3	39.1	43.9
Refrigerator	21.1	67.9	26.4	15.3
Washing Machine	10.5	48.1	19.5	8.2
2 or 4 wheeler	38.9	75.3	73.6	55.1
Mobile phone	85.3	97.5	100	100
Financial assets				
Kisan Credit Card/ Subsidy etc.	26.4	21.3	29.9	8.2
Cooperative Bank/ Account	45.1	55.7	100	95.9
Ration Card	69.2	54.1	44.8	68.4
Loan Facilities	26.4	6.6	64.4	53.1
Agricultural land possessed				
Small	47.9	45.2	70.1	53.1
Medium	6.4	0	1.1	4.1
Large	0	0	0	4.1
Mixed farming assets				
Tractor	12.5	22.2	0	0
Transport Vehicles	14.6	38.9	0	9.1
Thresher	8.3	16.7	16.3	12.7
Pump Set	70.8	77.8	53.1	70.9
Livestock	35.4	22.2	73.5	70.9
Fodder crops	33.3	22.2	0	12.7

The most important point of such a study is to understand the outcomes of work participation, also including the returns to diversification and/ or migration. This is given in the following section, which covers expenditure patterns of the workers' households depicting their standard of living, followed by their own perceptions and prospects for the future.

Table 9.7: Agriculture/ Household business issues

Issues	Bhagalpur	Munger	Coimbatore	Erode
Issues in agriculture				
Weather related	51.4	26.5	22.6	55.9
No defined markets	54.3	38.2	1.6	13.6
Insufficient earnings	72.9	82.4	79	83.1
High costs	54.3	47.1	38.7	6.8
Capital source for household business				
Savings	82.6	100	100	100
Loans	43.5	42.9	20	37.5
Sale of assets	10.9	0	13.3	6.3
Other	13	14.3	0	0
Issues in household business				
Labour shortage	19.1	12.5	0	37.5
Tough competition	78.7	50	100	68.8
No govt. Support	72.3	87.5	26.7	93.8
Plans for household business				
Expand	45.2	62.5	86.7	86.7
Sell off	31	0	0	6.7
Start some other business	59.5	75	13.3	0
Focus on automation	11.9	0	0	13.3
Issues in general				
Lack of sufficient jobs	78.4	77.8	40.2	49.5
Lack of training facilities	55.7	47.2	0	5.3
No govt. Support	56.8	30.6	24.1	49.5
Others	8	6.9	49.4	28.4

* No. of responses for Hh Business: Bhagalpur 47, Munger 8, Coimbatore 15, and Erode 16

9.8. Findings from the Field: Diversification Outcomes and Prospects for the Future

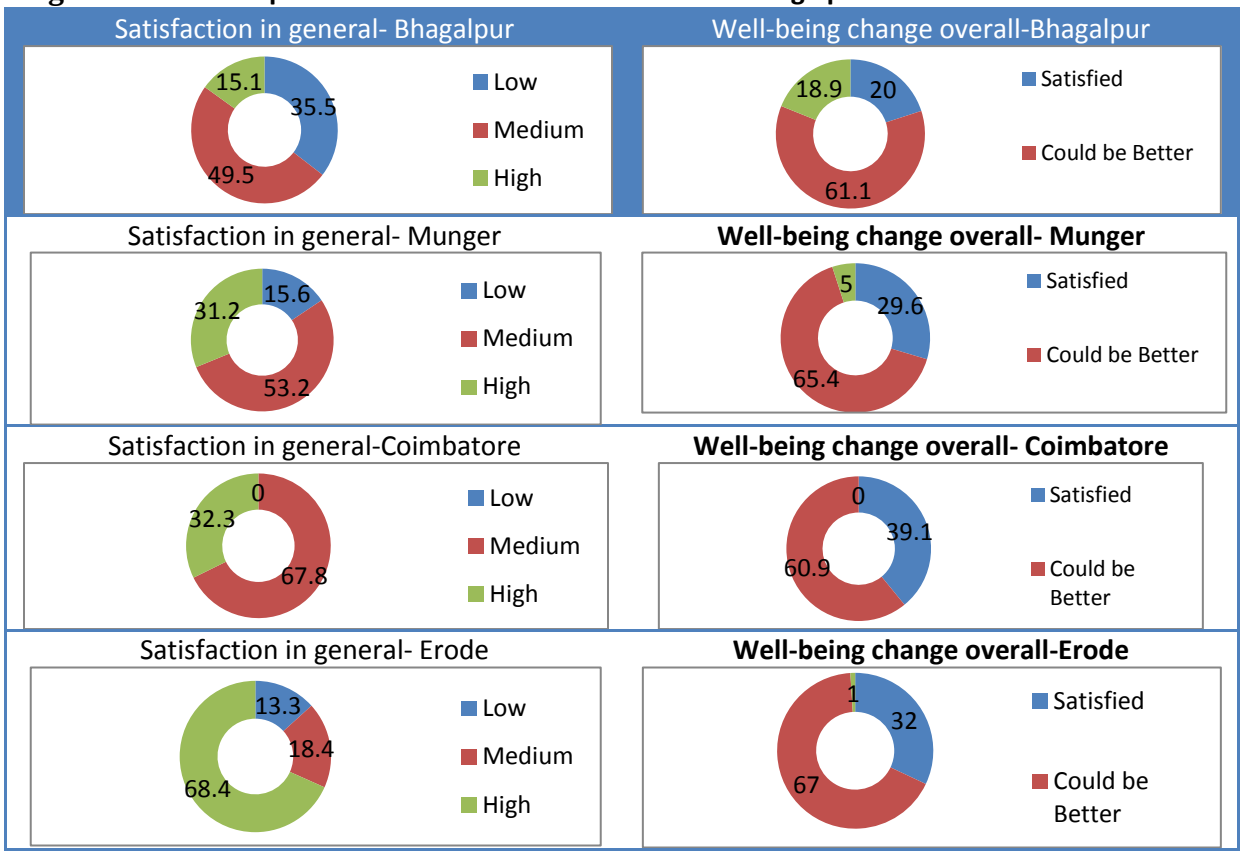
The major non-food expenses of the workers' households are summarised in Table 9.8. The major non-food expenses across workers include basic amenities, education, health, and in the case of Bihari workers in both regions, house construction was reported a major expense.

Table 9.8: Workers' (and hh) Major non-food expenses

Expenses	Bhagalpur	Munger	Coimbatore	Erode
House construction/ repair	32.6	31.3	72.4	40.8
Livestock	22.1	7.5	0	1
Health	31.6	13.8	24.1	5.1
Education	45.3	43.8	60.9	58.2
Amenities	74.7	76.3	46	62.2
Business Investment	18.9	20	17.2	14.3
Transport	27.4	6.3	0	2
Wedding	21.1	11.3	5.7	12.2
Agriculture	21.1	7.5	36.8	14.3
Debt Repayment	21.1	0	2.3	12.2

The survey has also tried to capture the workers' perceptions, their satisfaction levels in general and perception of changes in well-being due to migration/ diversification and their work participation in general.

Figure 9.28: Perceptions on Outcomes of Diversification- Bhagalpur



It is evident that the satisfaction levels of workers in Bhagalpur and Munger are low to medium, while for workers including migrant workers in Coimbatore and Erode, it is moderate to high.

Also, a relatively higher share of workers here seems to be satisfied with the changes in their well-being post migration/ diversification and in general. Majority of the workers however feel that the overall change in their well-being could be much better if better opportunities arise.

Figure 9.29: Prospects for the Future

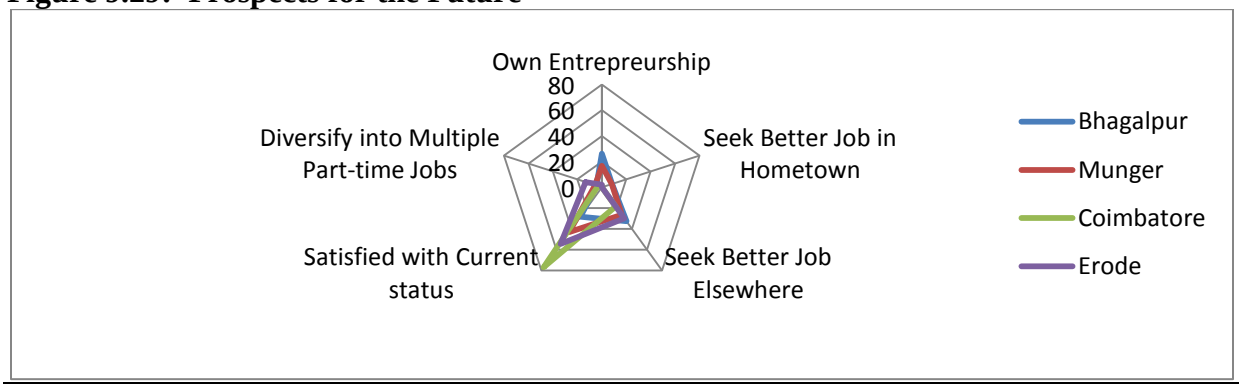


Figure 9.29 summarises the workers' aspirations and plans for the future in terms of work. In the case of Coimbatore and Erode, roughly three-fourths of the workers report being satisfied with their current status overall. Workers in Bhagalpur and Munger meanwhile felt the need to seek better jobs elsewhere or start an own-account entrepreneurship for better income and work situation.

9.9. Factors Influencing 'Choice' of Diversification

This section analyses the factors influencing the choice of diversification of individuals corresponding to the analysis in Chapter 5, based on individual and household characteristics, with additional information on urban proximity, and indices of assets and amenities available to the households as indicators of standard of living and public investment that directly and/or indirectly have any impact on diversification decisions. As discussed in much greater detail earlier, the decision to diversify often involves motivation and ability (see Davis and Bezemer, 2004) as well as enabling conditions in the form of connectivity and easy access to (urban) locations with better job opportunities. Therefore, before analysing the drivers of diversification, an index based on field survey data for Bhagalpur, Munger, Erode and Coimbatore is created, for assets (standard of living) and amenities (public investment) using a specialised Principal Component Analysis (PCA) as described below.

Polychoric PCA for Assets and Amenities Indices

The indices for assets possessed by households and amenities available to them were generated using the Principal Component Analysis (PCA), but with suitable augmentation and modification using Polychoric PCA since the components of the index are all categorical variables and not continuous data (see Kolenikov and Angeles, 2009 for instance). The variables used in forming these indices are given below:

Amenities Index: Index of amenities (water, electricity, energy and connectivity)
Asset index: Index of physical and financial assets possessed by household including the following: Television, Refrigerator, Washing Machine, 2 or 4 wheeler, Mobile Phone (Physical assets); Kisan Credit Card/ Subsidy etc. , Cooperative Bank/ Account, Insurance, Student Credit Card/ Benefits etc., Ration Card and/ or Loan Facilities (Financial assets).

Using the ordering of these categories, Polychoric Principal Component Analysis has been performed, following which weights were assigned to each of the parameters. Thereby, scores were generated for the index thus generated. For generating the amenities index, the first three Eigen values which were obtained from the estimation of the Polychoric PCA were recorded to be 1.877743, 0.991322 and 0.840217, which were found to explain 46.94 per cent, 24.78 per cent and 21 per cent of the variance respectively. Meanwhile in case of the assets index, the first two Eigen values obtained from the estimation of Polychoric PCA were recorded to be 1.006141 and 0.993859, which explained 50.3 per cent and 49.7 per cent of the variance respectively. Scores for each variable were then estimated and combined into an index. The Asset Index and Amenities Index were thus estimated using Polychoric PCA[80] on the categorical variables mentioned above.[81].

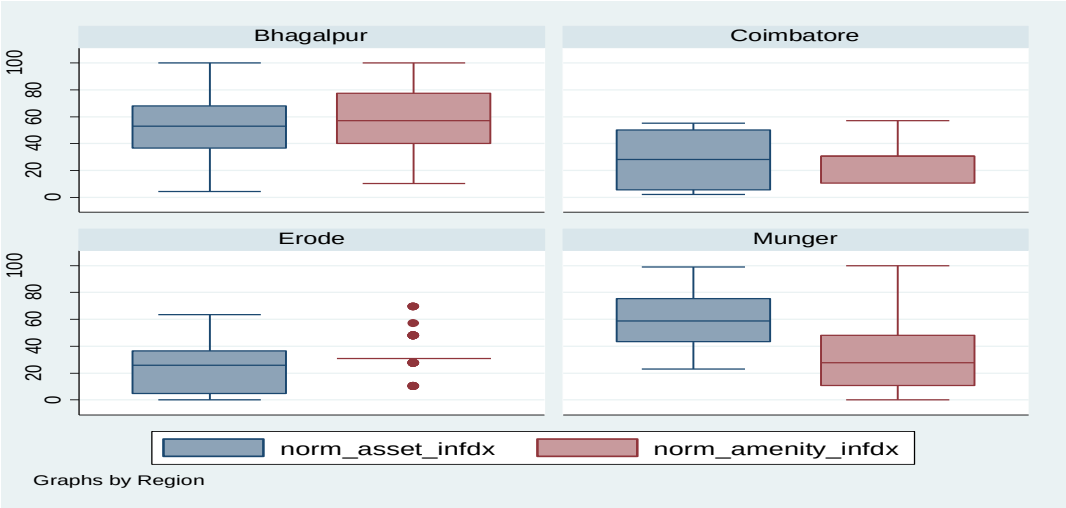
[80] Under this method, categorical variables are first were arranged in rank order so as to meaningfully attach weights to the factors that explain the variability. As a result, the importance to be given to each variable is estimated and used to generate the final index.

[81] This has been normalised using the following formula:

Normalised Index = $\frac{\text{Observation} - \text{Minimum value in series}}{\text{Maximum} - \text{Minimum value in series}}$,

which is independent of scale and origin and further enables comparability.

Figure 9.29: Box-Plot of Normalised Indices of Assets and Amenities by Region



The box-plots for normalised indices of assets and amenities in these regions yield the following observations. The index of assets is more evenly spread among workers in Erode and Coimbatore as compared to Bhagalpur and Munger. There is also a wider divergence between the Bhagalpur-Munger regions as compared to Coimbatore in terms of amenities, essentially arriving due to the differentials in connectivity and public investment therein.

The model specification for understanding the drivers of diversification is given below. A logistic regression has been performed with the dependent variable being the choice of diversification of the workers (0 if no and 1 if yes), and the independent variables are listed and described in the table below:

Chose to Diversify	No=0, Yes=1 (Dependent Variable)
prinfamincsource	Principal family source of income: 0=Agriculture, 1=Other
yrsworkexp	Number of years of work experience
squareworkexp	Square of number of years of work experience
age	Age of the worker
agesq	Square of age of worker
sex	Gender: 0=Female, 1=Male
religiongrp	Religion: 0=Hindu, 1=Others
castegrp	Caste: 0=General, 1=Otherwise
prevjobsector	Previous job sector: 0=Agriculture, 1=Otherwise
maleedu	Education of male members: 0=Upto primary or Middle, 1= Secondary or above
femaleedu	Education of female members: 0=Upto primary or Middle, 1= Secondary or above
voctrainmale	Vocational training for males: No=0, Yes=1
voctrainfemale	Vocational training for females: No=0, Yes=1
norm_asset_infdx	Index of physical and financial assets possessed by household
norm_amenity_infdx	Index of amenities (water, electricity, energy and connectivity)
urbanproximity	Urban Proximity: 0=Close to urban area, 1=Otherwise
regiongrp	Region: 0=Bhagalpur/ Munger, 1=Coimbatore/ Erode

The variable on number of years of participation in workforce and its square (to check for non-linear relationships) does not turn out to be significant in explaining the choice to diversify, while the variables age and its square turn out to be significant, providing evidence of a non-linear relationship. The results from logistic regression are summarised below.

Table 9.9: Estimation of logistic regression: Findings from the field

Choice to Diversify	b	Exp(b)	Std. Err.	z	P>z
prinfamincsource	-2.76351***	0.06307	0.854798	-3.23	0.001
yrsworkexp	-1.99392	0.13616	1.874535	-1.06	0.287
squareworkexp	0.25985	1.296735	0.363926	0.71	0.475
age	0.366846’	1.443176	0.208255	1.76	0.078
agesq	-0.00459’	0.995425	0.002493	-1.84	0.066
sex	-0.06026	0.941519	0.742668	-0.08	0.935
religiongrp	-0.68264	0.505279	1.022476	-0.67	0.504
castegrp	-2.5046*	0.081708	1.203926	-2.08	0.037
prevjobsector	-1.50857*	0.221226	0.71126	-2.12	0.034
maleedu	1.373385’	3.948694	0.700714	1.96	0.05
femaleedu	0.692494	1.998693	0.834818	0.83	0.407
voctrainmale	-0.0052	0.994817	0.884958	-0.01	0.995
voctrainfemale	0.848752	2.336729	0.70657	1.2	0.23
norm_asset_infdx	-0.04216*	0.958719	0.01836	-2.3	0.022
norm_amenity_infdx	-0.03532*	0.965296	0.018475	-1.91	0.056
urbanproximity	1.596631’	4.936374	0.868808	1.84	0.066
regiongrp	-2.91691*	0.054101	1.166891	-2.5	0.012
_cons	5.832802	341.3137	4.099014	1.42	0.155

Log likelihood= -47.058076
Number of observations=168
LR (Chi-sq) = 113.77
R2 = 54.73
Note: p-value : 'p<0.10; *p<0.05; **p<0.01; ***p<0.001

It is evident from the analysis that if the principal family source of income was not from agriculture, the odds of choosing to diversify were lower; those with an agrarian background had higher odds of diversifying to other activities. Similarly, those with previous job in non-agricultural activities also had lower odds of diversifying. Age of the workers also showed a positive relationship with choice of diversification, with increasing age the odds of choosing to diversify are higher. However, there is a non-linear relationship in play here, with higher increases in age, odds of diversifying are lower, as it would become difficult for workers to learn new skills at that age or migrate. In this sample, it was also found that lower caste groups had lower odds of diversifying, essentially due to lack of ability and not due to lack of motivation for diversifying. More importantly, higher average education level of males in the household was a

significant determinant of the choice of diversification, providing the *ability* of such households to diversify to other activities. Asset and amenities indices show lower odds of diversifying for those with better standards of living and better access to amenities in general. The proximity to urban areas is the most important factor in determining the choice to diversify, with high odds of diversifying for those with the means to easily commute/ migrate to nearby urban areas for better work. The variable region group is also significant, where the odds of those workers who were in Erode or Coimbatore region diversifying are lower compared to those workers who were working in the Bhagalpur-Munger region and were in the lookout for better jobs due to low agricultural incomes as well as increasing deindustrialization. Increasing urbanisation (and industrialization) as well as provision of public amenities in the form of connectivity, as well as individual and household characteristics (based on standard of living, education level and individual attributes) are the major factors that determine the choice to diversify.

9.10. Focussed Group Discussions and Case Studies

This section discusses in greater detail the qualitative aspects that arose from the discussions with these workers, factory owners, institutions and a few training centres for case studies. The major motivation was to understand the day-to-day issues that each stakeholder faces, which is generally not captured in macro or quantitative studies.

Working Conditions and Inequalities within Textile Clusters

The general trends and perceptions of workers in these industrial clusters have already been discussed in the previous sections. However, many interesting observations were made during the survey, some of which are difficult to quantify. For instance, in the textile clusters of **Bhagalpur,** it was noticed that workers were working out in the open sun with no room or no proper bathroom or resting facilities in harsh conditions. Weavers were working in pit-looms in the mud, and working on extremely obsolete machines. On the other hand, in powerlooms, workers were stuck in stuffy one-room sets with the machines and no daylight or fresh air coming in; the noise was also recorded to be a big issue for them. Moreover, the entire area is surrounded by a garbage dump. Such working conditions impact the health of these workers. Moreover, their earnings are meagre, between Rs 50 and Rs 100 per day (as it takes one complete day to produce 1 bedsheet and so on). These workers have never received government

support of any kind, and there are no cooperatives or unions. Most importantly, almost the entire cluster has a majority of Muslim workers who have been weavers generationally. The role of caste and social relations is very visible here.

In comparison, working conditions in textile units in **Erode** were found to be relatively better. In Chennimalai block, the government-run handloom Co-operative (Chencoptex) employs several local weavers, who work in good conditions, get bonus etc.. In addition, there are small one-room units where private weavers (both handloom and powerloom) function. The private handloom weavers are hired and given work space in the garage of the owner. There are several private units like this, employing 10 to 20 weavers (most of whom have been working in this sector generationally). The machines are provided by the owner, and these workers (who are not allowed to form unions) are paid daily wages which generally only covers the labour cost. All of these weavers are locals whose entire family trade has been weaving (so they have no agricultural land, and are less educated as well), but they say that this craft will die down with their generation due to competition from mechanisation and hence send all their children to schools. According to the workers, government schemes benefit only the owner and not workers in the private units. Moreover, getting hired in Chencoptex is competitive due to a large number of weavers, which is how many of them end up in private units. However, the wage difference between Chencoptex and private units is high; for instance, while the payment for producing 1 metre of cloth to government handloom employees if Rs 14, private weavers only get Rs 10. Therefore, one bedsheet, the design threading for which takes 2 days and knotting takes a day, earns only Rs 100, while in retail stores, the cost ranges between 200 and 500. These wages are just enough for these workers to pay rent, for children's education and so on.

The condition of powerloom workers in Erode is better as compared to the handloom weavers, as they are given wages as per piece rate and one bedsheet for instance yields between Rs 100 and Rs 150. Moreover, the physical strain is less and they are receiving training as they work.

Small Private Textile Unit Owners

The condition of many of the owners of private units is not much better either. For instance, in Tussar polishing units of **Bhagalpur**, the owners reported to having faced losses due to GST as their sales had declined. In addition, the government has not yet given them India-mart

verifications as they only recognise trademarks (also, these owners have incomplete documents and insufficient money). As a result they cannot sell all over India and only supply to the local markets. Their sales in Bara Bazar have also been affected adversely by GST. Additionally, weavers get no benefits or recognition from the government; any government help or weaver subsidy goes to large scale weavers or to agriculture in general. Moreover, even the owners do not get government subsidy, and face huge power and voltage problems. Moreover, calendar machines for smoothening cloth are extremely costly and are difficult for private owners to obtain from Mumbai, Jaipur, Kolkata or Ahmedabad, putting more pressure on workers who rarely get holidays. Even for small private powerloom units in Bhagalpur, it is difficult to find workers, as small weavers are almost finished. Moreover, getting loans is also difficult due to mortgage and collateral issues. Some of them also do not have agriculture. These small units on an average save Rs 1000 per day (on days when production is more) after covering for silk cocoon charges, damage possibilities and labour costs. Even threads have to be obtained from Odisha and Ranchi. Bhagalpur has only remained silk city for namesake.

On the other hand, small private textile units in **Erode** face a better situation. Each unit employs around 10 to 15 workers, and has been in operation for over 30 years. The owners have learned to operate and repair machines on their own, and most of them (including workers) also have some agricultural income (farming is generally a subsidiary activity for them and mainly for self-consumption). Many of these units supply bedsheets and rugs to owners of yarn (and buy yarn from them). Societies mainly order from handlooms. A few owners used agricultural income to buy machines second-hand, and since some of them are from nearby districts such as Namakkal, they also did not receive any government benefits in weaving. Generators are also few, and increases in diesel prices have led to power shortages. Some of them have gradually started to do gold and zari work also. The workers in these units work for 12 hours daily on an average (sometimes on two machines simultaneously) and receive wages as per piece rate (between Rs 100 and Rs 150 for a bedsheet) and get Sundays off. For the owners, machine cost per day is Rs 200 per machine including electricity charges, and on good days earn upto Rs 500 per machine. The manufacturing cost per piece comes to around Rs. 170 to Rs 200 and per piece profits are low (market price at wholesale is Rs 250 onwards for bedsheets).

Value Chains and Production Processes in Textile Cluster

In the Bhagalpur textile cluster, raw materials mainly involve silk threads, which are not available locally and have to be obtained from Odisha and Ranchi. The major process in silk involves washing and drying threads, making bobbins and then weaving into cloth, which is then washed and bleached then dyed and dried in the sun and finally pressed. All of this is done by hand. In many cases, units do not have calendar machines for smoothening and supply raw Tussar silk cloth. Most units also do not have trucks and the weavers themselves have to lift the heavy loads and place them in auto-rickshaws for transport to the local market. In the (cotton) powerlooms too, the raw materials and threads have to be obtained from Odisha and Ranchi. The cotton bedsheets and cloth is then made from the yarn in the powerloom once bobbins and threading in the machine is complete. The supply is majorly to local markets.

In the case of textiles sector in Erode, cotton handlooms require design knotting (which takes a day) and then weaving (which involves co-ordinated arm and leg movements) taking care that the design is not damaged, (which takes 2 days). Meanwhile, the process in the small powerlooms is similar to that of the powerlooms in Bhagalpur. The larger factories and readymade garment clusters have more intricate production process and machinery for the same and workers are trained to operate with these. For instance, the saree factories obtain plain cloth from large powerlooms (and some have their own machines as well). The cloth then passes through various stages of washing, stretching the width, elongation, then they are presses, collected, and printed either by hand or using screens, and go through a process of colour fastening after being cut. These are sold in local markets as well as exported.

Gender Differentials

The Bhagalpur textile cluster is male (Muslim) dominated in general. However, many of these male workers have also obtained employment for their wives (who live in kuchha houses nearby and are engaged in agriculture for a larger part of the day), to wash threads and woven (silk) cloth. These women receive less than minimum wages and work in the early mornings as well as in the afternoon sun and go back to work on their small fields.

This is in stark contrast with the textile sector in Erode, where a large number of women are employed in various tasks. For instance, women work in handlooms as well as small powerlooms and some are even trained to repair machines. At the same time, many women work in the readymade garment cluster as well in the various stages of saree processes mentioned above and have been constantly upgrading their skills.

The Story within other Industrial clusters, and evolution of new sectors of work

In the case of Munger, there is hardly any industry or factory apart from the ITC chains, which generally employees workers whose fathers have worked there previously. This has already segregated the market, and only those with information, skill/ training and social connections can penetrate and get work in these factories. The ITC has opened its own Training Centre in Munger and those working in their plants are 'part' of the Munger Imperial Tobacco Employees' Multi-Purpose Cooperative Society Limited (which was initiated by the British), and remains for namesake.

When workers and general population in Munger was asked about what other avenues for work were available to them, their response indicated heavy dependence on agriculture. Even agriculture in Munger has not diversified (despite a Krishi Vibhag – research Centre), essentially due to soil conditions. The absence of red soil only allows for cultivation of crops like wheat, rice, mustard and a few vegetables. Agricultural lands are also small and fragmented, and most agricultural activities are self-subsistence. However, industry has not developed in this region either. Apart from the ITC chain, Munger had a gun manufacturing cluster which was shut down. No other industries have been burgeoning.

Interestingly, the Paper factories in Erode majorly employ workers from Bihar and Uttar Pradesh (Balliya). Some of the remaining workers are mostly migrants from Madurai (who have migrated due to agricultural floods and distress, the fields having been adversely affected). These workers receive benefits such as PF and health insurance. For married workers, some units bear half the cost of their accommodation. In the SIPCOT paper factory units, young girls (fresh from school) also work here as trainees post which the factories offer them work for upto 3 years. Their accommodation is free, and when their tenure is over, a one-time monetary assistance is given

for marriage or settlement. They are also provided the option to pursue further vocational training for work. The role of public investment and (in)direct government support is clearly evident here.

Market Access and Business: Erode has also developed a huge market base due to its evolving industrial base ranging from textiles to paper to leather and other small units. One particular example is that of a Marwari group of brothers who have set up a small pressure cooker factory (which has been functional since 12 months in Kollampalayam area in Erode. The owners were originally from an agricultural family in Rajasthan but the income was insufficient so they received training in Bangalore and had set up a ceiling fan factory in Telangana and recently came to Erode for business and seek to expand to home appliances, as it is a huge test market and all products are launched and sold to the Northern markets based on the review. There are around 10 workers, all from their native place and machinery was obtained through previous employer. They also reiterate than loans or generators were difficult to obtain. This small manufacturing unit has become a wholesaler of cookers, with steel obtained from Krishnagiri Aluminium plant, and other spare parts from Delhi through contacts. The cost of producing a cooker is around Rs 310 and sold at Rs 340, profit is only Rs 30. The workers are paid Rs 10000 per month along with food and rent expenses.

Coimbatore was found to be an extreme opposite case of Munger, and the importance of public investment and role of government becomes clear when looking at the stark differences between the two regions. While Munger only has the ITC factory and unlike Erode, has not got a market base either to help development of new industries, a premature deindustrialization in Munger is eminent. Coimbatore however, apart from its foundries and textile and paper mills, is diversifying within industries as well. As mentioned earlier, the foundry industry in Coimbatore is expanding rapidly due to a huge demand gap created by shutting down of foundries in China. These new foundries require a lot of labour and have employed locals as well as Bihari migrants and train them in the factory itself[82].

Women-Centric Industrialization?: Apart from this, the more interesting finding was a Paper plate factory (4 years old in this location) using raw material from nearby betel trees (bark) and employs 89 workers, all of whom are local women who were earlier engaged in family agriculture. These women now get Rs 8000 per month salary along with PF and ESIC. The products are packaged and loaded in trucks using hydraulic lifts; and products are only exported to Europe and South Asia.

Coimbatore, apart from being a major industrial district, has also been expanding opportunities in the service sector, essentially owing to the forward-backward linkages with the other sectors

[82] The foundries are involved in moulding, melting, pettling and are hence multi-skilling the workers. With automation, all these would be rolled into one process.

and instigated by their growth, as well as proximity to Erode. For instance, the hotel and trade industry has grown vastly, and as mentioned earlier, traders from Rajasthan have settled here. At the same time, the hotel industry in Coimbatore provides work to a lot of migrants from West Bengal and Odisha in housekeeping and so on, where they receive food, accommodation and insurance and one unpaid leave per year. Most of them come from sustenance agricultural backgrounds to increase income.

New Forms of Work?: A more interesting point that emerged is that with increased education levels, locals in Erode and Coimbatore are not willing to work as labour and demand higher positions; the aspirations in general have risen, but many of them have ended up working as Ola drivers due to their unwillingness to work in factories. Large factory owners in Erode also mentioned this point, as discussed below. At the same time, automation and saturation in IT boom is also gradually leading to new forms of informal service sector employment among the youth. Some group discussions with the youth revealed a rise in freelancing, while an increase in jobs like delivery boys, cab drivers and so on has also been noted. Online Startup platforms, Industry 4.0 and automation, coupled with changing aspirations might lead to some form of deindustrialization and informality in the future.

9.11. Medium and Large Factory Owners' Perceptions

Focussed and structured discussions were held with a few medium and large factory owners in Coimbatore and Erode region[83], mainly including a large powerloom, a garment (saree and salwar kameez material) factory, a paper factory and a large foundry.

Perceptions on Workers and Labour Market

The general impression and perception of these factory owners on workers and labour supply in general suggests that migrant workers to Coimbatore and Erode from Bihar (as well as Uttar Pradesh, Odisha and West Bengal) were willing to work more number of hours than required to finish more pieces of production to earn higher wages (at piece rates) and were generally willing to work hard. The local male workers in Erode especially were reported to be not satisfied with working as labour in factories and demanded higher wages and positions of work due to their higher aspirations and qualifications and often ended up working for Ola instead. According to these factory owners, among workers belonging to lower income classes, some of the males were

[83] Since Bhagalpur cluster mostly contains small units and Munger has no factory apart from ITC, discussions with large factory owners were carried out in the Coimbatore-Erode region.

not interested to work and 'lazy', as food is subsidised through PDS, and vehicle loans at 0 per cent interest, and they claimed that the spending of labourers is on TASMAC (The Tamil Nadu State Marketing Corporation is a company owned by the Government of Tamil Nadu, which has a monopoly over wholesale and retail vending of alcoholic beverages in Tamil Nadu). The females however are willing to work as factory labour, and labour shortage re met by labour supply from the North Indian migrants.

Most of these North Indian migrants have agricultural households in their native place, and most of their expenses while working in these factories is on food (since accommodation is taken care of). So they send almost their entire earnings as remittances. Many of them are also offered insurance and PF, but they decline for tax purposes as well as because they are temporary and some decide to earn money and go back and get married and settle. Some go on a leave and send replacements from their friends or family. Another smaller set of migrants were reported from Madurai, where sand mining and floods resulted in agricultural issues and workers migrated to nearby districts for work in small trade or industry.

Perceptions on Production and Competition

The factory owners agree that in the textiles segment in particular, competition has increased significantly, and sales have fallen. Moreover, corporate sector in textiles is posing competition to small scale mills. Spun cotton and cotton textiles are exported after spinning and ginning. Raw cloth to North goes from South for their designs, while raw cotton is obtained from Adilabad (Telangana, a major supplier of cotton in the South). Exports are now becoming difficult due to strict government rules. Domestic trade is majorly with Delhi, Ahmedabad, Mumbai, Kolkata, Rajasthan, Karnataka, Kerala and Andhra Pradesh.

Moreover, they reported that demand patterns in the garment industry were changing and some workers had to be diverted in the saree factory to sample salwar kameez/ churidaar designs and fancy clothing. Moreover, Kancheepuram silk is only in demand during marriage season and demand for its labour is going down. Dhoties and cotton sarees meanwhile are only preferred for temple visits. The handloom sector which was dominant earlier has been threatened by powerlooms, and the changing demand patterns seem to be further exacerbating the decline of weaving which used to be a hereditary occupation.

They also commented on the state of technology, claiming that the Technological Upgradation scheme has not yet been completely released. At the same time, technology development majorly takes place in Surat (Gujarat) and it takes time for diffusion, and spare parts are available with much difficulty. While investing in automated machines for garments[84], they also had to face difficulties and produced damaged pieces till they could understand the system, but cost has reduced and the water usage has also come down. There is also a supply of good water by the government (though limited), which is also made available to workers. However, electricity costs remain high (especially wind mills), reducing profits. Another cost that the garment industry faces is pollution abatement cost due to dye effluents, the sludge from which is useful for cement industry. The major issue that these factory owners reported is the issues created by labour inspectors, red-tapism and so on[85].

The paper factory and foundry owners also agree to the acute labour shortage and say that they have to train the workers who migrate to the South, but they do not prefer unskilled workers as heavy weight loading is required especially in the paper –making process involving paper pulp and water to produce felt and paper, which is bleached while the waste and waste water are recycled. The paper factory also produces unbleached eco-friendly non-blotting paper. Power backup is needed and a lot of generators are used in these factories. In most factories, environmental concerns are being understood and abatement measures are gradually being considered.

General Observations

The general observation among factory owners as well as workers is that agriculture, which had lower earnings previously, has started to show good opportunities and some workers have started returning to agriculture as the returns are relatively higher than for industries, with increasing demand for honey, turmeric and so on. IT-enabled agriculture is also spreading as well as Genetically Modified crops (in mango etc.), although power supply is an issue. As a result, traders in agriculture are increasing nowadays and are more successful, but cultivators are

[84] This had some adverse impact on the labour involved in hand printing. Though their work load has reduced, they might become irrelevant in the future. Currently, these hand printers (males as well as females) are involved in wood printing, and are provided with cleaning solutions and soap for hygiene.

[85] Some of these labour inspectors are corrupt and create trouble for factory owners if they do not pay.

suffering. However, despite higher agricultural income compared to industrial wages, many workers desist from working in agriculture due to 'dignity' and aspirational issues.

The major motivations for diversification (along with industrialization, and agricultural productivity) according to these discussions comes out to be to some extent agrarian distress or due to increased agricultural productivity and wealth, but essentially the diversification is due more to the stress on education, which is highly valued in the society, as well as aspirations for the future, priorities and way of life in general. For instance, many engineers who work in factories aspire for better work, while many labour workers in factories aspire for their children to get educated and get into good private or government jobs. A sort of demonstration effect on social transformation is the key determinant.

9.12. Public and Private Institutions and Investments

The kind of public and private investments in industrial sector or enabling conditions for industrialization that are visible in the Coimbatore-Erode region largely seem missing in the case of the Bhagalpur-Munger region. For instance, although there are numerous ITIs in Munger, they largely impart low-skill service based training for plumbing, carpentry and so on. Coimbatore on the other hand, has specialised skill centres (such as the NTTF), with a college, hostels as well as a tool making company within the campus where students (engineering students from local areas) are trained in CMC courses and bolt-making, moulding, wire-cutting, tool assembly, designing and so on, given a diploma and get the opportunity to join in the company itself. The company supplied tools to MNCs as well and along with the training centre has over 100 workers and gets statutory benefits.

At the same time, for the textile sector too, Coimbatore is the headquarters of the ***South Indian Textile Research Association (SITRA)***, set up in 1956 by Jawaharlal Nehru as an autonomous body of small mill owners to get synergy in the textile industry. SITRA has more than 200 mills as members, and over 100 patents. It is focused on the cotton belt's productivity, seeding, harvesting and yarn (but agricultural patterns have changed now as cotton yield to farmer is lower and this along with water scarcity has led to diversification of agriculture). SITRA focuses on research on processes and machinery, to yield mutual benefits to farmer and mill community. It sets standards for textiles and fibres, and to research nano-membranes and test machines for

mass production. It is sponsored by the Ministry of Textiles and Ministry of External Affairs, Government of India, to set Power Loom Service Centres to assist mills. SITRA also imparts training to workers under 3 (weekly) skill programmes- Integrated Skill Development Scheme, PMKVY, and RPM for which workers' Aadhar is mandatory. They train around 60000 workers per year, by holding classes and refreshers, and incentivise workers by providing a stipend of Rs 400 per day and subsidised food and accommodation. To overcome labour shortage, they are also trying automation.

Similarly, the Ministry had also set up ***North Indian Textile Research Association (NITRA)*** which takes care of textile mills in the North. However, small units in Bhagalpur claimed that they had not yet received any support. The differentials between the Bhagalpur-Munger region and the Coimbatore-Erode region are clearly visible, in terms of infrastructure, social transformation, industrialization and investment patterns in general. The deindustrialization witnessed in the Bhagalpur-Munger region is a result of these.

Expanding Industrialization in the South?: The growth of textiles has also spread from Coimbatore and Erode to districts like Namakkal. Thiruchengode block in particular is starting to be known for its dhoties. The large number of powerlooms in the entire region has improved the productive capacity. There are an increasing number of small and medium units weaving yarn for dhoties, and employ local labour who are only trained in this and do not have agriculture as an option. The little agriculture that some weavers have is for cultivation of groundnuts which requires little time. The workers are not keen on working, as all amenities and necessities are publicly provided and subsidised and their work aspirations are changing. Bihari migrants have not yet penetrated the Namakkal job market, those Bihari and Odia migrants who have, are mainly in bleaching and dyeing works as only locals have the craft for this work. The labour's bargaining power here is very high. The workers are paid weekly wages as per piece rate. Monthly earning from operating multiple machines comes to Rs 30000 apart from bonus and insurance. However, many workers do not seem to be availing the government's insurance due to the paper work required. The issues that the workers face on the other hand includes physical stress in operating these machines, and getting hearing impaired by its noise and acclimated to hearing the machine's sound even while sleeping.

Silk Board-Still reaching the North?: The Silk Board set up in Bangalore is the headquarters of silk research and worker training. Though there are other centres in Mysore, North East, West Bengal, Ranchi and Berhampore, the Bhagalpur cluster seems to be cut off from any support as per the workers and small unit owners there. The Bangalore Silk Board along with CSTRI, is trying to bridge this gap by providing 10 day ISDS training to workers in all parts of India along with a stipend credited to their account as well as food and accommodation, testing the trainees and providing certificates, creation of silk-markets for daily sales by tie-ups with traders so that average price based on minimum and

maximum fluctuations based on quality of production are received. Such a regulated market is missing in the North where middlemen dominate the scene according to the Silk Board. While depending on geographical conditions, the North-East India produces Eri and Muga, South India (Kancheepuram and Dharmavaram in Tamil Nadu) produce Mulberry silk, while Bhagalpur produces Tussar silk. The Research and Development for these are carried out by the Silk Board. It also has State Project Monitoring Committees and Silk Samagrah programmes to take care of local clusters from cocoon to factory including reeling, weaving, printing, dyeing and post-cocoon technology. They promote self-employment to promote new entrepreneurs and workers.

9.13. Concluding Remarks

This study has looked into industrial clusters in the once similar but now diverging regions of Bhagalpur-Munger and Coimbatore-Erode in terms of industrialization, structural and workforce diversification as well as social transformation in general. The grassroot level insights from various stakeholders suggests that the threat of deindustrialization is already setting in in the Bhagalpur-Munger region, while major structural changes are also underway in the Coimbatore-Erode region with increasing education, aspirations and social transformation which has led to labour shortage in the 'lower-paying' industrial jobs as labour which has led to a large influx of migrants from Bihar ready to work as industrial labour. While higher aspirations are leading to diversification, more suitable avenues will have to be generated and government policies and public expenditure would have to be redirected to this cause.

Chapter 10: Conclusion

'...Reasoning draws a conclusion, but does not make the conclusion certain, unless the mind discovers it by the path of experience...' Roger Bacon

10.1. Summing Up

It has been becoming evident that the structural change in the Indian economy as well as the transformation of its workforce has been contrary to the 'stylised' theories of the developed world, as well as peculiar in its own ways. The structural change of the Indian economy especially over the past four decades has tilted more towards the tertiary sector, while at the same time, employment and dependence of the workforce for livelihoods is still significantly dependent on the agricultural sector despite showing a declining trend. Although there has been a growing discourse on the emerging rural non-farm sector across the country, the manufacturing sector has remained sluggish on both the economic as well as the employment fronts. On the other hand, the construction sector stepped up as an increasingly major employer for the workforce, raising issues on the sustainability of jobs in the country.

Workforce diversification patterns in a growing economy like India should ideally be tending towards a prosperity induced pull to work in better and more productive sectors, and creating beneficial employment for the emerging 'demographic dividend'. However, the evidences are mixed and trends in the workforce paint a rather dismal picture overall. Despite an increase in rural non-farm activities, it is still not clear whether it is caused due to an agrarian distress push or because of a pull by the prospects of prosperity in non-farm activities, or rather, a mixture of both. On the other hand, the case of urban workforce is rarely discussed, and existing discussions only add to the theory of increasing casualisation, informalisation, and migration of the workforce. To add to this, there are increasing concerns on India facing a situation of 'premature deindustrialization' in terms of stagnant shares of employment in the manufacturing sector.

This study thus examines the workforce diversification patterns and trends in India in detail since the 1980s for major Indian states for both rural as well as urban areas. This is especially important at the current juncture, given India's peculiar structural transformation and its huge demographic dividend presently facing the threat of declining employment elasticities especially

in the manufacturing sector, in the ever evolving global technological scenario of an upcoming Industry 4.0, which is further expected to be a threat to employment. Although issues related to this have been discussed widely in the literature, there is an increasing need for a consolidated and concise study of the overall scenario. This study therefore is a humble attempt to begin such an exploration of workforce diversification and transformation at the macro (India) level, the meso (State and district) level and finally at the micro level (through town/village case studies).

10.2. Basic Insights

The primary objectives of this study were based on the following premises: *first*, to map the dynamics of workforce diversification for rural and urban areas separately in order to gain better perspectives on the *pathways* of their differing diversification patterns; *second*, to understand the major correlates of such diversification patterns for different sections of the population across time; *third*, a comparative analysis of employment in manufacturing and services sectors while at the same time trying to delve deeper into the *nature* of occupations within these sectors; and *fourth*, an investigation into the 'premature deindustrialization' hypothesis in India.

These objectives essentially evolved from a careful study of the existing literature in order to consolidate existing evidence while at the same time bridging the gaps in literature by providing a fresh perspective on measuring and theorizing workforce diversification in India at different levels. This is an important step towards trying to gain insights for policy purposes, in order to move away from the looming threat of stagnation in employment, and towards building better prospects for India's demographic dividend. The premises on which the analyses in this study have been based were mainly developed on the need for a nuanced and much deeper understanding of workforce diversification trends and patterns in terms of the nature, pathways and magnitudes of movement of the workforce.

A fresh perspective and approach towards the same has therefore been undertaken in this study, along with the application of novel econometric techniques to understand the correlates of such patterns. To improve the perspective, mobility matrices have also been constructed at different levels of analysis. To further broaden the insights from the temporal analysis, spatial level analysis has also been carried out, which throws much needed light on the situation of workforce diversification at the regional level within India by identifying clusters of activities where

employment growth has changed between 2001 and 2011 using Census district level data. This is also pertinent in investigating the premature deindustrialization hypothesis across regions in India in terms of employment, which formed the basis for the field study as well. By combining macro, meso and micro level analysis, this study thereby strives to suggest areas for policy focus, and to nudge India's structural growth to become beneficial for its working population.

10.3. Major Findings at the Macro level- Temporal Insights

The macro level analysis at the temporal level using the National Sample Surveys (Employment and Unemployment Rounds) since the 1980s has been attempted with a view to providing more nuanced and fine-tuned understanding of workforce diversification in India. This has been studied at the individual level, the household level as well as state level, keeping in mind several aspects of diversification. These include among others, the long-term shift of workers to other sector(s), a more temporary form of pluriactivity or having multiple jobs within or across different sector/ industries, spatial diversification in rural and urban areas and to other districts/ states/ geographical regions, diversification in terms of time-use in multiple jobs and in terms of principal (main) and subsidiary (marginal) jobs and so on. Diversification has also been seen in terms of household work profiles and changes in current work structure of members diversifying to activities other than the major income generating activity of the household.

The analysis makes it evident that mobility of households as well as individuals in the workforce has been somewhat sluggish, with only marginal changes witnessed over the past four decades in terms of the magnitude of change. Moreover, the shorter term movements over time do not seem to have led to any major changes in workforce structure over the long term. The mobility matrices constructed using PLFS data show more concentration in the diagonals rather than a move away from the diagonal (implying little change, of at most up to 10 per cent in terms of sectors, and 25 per cent in terms of occupations). In addition, the analysis also looks at aspects such as gender, age and caste based work patterns and education and income levels among other variables. Interestingly, the multinomial logit as well as the Fairlie decomposition of the choice of work in different sectors in rural as well as urban areas are majorly but not completely explained by such household and individual characteristics over time, implying that exogenous factors, such as role of the State, and public expenditure are equally relevant.

It may be surmised that Lewis' surplus labour theory does not seem to hold true for the Indian case; as surplus labour from agriculture has been essentially moving to work as casual labour in construction or (informal) services and very little growth in opportunities of employment in the sluggish manufacturing sector. At the same time, one may conclude that to some extent, it is Solow's exogenous growth theory that has been applicable in India, but only for the Information and Communication technology component of the services sector which is a highly productive sector and as a result not a very high employment generating sector. Increasing technological advancement across the globe will only further exacerbate India's job situation by creating new forms of informality in a 'trillion dollar economy'. Additionally, there has been no convergence in growth of income or employment across states in India, and wide differentials still exist.

In this context, this study has also looked at the trends in public expenditure and its role in the post-reforms period since the 1990s. The share of spending on agriculture and allied activities has been declining across states over time. Moreover, consistently declining share of expenditure on rural development also documented in the literature raises concerns over the future of the growth of the non-farm sector and employment in the same. At the same time, the shares of spending by states on the industrial sector are very minimal. This is a further cause for concern given the sluggish growth in manufacturing sector and the falling employment elasticities in this sector. Correspondingly, non-agricultural jobs in rural areas which have attracted much debate in the literature, have also been mode dependent on services such as retail trade, rather than manufacturing which is more often than not own-account household industry. In addition to all this, share of states' spending on social services such as health and education have been declining. In fact, lower per capita income states only spend upto half as much as the higher per capita income states, thus widening the gap between states' spending patterns as well as socio-economic outcomes.

10.4. Major Findings at the Meso level- Spatial Insights

The meso level analysis was conducted with the view to enrich the findings from temporal analysis by further expansion to a more disaggregated level of analysis viz the district level, using data from Census of India for the years 2001 and 2011. Interestingly, district level trends show a much alarming picture in terms of change in the absolute number of workers. With

increase in population, an increase in employment or at most stagnation could be expected. However, manufacturing sector shows absolute decline in the number of workers for various districts, and the situation is much worse in the case of rural areas. Coupled with sluggish growth in the number of factories across states as well as the increase in own account enterprises, the hypothesis of 'premature deindustrialization' could well be true for various Indian districts.

At the state and district level, employment elasticity and workforce size across sectors has also been estimated from Census 2001 and 2011 to visualise structural transformation patterns and to revisit the premature deindustrialisation hypothesis. The scenario across many regions seems bleak, and a focus on policy and/ or increase in public expenditures in relevant sectors would be necessary. Moreover, the analyses show a high dependence on low or medium (skill) level occupations in different industrial sectors across all major states, whish reiterates the importance of policy in creation of jobs as well as public investment in capacity building.

10.5. Major Findings at the Micro level- Insights from the Grassroots

Following from the district level analysis and mapping of clustering of sectors based on growth of workers, the macro and meso level analysis was also supplemented by a primary survey (of workers in major non-farm, industrial clusters and households) to compare two similar yet different regions from two states at the opposite ends of the growth spectrum. Bihar (Munger and Bhagalpur region), a laggard state and Tamil Nadu (Erode and Coimbatore region), a front-runner were studied. These field based case studies were conducted with a view to understanding the industrialisation scenario in two seemingly similar regions, while at the same time also focussing on the perceptions of workers therein. This analysis has thrown light on the increasing number of migrant workers from Bihar to Tamil Nadu, showcasing the divergence in the stories of the two chosen regions despite initial similarities.

The case studies have also highlighted important aspects on multiple occupations, seasonal work, livelihood strategies of households, and the drivers of workforce diversification. More importantly, given the threat of 'premature deindustrialization' in India, this study has tried to delve deeper into the situation within the non-farm sector (rural as well as urban), by not just looking at a village or a town, but by understanding the rural-urban linkages as pathways to workforce diversification, as well as rural-urban continuum through industrial clusters in the

locality. On the one hand, the differentials in terms of industrial variations despite similar clusters highlights the importance of the role of public investment, while at the same time, workers' perceptions reveal that the preference for education and better quality jobs is higher in the region of Erode-Coimbatore in Tamil Nadu than in Bhagalpur-Munger region in Bihar. This highlights the importance of socio-economic transformation of regions for overall development.

10.6. Concluding Remarks

The focus of this study has been mainly on issues ranging from structural transformation of the economy and GDP, along with the size, structure and composition and diversification of the workforce within and across sectors/ specific groups. As the broad trends seem to suggest, dependence on agriculture for work is declining but still significant, and the decline in agricultural workforce is matched mainly by absorption in construction or (informal) service sector activities. Trends in employment elasticities at the sectoral level for the major states also confirm fears of job loss growth in the Indian economy; despite declining (and in some cases negative) employment elasticity in agriculture, where these workers will be absorbed is an important question and cause for concern. This is because at the same time, employment elasticity of the manufacturing sector is also declining, as is the case for services and construction as well. With jobs in manufacturing declining, and the unsustainable nature of work in the construction sector, the service-led economy in India is threatened with job losses and further informalisation in new forms under the globally expanding technological interface and automation under Industry 4.0.

In sum, it is evident that structural change of employment in the Indian economy has been rather sluggish with significant (despite declining) dependence on agriculture for jobs. At the same time, construction sector, which has been a major employment generator, is not a sustainable option. Moreover, the sluggishness of the manufacturing sector and employment opportunities in the same petering out, this could prove to be further detrimental to job growth. To add to this, there still exist wide inter-state differentials as well as large differentials at the district level in terms of sectoral shares of employment, employment elasticities, natures of work and diversification patterns, and public expenditure and investment.

Given the looming threat of premature deindustrialization and further fiscal restrictions on states' spending patterns, these differentials may only be expected to widen, further restricting optimal realization of the demographic potential. This study has tried to map in detail, the temporal and spatial aspects of workforce diversification in India for better insights for policy purposes. It is seemingly evident that individual and household characteristics partially explain the choice of work. Given the low shares of investment in Agricultural, Industrial and Social sectors, it is becoming increasingly clearer that an exogenous push may be required to improve employment elasticity in the economy as well. It would be safe to conclude that the role of public investment in the above mentioned sectors will be one of the major factors towards this goal.

10.7. Limitations of the Study

This piece of research is a step towards bridging the gaps in literature as well as furthering the perspectives and insights on workforce diversification in the Indian economy at the temporal as well as the spatial level. Although stress has been laid at each level of analysis and these have been linked to provide an overall picture at each level of the economy, viz. the macro, the meso as well as the micro level analysis of working population, it is always possible to add further disaggregation in analysis. For instance, while this study maps spatial analysis at the district level, further research may be expanded to the *tehsil* level to increase the scale of analysis. Additionally, while the scope of this study has been restricted to upto 3 digit level studies on sectors and occupational classification for maximum concordance in analysis; it may be further extended to 5 digit levels although this would be more difficult due to non-conformity of classifications at the more detailed level across time. It is always possible to further expand and improve upon existing research, and while this study tries to minimize gaps in analysis at all stages, there can always be more additions to these details with further improvements in secondary data availability over time and so on. The ultimate purpose of this research has been to broaden and enrich the discourse on workforce diversification in India by providing much detailed insights using both quantitative and qualitative analyses and novel techniques. It is a humble contribution to this field of research, providing the scope for further studies.

10.8. Scope Ahead

As stated earlier, this study tries to broaden the perspectives and understanding on workforce diversification in India, with focus on the finer nuances and stress on deeper and consolidated analysis at different levels. There is always however scope to further add on to research work. This study offers the scope to enrich perspectives and understanding of structural transformation of the workforce, which may be expanded in due course of time by adding more detailed analyses on urbanisation processes, skill development, and more disaggregated information on public investment patterns. These factors have already been touched upon and analysed in the present study, but this may be expanded more deeply as and when more information is collected on the same in further surveys. Further, as the Periodic Labour Surveys collect and release more data on rotational panels in urban areas, longer term tracking of workers would become feasible. If possible, similar surveys on rural areas would also be helpful. Being able to track the same workers over longer periods of time, while including more variables as done in the field based approach in this study; would increase the understanding on Indian workforce diversification immensely. The ultimate goal of such research would remain gaining deeper perspectives on the nature, pathways and correlates of workforce diversification over time and space at different levels of disaggregation, to gain insights for policies to improve the quality of as well as expand employment opportunities in more productive sectors of the economy, thereby improving the growth of the economy while at the same time ensuring optimal realisation of the potential of the demographic dividend to ultimately benefit the population in the country to achieve sustainable and beneficial livelihoods.

ANNEXURES

Appendix to Chapter 4

Percentage change (growth) in employment over 3 decades since 1980s (using NSS data)

Figure A.1: Agriculture Total

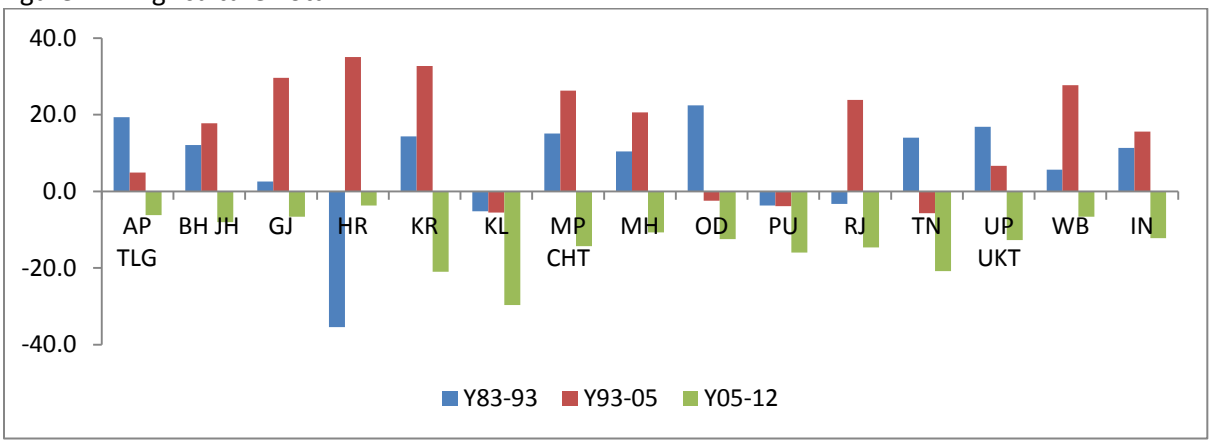


Figure A.2: Agriculture Rural

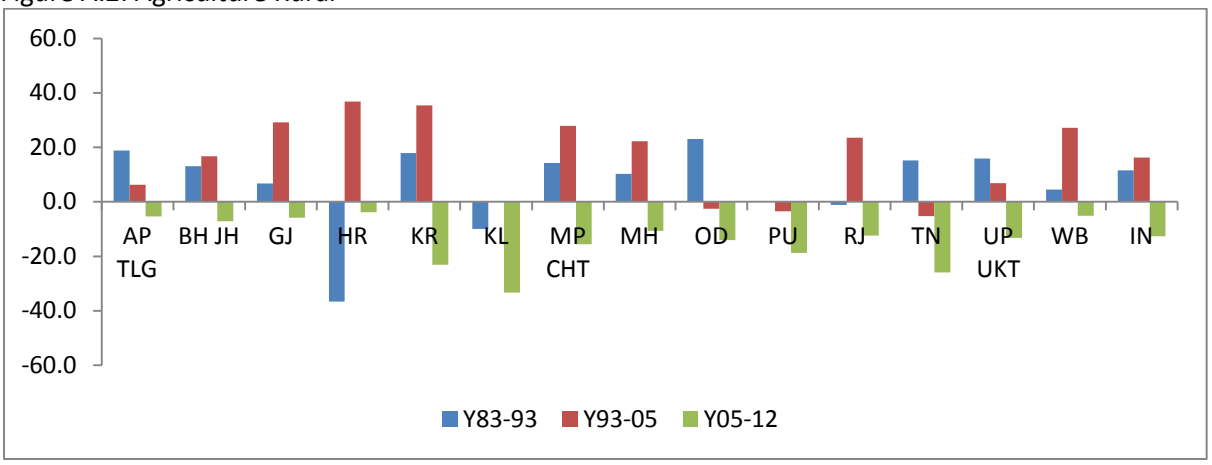


Figure A.3: Agriculture Urban

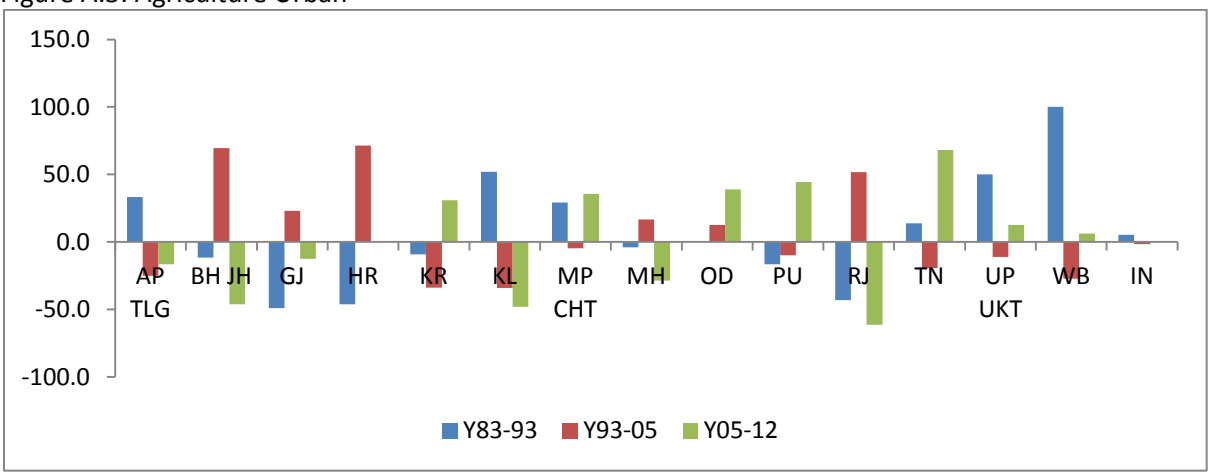


Figure A.4: Agriculture Male

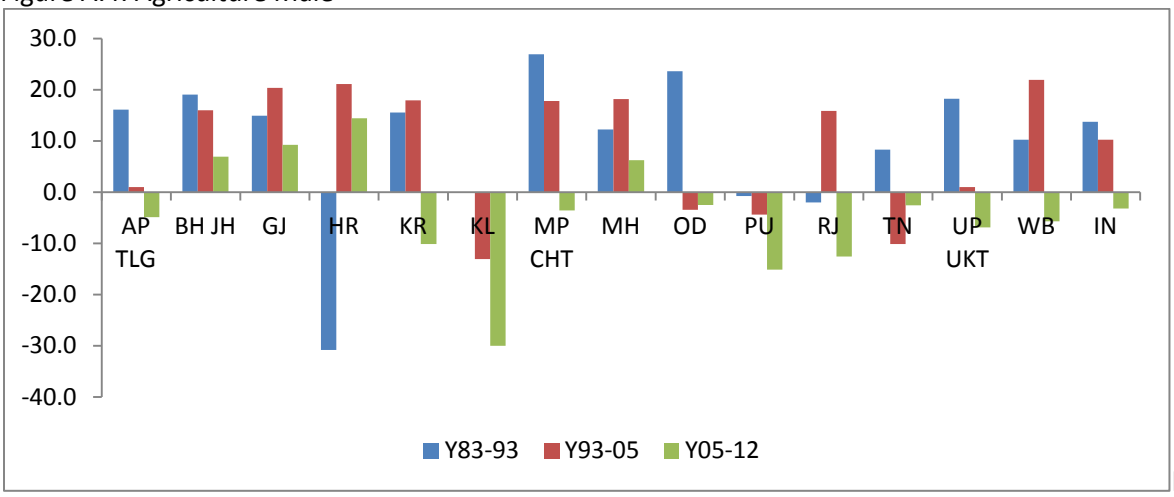


Figure A.5: Agriculture Female

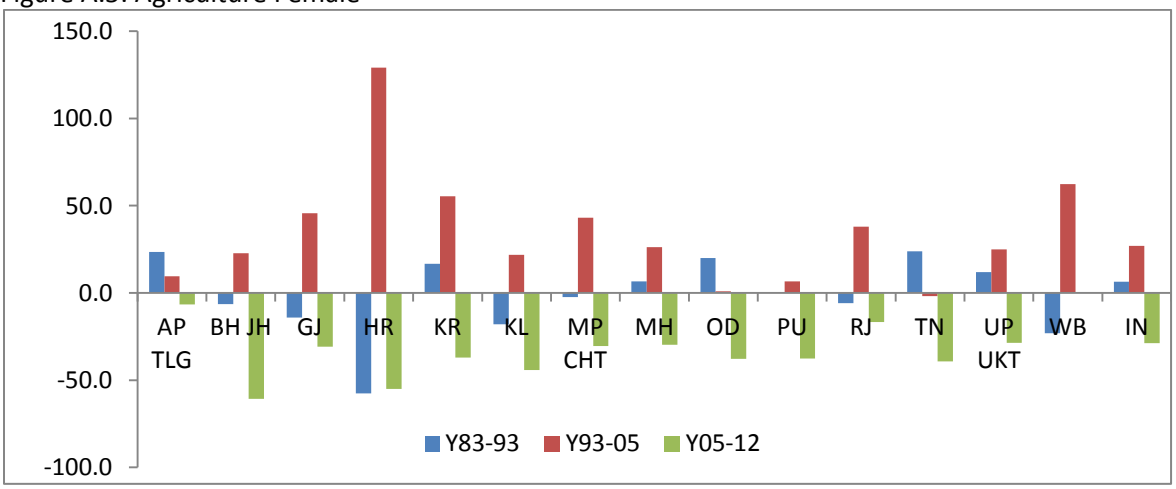


Figure A.6: Non-Agriculture Total

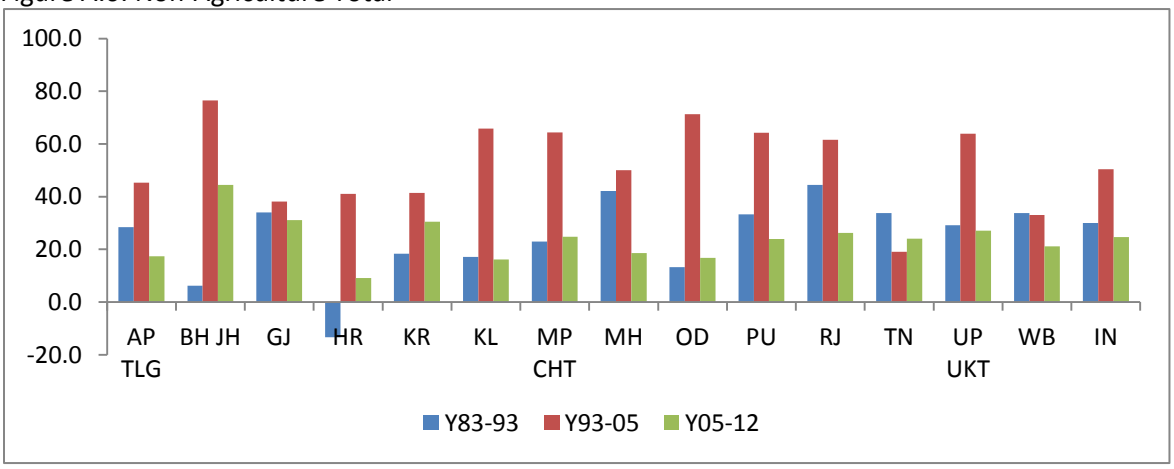


Figure A.7: Non-Agriculture Rural

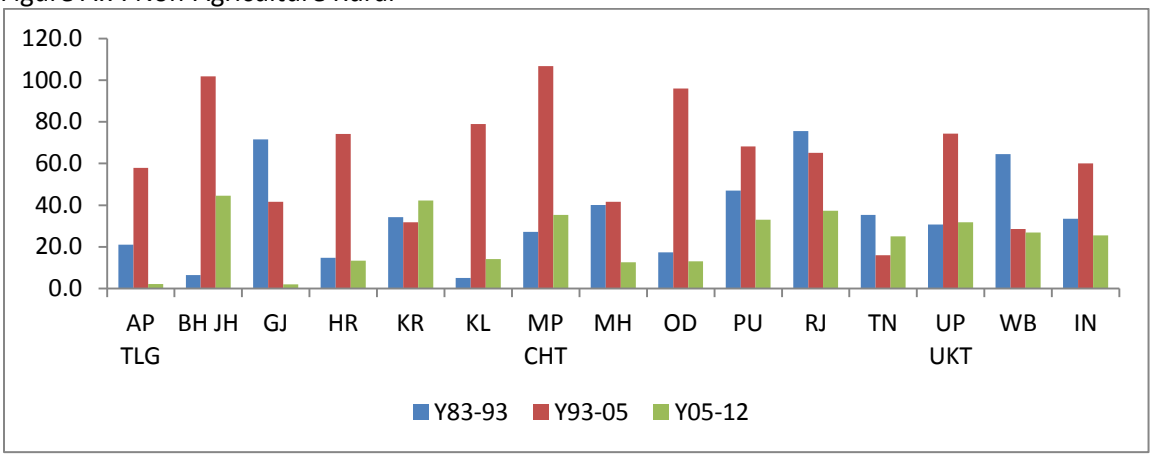


Figure A.8: Non-Agriculture Urban

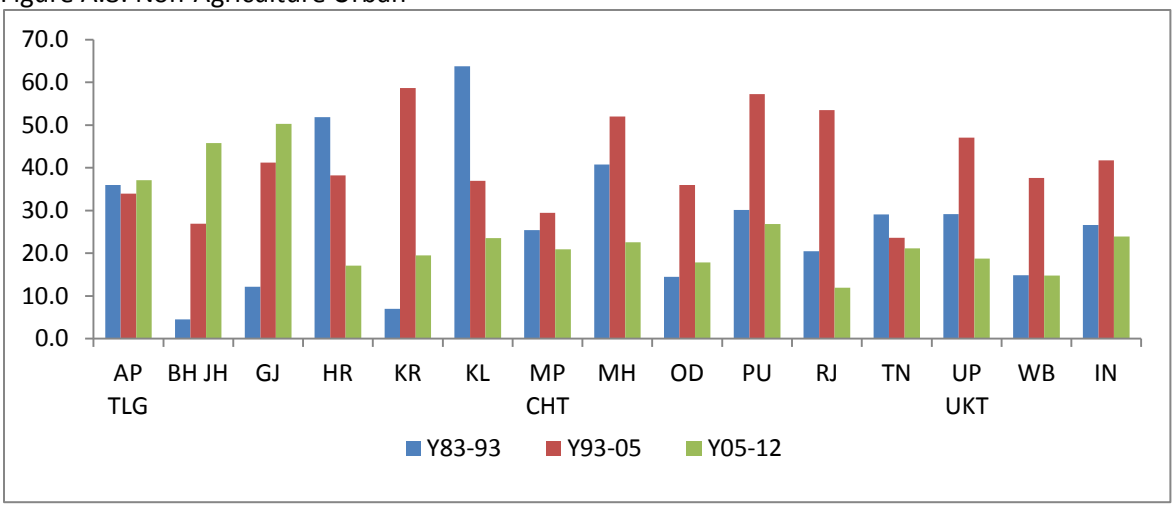


Figure A.9: Non-Agriculture: Rural Male

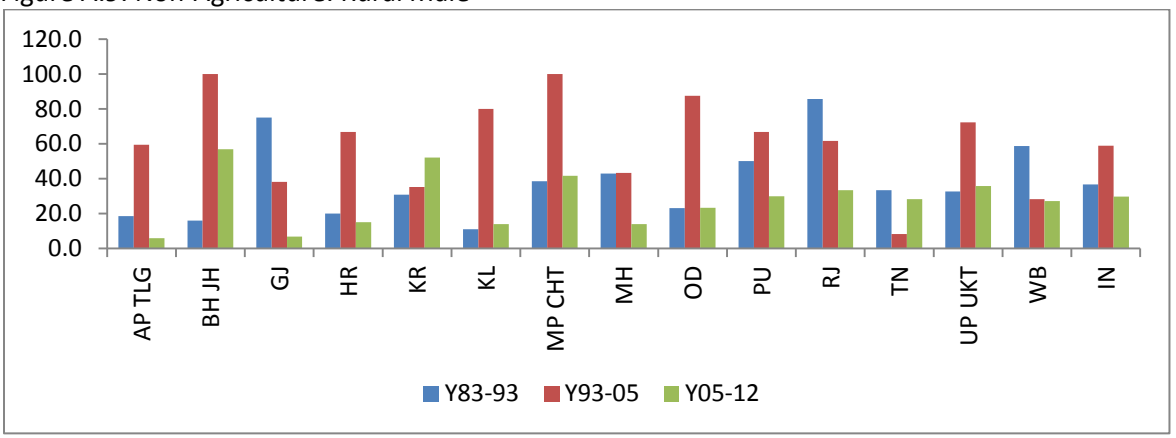


Figure A.10: Non-Agriculture: Rural Female

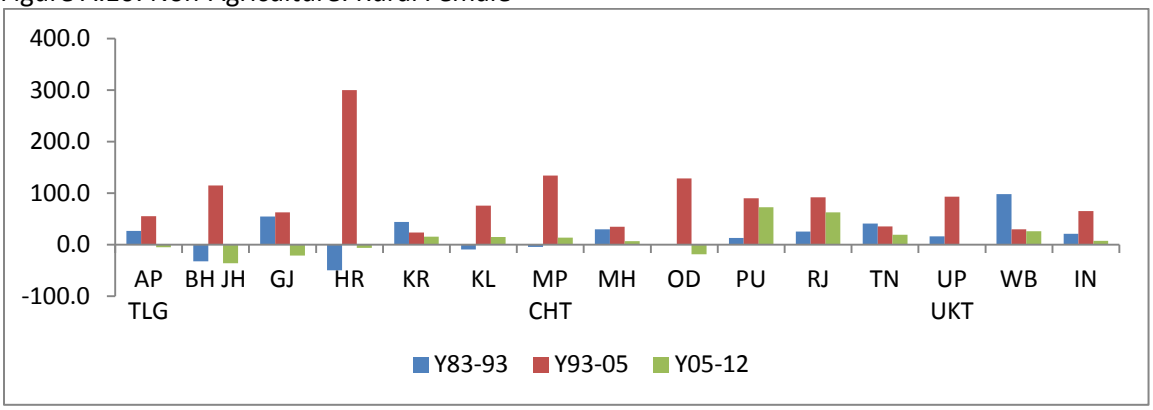


Figure A.11: Non-Agriculture: Urban Male

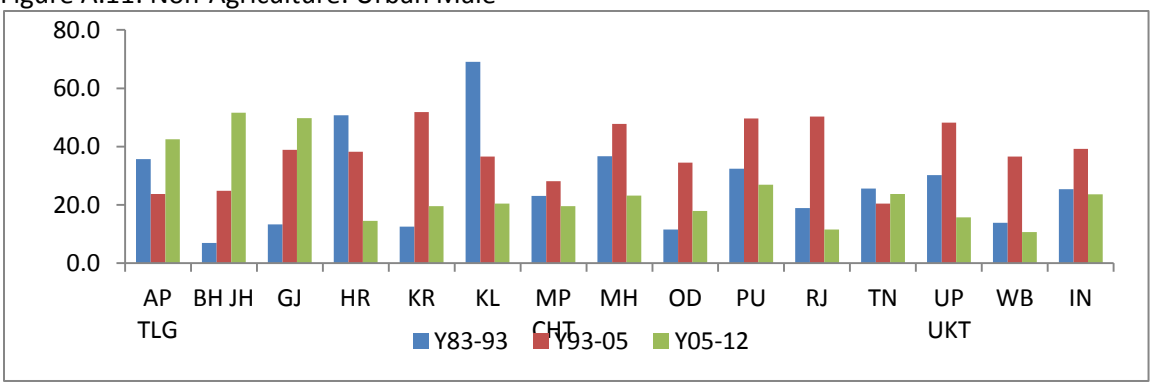


Figure A.12: Non-Agriculture: Urban Female

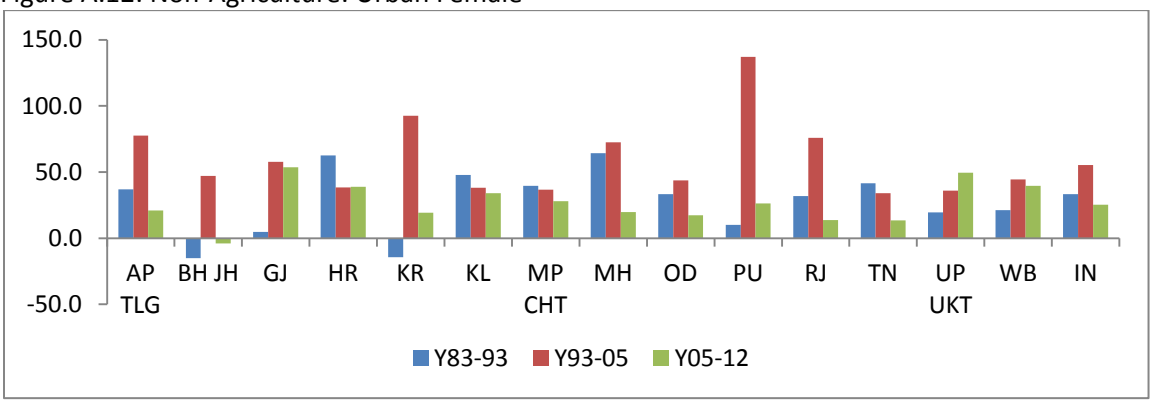


Figure A.13: Non-Agriculture: Manufacturing

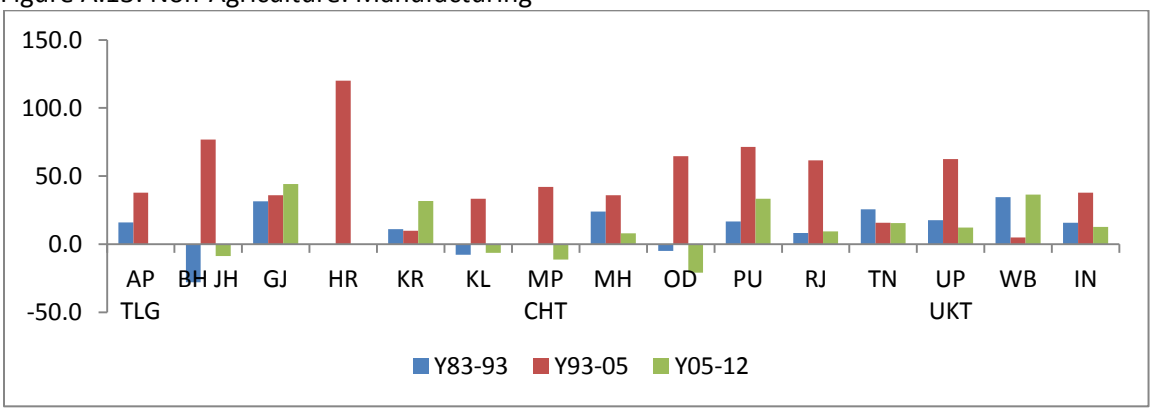


Figure A.14: Non-Agriculture: Manufacturing: Rural Male

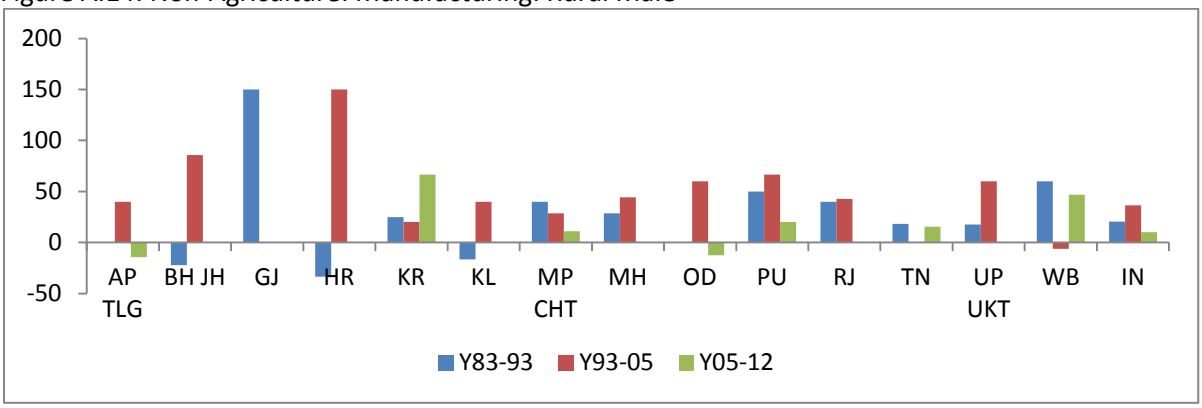


Figure A.15: Non-Agriculture: Manufacturing: Rural Female

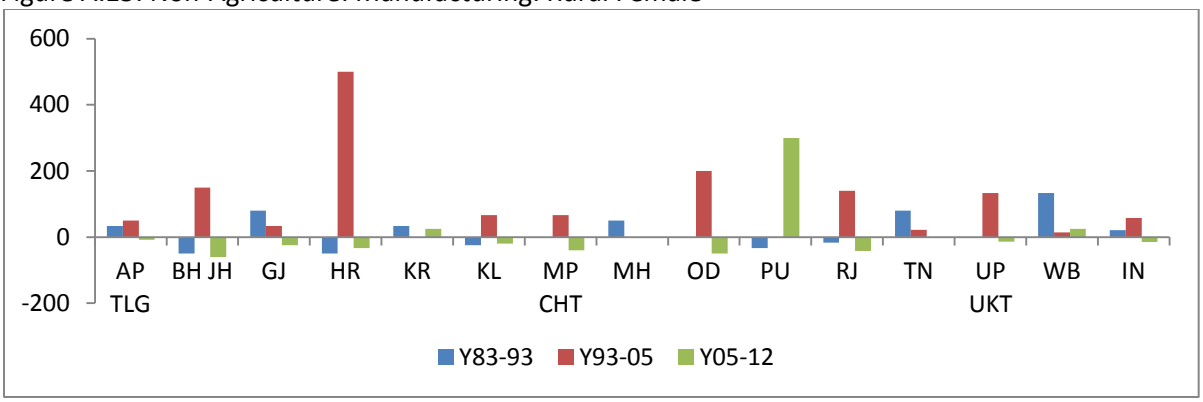


Figure A.16: Non-Agriculture: Manufacturing: Urban Male

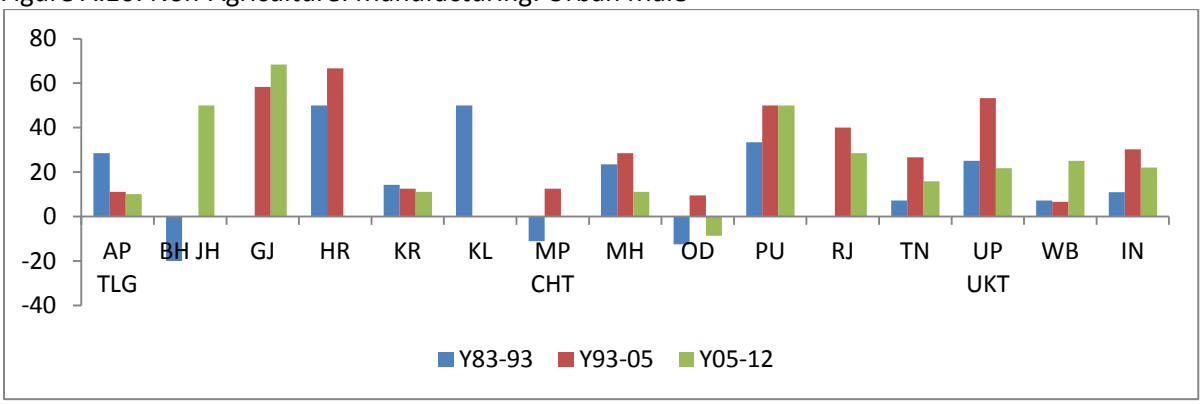


Figure A.17: Non-Agriculture: Manufacturing: Urban Female

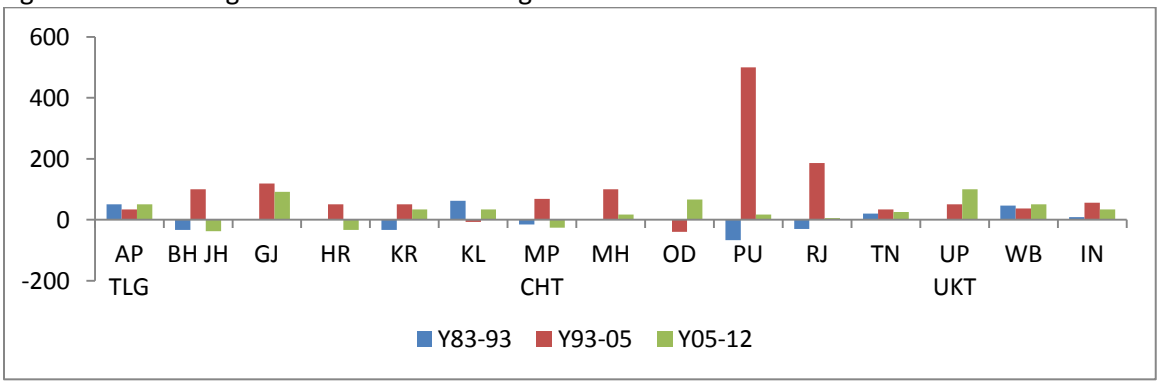


Figure A.18: Non-Agriculture: Construction

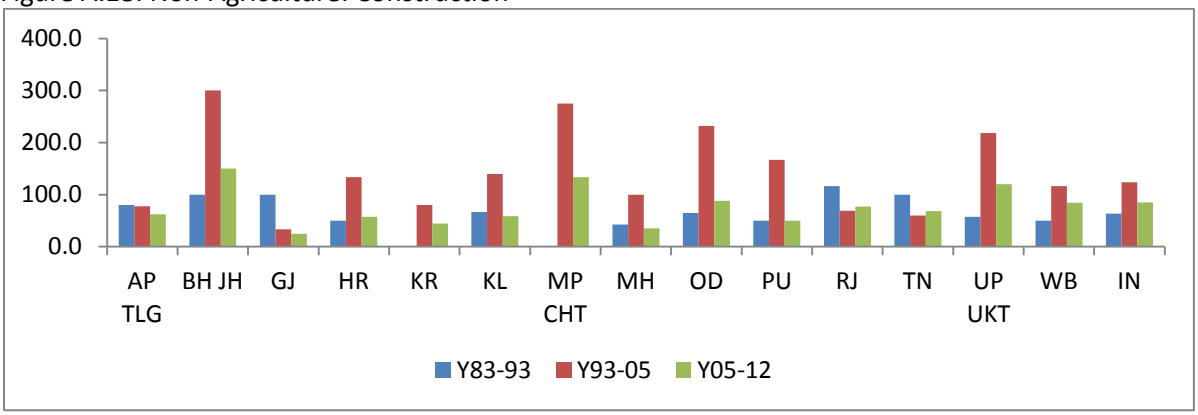


Figure A.19: Non-Agriculture: Construction: Rural Male

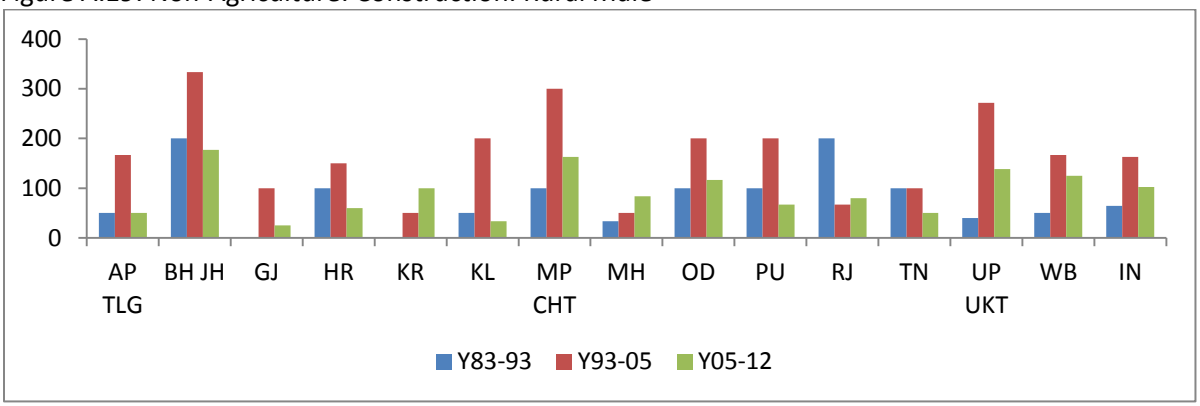


Figure A.20: Non-Agriculture: Construction: Rural Female

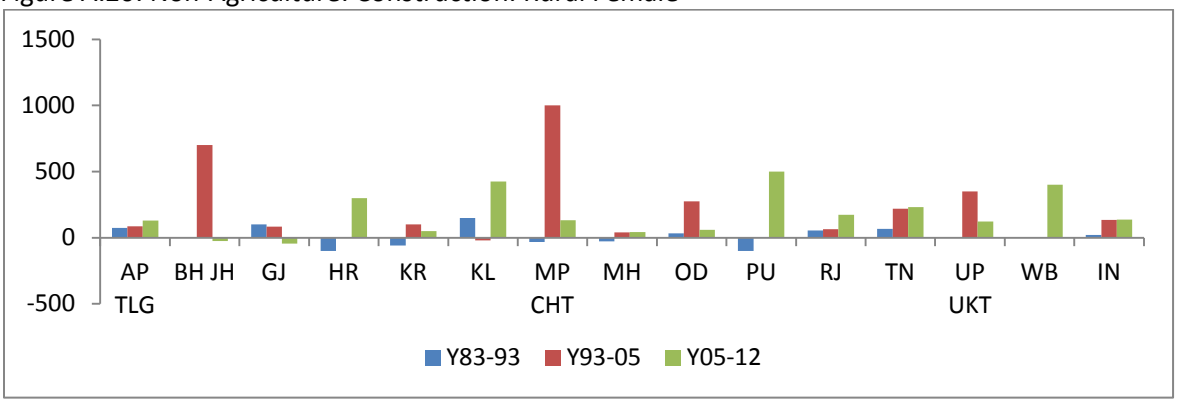


Figure A.21: Non-Agriculture: Construction: Urban Male

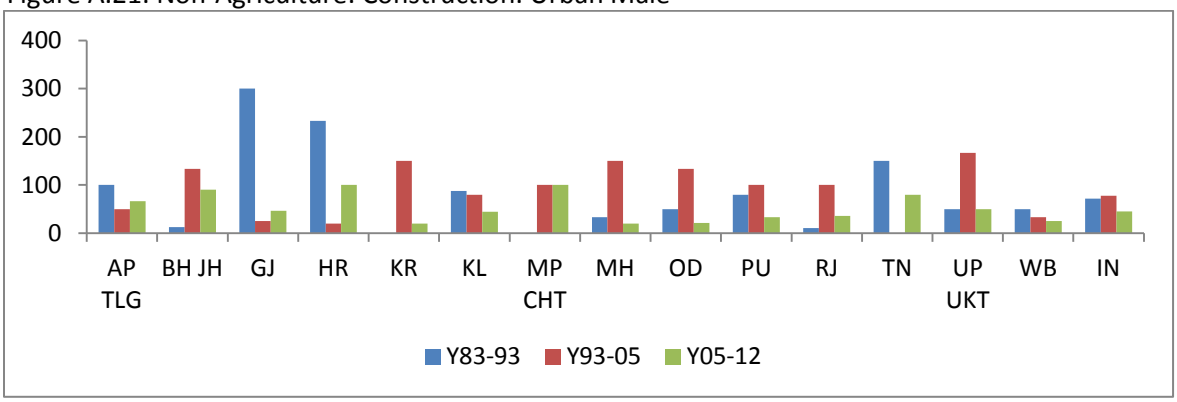


Figure A.22: Non-Agriculture: Construction: Urban Female

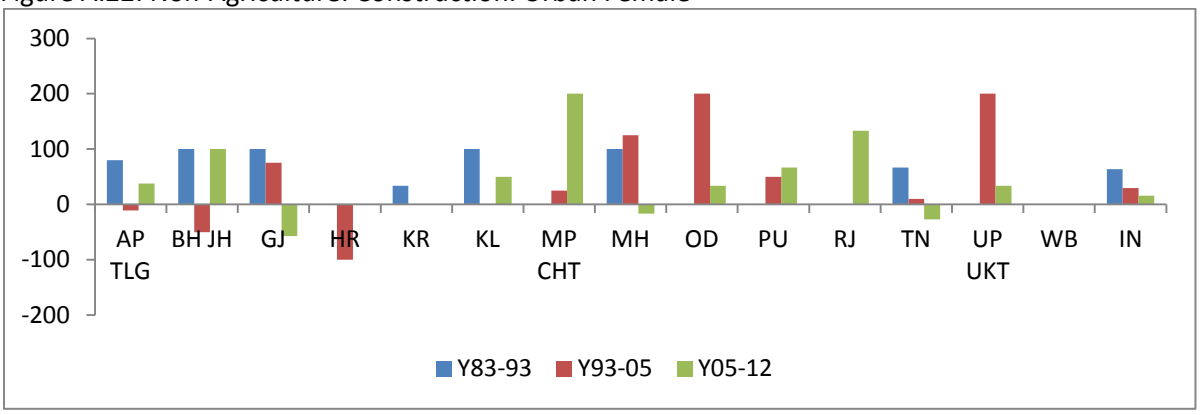


Figure A.23: Non-Agriculture: Services

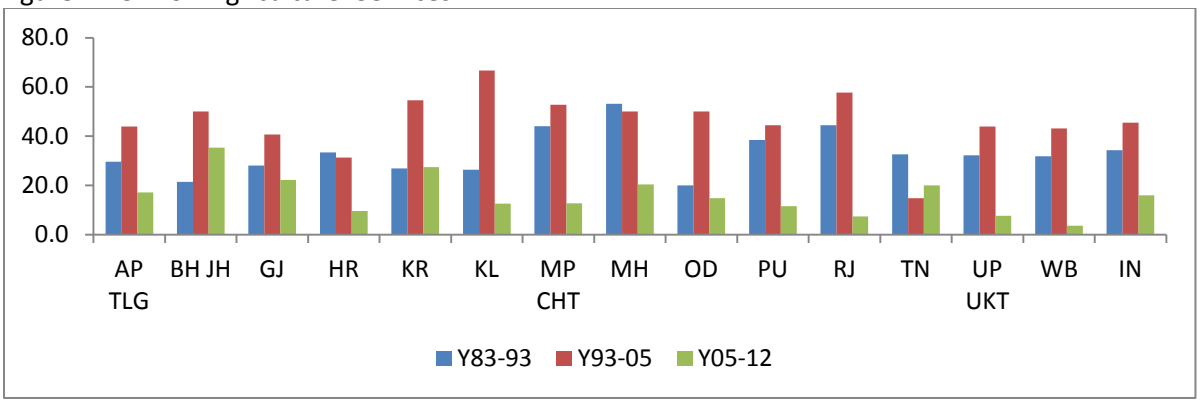


Figure A.24: Non-Agriculture: Services: Rural Male

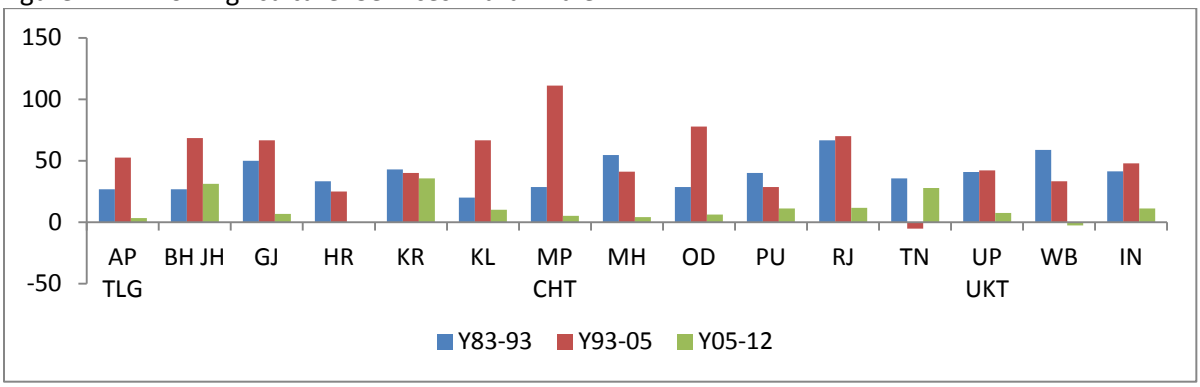


Figure A.25: Non-Agriculture: Services: Rural Female

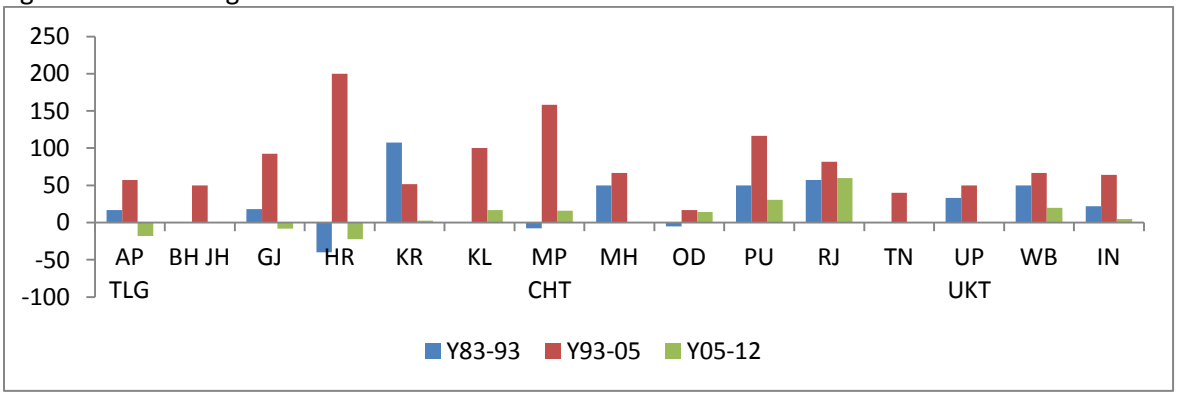


Figure A.26: Non-Agriculture: Services: Urban Male

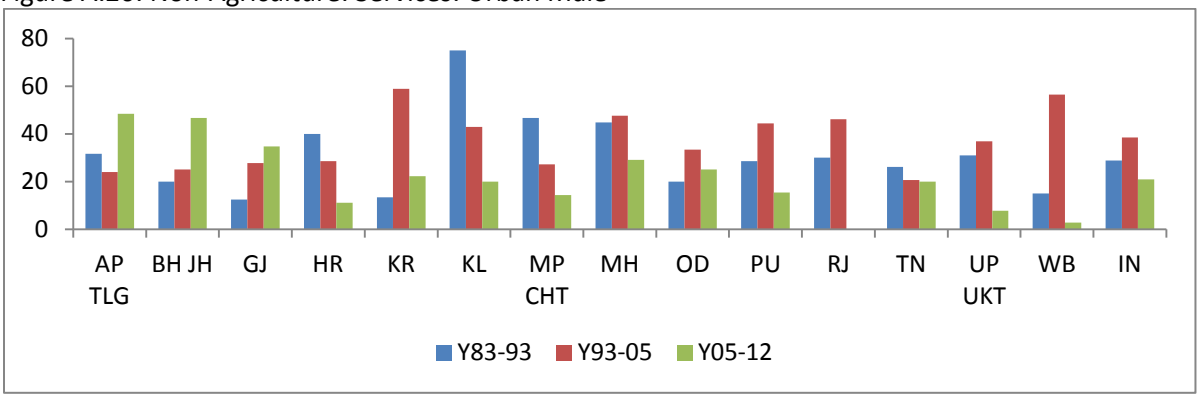
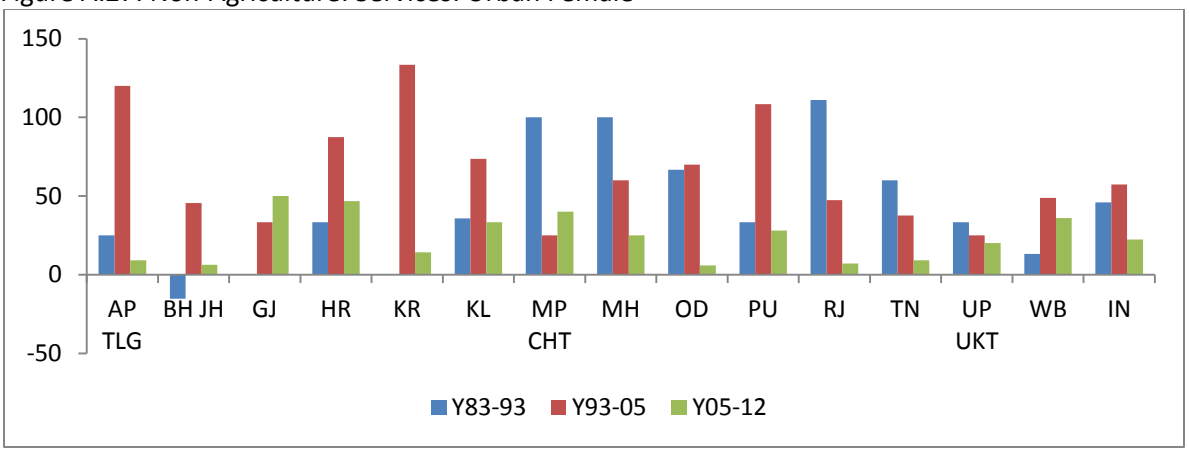


Figure A.27: Non-Agriculture: Services: Urban Female



Appendix to Chapter 5

Table A5.1: Percentage Distribution of educational attainment by industrial sectors: Rural

	1983				2004-05				2011-12			
Rural	BPE	PME	ASE	Total	BPE	PME	ASE	Total	BPE	PME	ASE	Total
AGRI	81	17	3	100	63	27	10	100	54	29	17	100
MIN	82	15	4	100	66	23	10	100	51	31	18	100
MGF	66	28	5	100	47	38	15	100	40	37	24	100
UTL	32	46	23	100	14	33	53	100	21	33	46	100
CNS	74	23	4	100	55	36	9	100	50	37	13	100
THR	55	36	9	100	36	38	26	100	28	37	35	100
TSC	53	34	13	100	35	39	25	100	30	39	31	100
FRB	18	29	53	100	8	23	69	100	8	20	73	100
CSP	44	25	32	100	28	21	51	100	20	21	59	100
Total	76	19	5	100	57	29	14	100	47	31	22	100

Table A5.2: Percentage Distribution of educational attainment by industrial sectors: Urban

	1983				2004-05				2011-12			
Urban	BPE	PME	ASE	Total	BPE	PME	ASE	Total	BPE	PME	ASE	Total
AGRI	72	22	6	100	54	28	18	100	43	30	28	100
MIN	54	26	20	100	31	32	37	100	23	20	57	100
MGF	44	37	19	100	28	39	34	100	25	35	40	100
UTL	17	40	43	100	11	23	66	100	31	29	41	100
CNS	60	28	12	100	42	39	19	100	38	35	28	100
THR	38	39	23	100	23	34	42	100	19	29	52	100
TSC	40	35	24	100	23	33	44	100	17	27	56	100
FRB	8	21	71	100	6	16	78	100	5	12	84	100
CSP	30	26	45	100	20	20	60	100	15	19	66	100
Total	42	31	26	100	27	31	42	100	22	28	50	100

*BPE: Educated below primary level; PME: Primary and middle level education; ASE: Secondary and above level

Table A5.3: Percentage Distribution of age-groups by industrial sectors: Rural

	1983					2004-05					2011-12				
Rural	Child	Youth	Middle	Elder	Total	Child	Youth	Middle	Elder	Total	Child	Youth	Middle	Elder	Total
AGRI	8	36	49	7	100	2	31	58	9	100	1	25	63	11	100
MIN	3	39	55	3	100	1	36	61	2	100	0	36	61	2	100
MGF	6	41	46	7	100	2	41	52	5	100	2	38	54	6	100
UTL	1	35	62	1	100	0	10	89	1	100	0	22	77	1	100
CNS	3	44	49	4	100	1	42	54	3	100	0	37	59	4	100
THR	4	35	53	8	100	2	35	57	6	100	0	28	63	8	100
TSC	1	41	55	3	100	0	41	57	2	100	0	33	64	2	100
FRB	0	34	61	5	100	0	33	64	3	100	0	24	71	5	100
CSP	3	29	62	6	100	1	26	68	5	100	0	23	71	5	100
Total	7	37	49	7	100	2	33	58	8	100	1	28	62	9	100

Table A5.4: Percentage Distribution of age-groups by industrial sectors: Urban

	1983					2004-05					2011-12				
Urban	Child	Youth	Middle	Elder	Total	Child	Youth	Middle	Elder	Total	Child	Youth	Middle	Elder	Total
AGRI	6	36	49	9	100	1	25	63	11	100	1	20	65	14	100
MIN	1	27	70	2	100	0	12	86	1	100	0	23	76	0	100
MGF	4	42	50	4	100	2	41	54	4	100	1	35	59	4	100
UTL	0	30	69	0	100	0	9	90	0	100	1	31	66	2	100
CNS	3	41	52	4	100	0	40	56	3	100	0	35	62	4	100
THR	3	40	49	8	100	1	36	58	5	100	1	29	65	6	100
TSC	1	37	60	2	100	0	32	66	2	100	0	30	68	2	100
FRB	1	36	59	5	100	1	25	70	4	100	0	29	66	5	100
CSP	2	31	63	4	100	1	23	73	3	100	0	24	72	4	100
Total	3	37	54	5	100	1	33	62	4	100	1	30	65	5	100

*Child worker, below age 15; Youth, 15-29 years of age, Middle age, 30-60 years of age; Elder, over age 60

**MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Table A5.5: Percentage Distribution of religious groups by industrial sectors: Rural

	1983				2004-05				2011-12			
Rural	Hindu	Muslim	Others	Total	Hindu	Muslim	Others	Total	Hindu	Muslim	Others	Total
AGRI	89	6	5	100	88	7	5	100	88	7	4	100
MIN	88	8	4	100	89	6	5	100	89	7	3	100
MGF	83	13	5	100	80	16	4	100	77	19	4	100
UTL	86	7	8	100	76	10	14	100	86	5	9	100
CNS	83	11	5	100	83	11	6	100	81	14	5	100
THR	79	16	5	100	78	17	5	100	79	17	4	100
TSC	77	15	8	100	78	15	7	100	78	18	5	100
FRB	85	7	7	100	86	7	8	100	81	8	11	100
CSP	85	9	7	100	84	9	7	100	84	10	6	100
Total	88	7	5	100	86	9	5	100	85	10	5	100

Table A5.6: Percentage Distribution of religious groups by industrial sectors: Urban

	1983				2004-05				2011-12			
Urban	Hindu	Muslim	Others	Total	Hindu	Muslim	Others	Total	Hindu	Muslim	Others	Total
AGRI	84	11	5	100	85	9	6	100	84	9	7	100
MIN	80	11	9	100	92	4	3	100	90	7	2	100
MGF	76	18	5	100	76	20	4	100	74	22	4	100
UTL	83	11	5	100	84	10	6	100	82	12	6	100
CNS	80	14	6	100	80	14	6	100	77	17	6	100
THR	76	18	6	100	75	18	7	100	76	19	6	100
TSC	73	19	8	100	78	16	6	100	77	18	6	100
FRB	86	6	8	100	84	8	8	100	86	7	7	100
CSP	81	10	8	100	84	8	8	100	83	9	8	100
Total	79	15	7	100	79	15	6	100	78	16	6	100

Table A5.7: Percentage Distribution of caste groups by industrial sectors: Rural

	1983				2004-05				2011-12			
Rural	ST	SC	GENERAL	Total	ST	SC	GENERAL	Total	ST	SC	GENERAL	Total
AGR	14	20	66	100	15	21	65	100	16	19	65	100
MIN	24	24	51	100	21	28	51	100	13	30	57	100
MGF	5	20	75	100	6	21	73	100	6	21	73	100
UTL	6	12	81	100	5	25	69	100	11	22	67	100
CNS	14	28	58	100	13	34	53	100	13	34	53	100
THR	4	11	84	100	4	15	81	100	6	14	81	100
TSC	4	22	73	100	6	23	72	100	5	24	71	100
FRB	2	8	90	100	3	21	76	100	2	17	81	100
CSP	6	19	76	100	7	20	73	100	8	19	73	100
Total	13	19	68	100	12	21	66	100	13	21	67	100

Table A5.8: Percentage Distribution of caste groups by industrial sectors: Urban

	1983				2004-05				2011-12			
Urban	ST	SC	GENERAL	Total	ST	SC	GENERAL	Total	ST	SC	GENERAL	Total
AGR	8	14	78	100	9	17	75	100	7	16	78	100
MIN	17	16	67	100	6	21	74	100	8	21	71	100
MGF	3	12	85	100	2	14	84	100	2	12	86	100
UTL	6	10	84	100	7	18	75	100	3	19	78	100
CNS	5	24	71	100	5	26	69	100	6	25	69	100
THR	2	7	91	100	2	11	87	100	2	10	88	100
TSC	3	16	81	100	3	17	80	100	4	15	82	100
FRB	1	4	95	100	1	11	88	100	2	12	86	100
CSP	4	15	81	100	4	19	77	100	5	19	76	100
Total	4	13	84	100	3	15	81	100	4	15	82	100

**MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's computations from various NSSO surveys

Table A5.9: Percentage Distribution of gender groups by industrial sectors: Rural

	1983			2004-05			2011-12		
Rural	Male	Female	Total	Male	Female	Total	Male	Female	Total
AGR	66	34	100	65	35	100	72	28	100
MIN	76	24	100	80	20	100	82	18	100
MGF	71	29	100	68	32	100	73	27	100
UTL	98	2	100	98	2	100	92	8	100
CNS	84	16	100	90	10	100	89	11	100
THR	82	18	100	87	13	100	88	12	100
TSC	99	1	100	98	2	100	99	1	100
FRB	95	5	100	94	6	100	93	7	100
CSP	79	21	100	72	28	100	73	27	100
Total	69	31	100	70	30	100	76	24	100

Table A5.10: Percentage Distribution of gender groups by industrial sectors: Urban

	1983			2004-05			2011-12		
Urban	Male	Female	Total	Male	Female	Total	Male	Female	Total
AGR	64	36	100	64	36	100	75	25	100
MIN	87	13	100	95	5	100	92	8	100
MGF	83	17	100	80	20	100	80	20	100
UTL	96	4	100	94	6	100	85	15	100
CNS	86	14	100	90	10	100	92	8	100
THR	90	10	100	90	10	100	90	10	100
TSC	96	4	100	96	4	100	95	5	100
FRB	94	6	100	88	12	100	87	13	100
CSP	77	23	100	64	36	100	64	36	100
Total	82	18	100	81	19	100	82	18	100

**MIN: Mining and Quarrying; MFG: manufacturing; UTL: Utilities including electricity, gas and water supply; CNS: Construction; THR: Trade, Hotels and Restaurants; TSC: Transport, Storage and Communication; FBR: Finance, business and real estate services; CSP: Community, Social and Personal services

Source: Author's computations from various NSSO surveys

Table A5.11: FAIRLIE SECTOR LOGISTIC REGRESSION ESTIMATES- RURAL

	Rural Period 1			Rural Period 2			Rural Period 3		
depvar_R	B	EXP B	Std. Err.	B	EXP B	Std. Err.	B	EXP B	Std. Err.
Fgender	-0.610***	0.543	0.028	-1.073***	0.342	0.022	-1.274***	0.280	0.028
Fage_young	0.027	1.027	0.024	0.054***	1.056	0.021	-0.008	0.992	0.028
Fage_old	-0.245***	0.783	0.029	-0.385***	0.680	0.024	-0.390***	0.677	0.028
Fgenedu_mid	0.727***	2.069	0.028	0.544***	1.723	0.023	0.458***	1.580	0.029
Fgenedu_sec	1.737***	5.678	0.034	1.323***	3.754	0.029	1.077***	2.936	0.033
Ftechedu	1.351***	3.862	0.078	1.173***	3.230	0.068	1.482***	4.403	0.097
Frel_islam	0.449***	1.567	0.040	0.548***	1.729	0.034	0.619***	1.856	0.042
Frel_chris	0.019	1.019	0.075	0.099	1.104	0.063	0.204*	1.226	0.083
Frel_oth	-0.377***	0.686	0.060	-0.088*	0.918	0.047	0.113’	1.120	0.064
Fcaste_ST	-0.360***	0.698	0.040	-0.291***	0.748	0.032	-0.241***	0.786	0.038
Fcaste_SC	-0.081**	0.922	0.030	0.071***	1.074	0.024	0.118***	1.125	0.031
Fhhsize_med	0.122***	1.130	0.023	-0.247**	0.781	0.021	-0.340***	0.712	0.026
Fhhsize_lar	0.241***	1.273	0.044	-0.211***	0.810	0.042	-0.552***	0.576	0.059
Fownland_small	-0.380***	0.684	0.036	-0.598***	0.5550	0.030	-0.762***	0.467	0.037
Fownland_lar	-0.243***	0.784	0.028	-0.487***	0.615	0.026	-0.541***	0.582	0.032
Fhhtype_R1	4.539***	93.594	0.035	3.998***	54.473	0.027	4.127***	62.012	0.034
Fhhtype_R2	0.353***	1.424	0.038	-0.067’	0.935	0.036	-0.070	0.932	0.049
Fhhtype_R3	4.246***	69.830	0.039	3.821***	45.648	0.032	4.226***	68.420	0.040
Fhhtype_R4	3.018***	20.448	0.035	3.150***	23.326	0.031	3.507***	33.338	0.035
FmpceQ_R1	0.236***	1.266	0.031	-0.133***	0.875	0.025	-0.184***	0.832	0.032
FmpceQ_R2	0.364***	1.439	0.032	-0.140***	0.870	0.028	-0.199***	0.820	0.034
FmpceQ_R3	0.501***	1.651	0.034	-0.093**	0.911	0.034	-0.061	0.941	0.039
Fstategrp	-0.160***	0.852	0.023	-0.072***	0.930	0.020	0.0066	1.006	0.024
_cons	-3.385***	0.034	0.046	-2.240***	0.106	0.035	-2.028***	0.132	0.044
No. of Observations		109575			117952				76192
LR (Chi square) 52573.72		57586.94			75260.6				
R-square		48.92			49.8				49.8
Log-likelihood 26495.126		-30063.265			-40511.901				-

Table A5.12: FAIRLIE SECTOR LOGISTIC REGRESSION ESTIMATES- URBAN

	Urban Period 1			Urban Period 2			Urban Period 3		
urban_depv~1	Coef.	EXP B	Std. Err.	Coef.	EXP B	Std. Err.	Coef.	EXP B	Std. Err.
Fgender	-0.020	0.980	0.028	-0.140***	0.869	0.027	-0.073*	0.929	0.031
Fage_young	-0.170***	0.844	0.023	-0.189***	0.828	0.024	-0.235***	0.791	0.029
Fage_old	0.085**	1.088	0.028	0.093**	1.097	0.029	0.043	1.044	0.030
Fgenedu_mid	0.125***	1.133	0.027	-0.070*	0.932	0.028	0.054	1.055	0.035
Fgenedu_sec	0.670***	1.955	0.030	0.524***	1.688	0.032	0.724***	2.063	0.036
Ftechedu	-0.327***	0.721	0.041	-0.201***	0.818	0.044	-0.459***	0.632	0.048
Frel_islam	-0.071*	0.932	0.029	-0.251***	0.778	0.029	-0.163***	0.849	0.034
Frel_chris	0.241***	1.272	0.063	0.266***	1.304	0.075	0.294***	1.341	0.084
Frel_oth	0.267***	1.306	0.056	0.138*	1.147	0.060	0.051	1.053	0.070
Fcaste_ST	-0.006	0.995	0.065	0.322***	1.380	0.068	0.317***	1.373	0.075
Fcaste_SC	0.297***	1.346	0.035	0.244***	1.276	0.032	0.153***	1.165	0.037
Fhhsize_med	-0.035	0.966	0.023	-0.094***	0.910	0.025	-0.123***	0.884	0.029
Fhhsize_lar	0.039	1.040	0.056	-0.154**	0.857	0.051	-0.147	0.863	0.067
Fhhtype_U1	-0.706***	0.494	0.036	-0.638***	0.529	0.037	-0.747***	0.474	0.042
Fhhtype_U2	-0.517***	0.597	0.023	-0.287***	0.751	0.024	-0.308***	0.735	0.027
Fhhtype_U3	0.481***	1.618	0.120	0.450**	1.569	0.130	0.293’	1.340	0.166
FmpceQ_U1	-0.021	0.979	0.030	-0.076*	0.927	0.030	-0.027	0.973	0.034
FmpceQ_U2	0.024	1.024	0.031	0.049	1.050	0.033	0.070’	1.073	0.036
FmpceQ_U3	0.061*	1.063	0.034	0.143***	1.154	0.037	0.143***	1.153	0.040
Fstategrp	0.095***	1.100	0.021	0.146***	1.157	0.022	0.215***	1.240	0.026
_cons	0.828***	2.289	0.036	0.957***	2.605	0.035	0.808***	2.245	0.042
No. of Observations	47822			45855			36536		
LR (Chi square) 1705.15	1788.31			1754.76					
R-square	3.04			3.21			3.98		
Log-likelihood 20583.819	-28485.573			-26452.577			-		

Table A5.13: FAIRLIE STATUS LOGISTIC REGRESSION ESTIMATES- RURAL

	Period 1			Period 2			Period 3		
depvarstat~R	B	Exp B	Std. Err.	B	Exp B	Std. Err.	B	Exp B	Std. Err.
Fgender	-0.563***	0.570	0.040	-0.335***	0.715	0.032	-0.123**	0.884	0.040
Fage_young	-0.381***	0.684	0.032	-0.251***	0.778	0.028	-0.023	0.977	0.036
Fage_old	-0.124**	0.883	0.038	0.028	1.029	0.032	-0.162***	0.850	0.039
Fgenedu_mid	0.593***	1.810	0.037	0.818***	2.266	0.033	0.752***	2.120	0.045
Fgenedu_sec	1.826***	6.209	0.040	1.796***	6.025	0.036	1.720***	5.587	0.044
Ftechedu	1.034***	2.813	0.071	0.734***	2.084	0.059	0.979***	2.661	0.079
Frel_islam	0.026	1.027	0.056	-0.018	0.982	0.050	0.256***	1.292	0.056
Frel_chris	-0.043	0.958	0.088	0.081	1.085	0.072	0.117	1.124	0.097
Frel_oth	0.162*	1.175	0.067	0.260***	1.296	0.054	0.284***	1.328	0.077
Fcaste_ST	-0.058	0.944	0.054	-0.004	0.996	0.045	-0.124*	0.883	0.056
Fcaste_SC	-0.011	0.989	0.040	0.065*	1.067	0.033	0.108**	1.114	0.042
Fhhsize_med	0.092**	1.097	0.031	-0.322***	0.725	0.029	-0.339***	0.712	0.036
Fhhsize_lar	0.093	1.097	0.058	-0.410***	0.664	0.056	-0.579***	0.560	0.082
Fownland_s~l	0.039	1.039	0.046	-0.246***	0.782	0.042	-0.312***	0.732	0.051
Fownland_lar	0.245***	1.277	0.035	0.136***	1.146	0.034	-0.136**	0.873	0.043
Fhhtype_R1	0.108’	1.114	0.058	0.252***	1.287	0.044	0.182***	1.200	0.052
Fhhtype_R2	0.871***	2.389	0.050	0.815***	2.260	0.051	0.005	1.005	0.086
Fhhtype_R3	2.414***	11.182	0.049	2.124***	8.366	0.042	0.228**	1.256	0.066
Fhhtype_R4	3.398***	29.918	0.040	3.654***	38.612	0.037	4.033***	56.449	0.044
FmpceQ_R1	0.257***	1.293	0.046	0.091*	1.095	0.036	0.100*	1.105	0.045
FmpceQ_R2	0.503***	1.653	0.045	0.266***	1.304	0.038	0.122*	1.129	0.047
FmpceQ_R3	0.782***	2.185	0.046	0.348***	1.416	0.043	0.218’	1.244	0.051
Fstategrp	-0.125***	0.883	0.031	-0.190***	0.827	0.026	-0.124*	0.883	0.032
_cons	-4.494***	0.011	0.064	-4.155***	0.016	0.053	-4.138’	0.016	0.067
No. of Observations		109818			117952				76350
LR (Chi square) 29778.43		20525.13			28706.3				
R-square 48.46		34.75			36.78				
Log-likelihood 15833.059		-19273.424			-24669.422				-

Table A5.14: FAIRLIE STATUS LOGISTIC REGRESSION ESTIMATES- URBAN

	Period 1			Period 2			Period 3			
depvarstat~U	B	Exp B	Std. Err.	B	Exp B	Std. Err.	B	Exp B	Std. Err.	P>z
Fgender	-0.155***	0.856	0.040	0.322***	1.380	0.036	0.536***	1.709	0.041	0.000
Fage_young	-0.243***	0.785	0.033	0.162***	1.175	0.032	0.459***	1.582	0.037	0.000
Fage_old	-0.170***	0.844	0.039	-0.013	0.987	0.036	-0.101*	0.904	0.039	0.010
Fgenedu_mid	0.266***	1.304	0.039	0.271***	1.311	0.038	0.301***	1.351	0.047	0.000
Fgenedu_sec	0.776***	2.173	0.041	0.688***	1.990	0.041	0.888***	2.429	0.047	0.000
Ftechedu	0.314***	1.369	0.062	0.444***	1.560	0.058	0.852***	2.345	0.065	0.000
Frel_islam	-0.045	0.956	0.044	-0.055	0.946	0.042	-0.057	0.944	0.047	0.223
Frel_chris	0.174*	1.190	0.085	0.021	1.021	0.087	0.039	1.039	0.098	0.694
Frel_oth	-0.122’	0.885	0.073	-0.071	0.932	0.072	-0.012	0.988	0.083	0.882
Fcaste_ST	-0.330***	0.719	0.086	-0.051	0.950	0.076	0.075	1.078	0.083	0.369
Fcaste_SC	-0.048	0.953	0.047	0.133**	1.142	0.040	0.125**	1.133	0.046	0.006
Fhhsize_med	-0.199***	0.820	0.032	-0.317***	0.728	0.032	-0.247***	0.781	0.037	0.000
Fhhsize_lar	-0.203**	0.816	0.078	-0.529***	0.589	0.070	-0.342***	0.710	0.089	0.000
Fhhtype_U1	0.127*	1.135	0.056	0.139**	1.149	0.048	0.480***	1.616	0.050	0.000
Fhhtype_U2	4.348***	77.331	0.032	4.044***	57.067	0.030	4.292***	73.111	0.036	0.000
Fhhtype_U3	2.329***	10.272	0.077	1.678***	5.356	0.084	1.743***	5.715	0.121	0.000
FmpceQ_U1	0.153***	1.165	0.042	0.100*	1.105	0.039	0.075’	1.078	0.044	0.089
FmpceQ_U2	0.359***	1.432	0.044	0.181***	1.198	0.043	0.178***	1.195	0.047	0.000
FmpceQ_U3	0.628***	1.874	0.048	0.189***	1.208	0.048	0.347***	1.415	0.051	0.000
Fstategrp	0.002	1.002	0.030	-0.187***	0.829	0.029	-0.144***	0.866	0.033	0.000
_cons	-2.963***	0.052	0.054	-2.784***	0.062	0.048	-3.204***	0.041	0.059	0.000

No. of Observations	57468	55764	45653	
LR (Chi square)	43038.83	36322.81	32106.78	
R-square	55.45	49.6	52.32	
Log-likelihood	-17287.005	-18450.968	-14630.942	

Appendix to Chapter 6

Employment Challenges- Some Evidence based on PLFS data

Apart from the lack of significant occupational and industry work mobility of workers as discussed in the chapter, there is a very high degree of distress pushed occupational and industrial change that has resulted in the significant downward wage mobility of the concerned workers, there is also the question of overall unemployment, especially among youth, and declining female work force participations. These are serious challenges for the economy the indicated in the PLFS, some of which are presented below. Notwithstanding all this, the recent trends in unemployment show a rather alarming picture of spike in unemployment among the educated.

Table A6.1: Unemployment based on educational attainment

Unemployment	Rural Male			Rural Female		
	2004-05	2011-12	2017-18	2004-05	2011-12	2017-18
Not Literate	0.3	0.5	1.7	0.2	0.2	0.1
Literate Below Primary	1	1	3.1	1.1	0.3	0
Middle Level	1.6	1.8	5.7	3.4	2.5	3.7
Secondary and Above	4.4	3.6	10.5	15.2	9.7	17.3
All	1.6	1.7	5.7	1.8	1.6	3.8
Unemployment	Urban Male			Urban Female		
	2004-05	2011-12	2017-18	2004-05	2011-12	2017-18
Not Literate	1	0.7	2.1	0.3	0.4	0.8
Literate Below Primary	2.1	1.9	3.6	2.9	1.3	1.3
Middle Level	4.2	2.2	6	8	3	5.1
Secondary and Above	5.1	4	9.2	15.6	10.3	19.8
All	3.7	3	6.9	6.9	5.3	10.8

Source: NSSO, Periodic Labour Force Survey, 2017-18

Unemployment among youth (especially in rural areas) which had been increasing even in 2011, showed a spike for all sections in 2017-18 (the magnitude may not be strictly comparable, but the trend is certain of the decline).

Table A6.2: Unemployment amongst the Youth [15-29 Years]

Unemployment- Youth [15-29 Years]	**2004-05**	**2011-12**	**2017-18**
Rural Male	3.9	5	17.4
Rural Female	4.2	4.8	13.6
Urban Male	8.8	8.1	18.7
Urban Female	14.9	13.1	27.2

Source: NSSO, Periodic Labour Force Survey, 2017-18

Moreover, labour force participation in India has been low and falling for females, while the trend for males is also fast becoming a matter of concern. The labour force participation rates for youth (15-29 years) show alarming trends for females, and wide inter-state differentials.

Table A6.3: Labour Force Participation in the Age Group 15-29 Years

	Rural			Urban			Combined		
	Male	Female	Persons	Male	Female	Persons	Male	Female	Persons
AP	70	37	53	59	27	41	66	33	49
BH	44	2	25	40	3	23	43	2	24
CHT	62	38	50	61	21	41	61	34	48
GJ	66	18	45	65	17	42	66	17	43
HR	60	13	39	61	12	38	61	12	39
JH	60	12	37	44	11	28	57	12	35
KR	62	18	41	60	19	39	61	18	40
KL	55	21	37	48	28	38	52	24	37
MP	67	22	46	61	16	39	65	20	44
MH	55	23	40	58	19	39	56	22	40
OD	64	16	38	55	15	34	63	16	37
PB	59	9	37	65	19	45	62	13	40
RJ	57	21	40	54	11	35	56	18	38
TN	65	26	45	64	26	45	64	26	45
UP	58	8	33	58	9	35	58	8	34
WB	67	15	40	62	20	42	65	16	41

Source: Periodic Labour Force Survey, 2017-18

For the demographic dividend to be reaped, labourforce participation of women is also as essential as that of men. This trend has continued to remain abysmal, highlighting the gender gap in employment, especially for the youth. In addition, the overall economic scenario in terms of jobs seems to be sinking to an abysmal state due to lack of any policy discourse, with falling employment elasticities across sectors and across states. The 'structural transformation' of Indian workforce is yet to be seen, with falling employment elasticity in agriculture not being complemented by a corresponding increase in employment elasticity in manufacturing or services, but in fact, manufacturing employment elasticity has also become negative for many states, while even services will not be able to absorb the workforce, given the disruptions due to Industry 4.0 to exacerbate the issue of job loss growth in India.

The declining and worrisome state of employment elasticity in the manufacturing sector exacerbates the concerns of premature deindustrialization in India, with a low and stagnant share of manufacturing in both employment and GDP. This is to a large extent the result of a missing

comprehensive Industrial Policy since 1991. Even the policies aimed at promotion of small and medium industries failed to deliver, and instead ended up encouraging small firms to remain small and informal. With Industry 4.0 spreading globally, informality will continue to threaten the 'demographic dividend' window India possesses. Informality has been rampant in almost all sectors of the economy, with a major chunk in lower tiers. How will the demography be converted to a "dividend' in such a scenario?

The following table shows employment share and the average number of years spent in formal education for those aged 15 years and above. Around 66 per cent of those working have received more than 18 years of formal education and 49 percent are in regular salaried jobs, while 8.8 per cent of those with over 28 years of formal education are still seeking work and 24 per cent are not working. Those with lesser number of years of formal education are either self employed or in casual work.

Table A6.4: Employment, Average Years Spent in Formal Education

All Persons Combined	**Employment, Average Years Spent in Formal Education**						
15 Years and Above	**1--4**	**5--8**	**9--10**	**11--12**	**13--17**	**>=18**	**All**
Self Employed	29.8	29.4	24.6	19.8	16.7	16.8	24.2
Regular Wage and Salary Emp.	6.7	8.5	11.4	12.7	26.3	49.8	13.5
Casual Workers	19.5	15.2	9.5	5	1.5	0.3	9.7
All Working	**56**	**53**	**45.5**	**37.5**	**44.5**	**66.8**	**47.3**
Seeking Available for Work	1.1	2.2	2.9	4.2	8.9	8.8	3.9
Not Working	42.9	44.8	51.6	58.3	46.6	24.4	48.8
All	100	100	100	100	100	100	100

Source: Periodic Labour Force Survey, 2017-18

A glimpse of the sector of work for different age groups based on the number of years of formal education received is also shown below. For the youth (aged 15-29 years), of those employed in agriculture, average years of formal education is 8.8, while for those in manufacturing it is 9.7 years. The maximum (over 14 years of formal education) is seen only for the sectors of Information & Communication, Professional, Scientific & Technical, Financial & Insurance Services and Education, where employment share itself is not as high.

Table A6.5: Employment & Average Years Spent in Formal Education by different age groups

NIC Sectors	15--29 Years	15--59 Years	Above 15 Years
Agriculture	8.8	8.2	8.2
Mining	9.4	9.9	9
Manufacturing	9.7	9.4	9.3
Construction	8.3	8.1	8.1
Wholesale & Retail Trade	10.4	10.1	10
Transport and Storage	9.6	9.3	9.3
Accommodation &Food services	9.3	8.7	8.6
Information &Communication	14.8	14.6	14.6
Financial & Insurance Services	14.7	14.2	14.1
Real Estate Services	11.4	11.6	11.5
Professional, Scientific & Technical Services	14.3	14.4	14.5
Administrative Services	11.5	11.3	11.2
Public Administration & Defense	13.2	12.5	12.4
Education	14.8	14.6	14.6
Health & social work	13.5	13.2	13.2
Other Services	10	9.7	9.5

Source: Periodic Labour Force Survey, 2017-18

In this context, it is important that access to education be equalised and quality of education be improved in order to create a better employable surplus of labour. This calls for an appraisal of the schemes and programmes implemented by the government to improve education in particular and human development in general. However, higher education and college education data in particular show wide regional differentials and lacunae.

Table A6.6: Enrolment and Gender Parity in Enrolment in Higher Education

Higher Edu	GER	GER Female	Gender Parity Ratio	Colleges* per lakh persons (18-23 yrs)	Avg. Enrolment per college
AP	30.9	27.1	0.78	48	493
BH	13	11.5	0.79	7	1686
CHT	18.4	18.3	0.99	24	550
GJ	20.1	18.2	0.83	30	519
HR	28.7	30.7	1.13	30	611
JH	18	17.6	0.96	8	1786
KR	27.8	28.5	1.05	51	416
KL	36.2	40.4	1.26	44	554
MP	21.2	20.5	0.94	24	646
MH	31.1	29.5	0.91	33	678
OD	22	20.1	0.85	23	685
PB	30.3	33.6	1.22	33	576
RJ	21.7	20.6	0.91	33	526
TN	48.6	48.2	0.98	35	919
UP	25.9	26.7	1.06	28	816
WB	18.7	17.6	0.88	12	1170

Source: EPWRF

The most important issue is the increasing informality on existing jobs as shown in the table below. The nature of existing jobs itself is becoming more precarious, while new jobs are not being created to match the corresponding workforce.

Table A6.7: Informality in Existing Jobs

	Lack of Social Security in Regular wage/ Salary Work in Non Agricultural Sector								
	RM	RF	RP	UM	UF	UP	RUM	RUF	RUP
2017-18	51.9	55.1	52.5	47	50.1	47.7	49	51.8	49.6
2011-12	56.8	63.4	58	53.5	56.2	54.1	54.7	58.7	55.4
2004-05	55.5	60.8	56.5	51.9	59.6	53.4	53.2	60	54.5
	Lack of Job Contract in Regular wage and Salary Work in Non Agricultural Sector								
	RM	RF	RP	UM	UF	UP	RUM	RUF	RUP
2017-18	71.7	58.5	69.2	72.7	71.4	72.4	72.3	66.8	71.1
2011-12	65.4	61.9	64.7	64.4	65.9	64.7	64.7	64.6	64.7
2004-05	59.4	56.8	58.9	58.6	61.2	59.1	58.9	59.6	59.1
	Lack of Paid Leave in Regular wage and Salary Work in Non Agricultural Sector								
	RM	RF	RP	UM	UF	UP	RUM	RUF	RUP
2017-18	58.1	47.9	56.2	53.1	51.8	52.8	55.2	50.4	54.2
2011-12	51.7	48.1	51	49.5	49.1	49.4	50.2	48.8	50
2004-05	47.3	48.7	47.6	44.8	48	45.5	45.8	48.3	46.2

Source: Periodic Labour Force Survey, 2017-18

Given these emerging and growing challenges in employment, workforce diversification in 2017-18 in terms of those with a Principal Activity also engaging alongside in a Subsidiary Activity is seen below to capture any 'vulnerability' in mobility patterns.

Table A6.8: PS X SS

	SS									
PS	Agri	Min	Mfg	Util	Cons	THR	TSC	FBR	CSP	Total
Agri	44.75	0.07	3.62	0.21	41.66	4.77	2.16	0.66	2.10	100
Min	91.47	0.00	0.00	0.00	5.33	0.44	2.33	0.44	0.00	100
Mfg	71.80	0.15	5.52	0.00	7.63	8.25	1.59	1.38	3.68	100
Util	82.74	0.00	2.27	1.36	1.75	8.92	2.00	0.39	0.57	100
Cons	86.55	0.05	1.71	0.18	4.85	2.33	1.20	1.63	1.52	100
THR	74.70	0.13	4.59	0.00	5.45	6.65	3.32	2.54	2.61	100
TSC	82.19	0.00	3.67	0.00	4.15	5.55	1.21	1.39	1.86	100
FBR	44.35	0.00	7.47	0.00	10.18	17.01	6.61	9.56	4.83	100
CSP	67.91	0.00	4.69	0.05	3.19	6.04	1.96	2.22	13.94	100

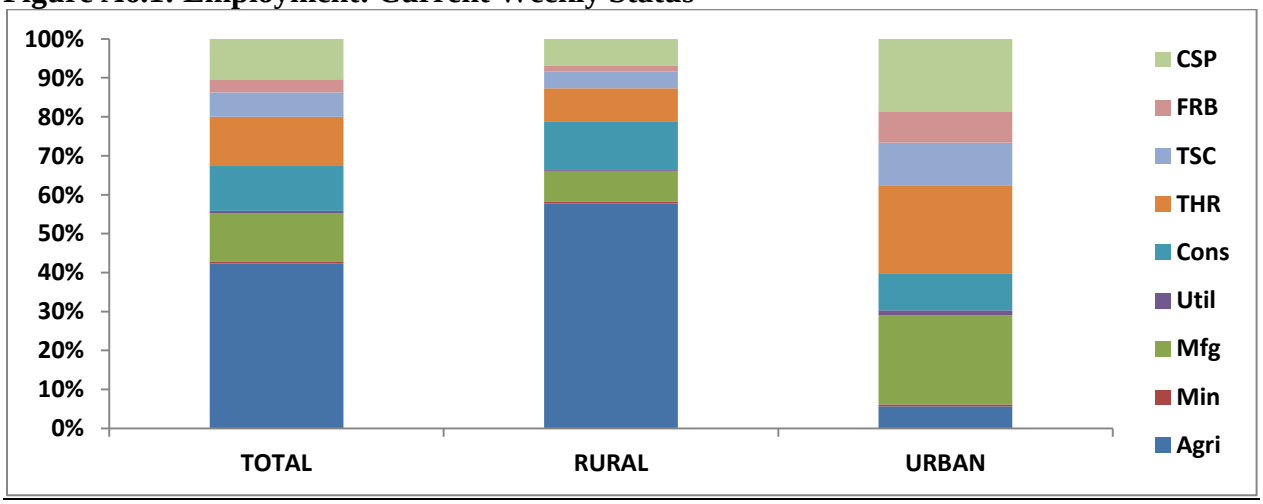
Source: Calculated from Periodic Labour Force Survey, 2017-18

It is seen that 45 per cent of workers employed in principal category in agriculture sector also had agriculture as their subsidiary sector of employment. In mining, 91 per cent had subsidiary employment in agriculture sector. In manufacturing sector, just 6 per cent of workers found

subsidiary employment in manufacturing sector while 72 per cent reported subsidiary employment in agriculture sector. Similarly, in case of those principally employed in construction sector, 87 per cent reported having agriculture as subsidiary employment. This is also the case in THR where two third workers having subsidiary employment were engaged in agriculture, while more than 80 per cent (principal status) workers in the TSC sector worked in agriculture in subsidiary capacity. Within the FBR, 10 per cent workers could find employment in the same sector in subsidiary capacity while more than 40 per cent reported working in agriculture in subsidiary capacity; however this is the least across all industry sectors. Of those who were principally employed in CSP, one third worked in agriculture in subsidiary capacity.

Thus, it is seen that even after nearly three decades of reform, the reliance on agriculture as means of securing livelihood for those workers engaged principally in various non-agricultural activities has not diminished. At the same time more than 40 per cent of workers engaged in agriculture in the principle capacity were reported as having subsidiary employment in construction sector. The other notable factor is that, apart from agriculture, across nearly all the industrial sectors, workers still seem to have to change the industry/ sector to find subsidiary employment. It would perhaps be more rewarding and productive, if workers engaged in principal sector also found (subsidiary) employment in the same sector, or in some other non-agriculture sector, rather than relying on agriculture sector for employment for true structural change to take place. Even in terms of Current Weekly Status, the trends remain similar.

Figure A6.1: Employment: Current Weekly Status



Source: Calculated from Periodic Labour Force Survey, 2017-18

The overall employment scenario at present therefore presents many concerns.

Appendix to Chapter 9

Erode- Agriculture and Allied Activities

Turmeric

Sugarcane

Banana

Tapioca

Canal/ Tank based irrigation

Mixed farming/livestock

Coconut and coir related

Hollow bricks making

Erode- Handlooms and Weavers

Threading yarn manually for weaving

Knotting threads for design

Weaving by foot pedals and hands manually

hencoptex- government handloom outlet

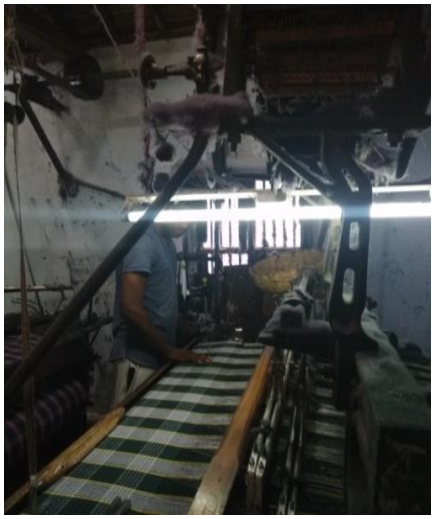
Erode- Powerlooms (Bedsheet and Carpet designs)

Threading yarn

Ready yarn for designs

Checking machines

Set patterns



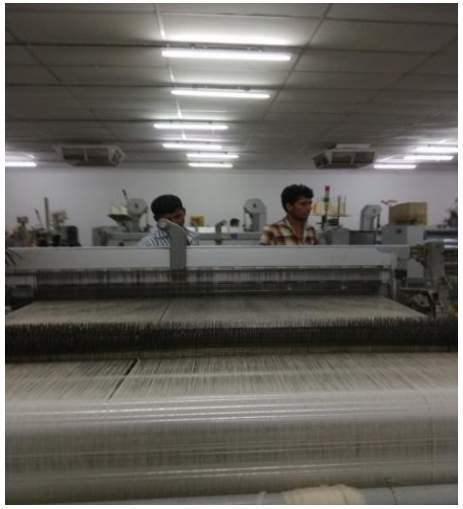
Manual work on powerloom and checking progress of machine

Powerloom left on automatic

Erode- Specialised powerlooms (White cloth)

Getting yarn ready

Setting the machines



Workers at the machines

Ready cloth

Quality check

Sorting and bundling the production

Erode- Textile dyeing and printing- Fabric elongation for longer duration of cloth






White fabric **Sent through rollers to stretch length & Passed through closed furnace to stretch width** **Cloth Pressed and collected**

Erode- Textile dyeing and printing-







Manual checking and Automatic Screen printing on Saree cloth **Sarees cut & collected** **Hand Printed material**

Erode- Textile dyeing and printing- Colour fastening after printing cloth



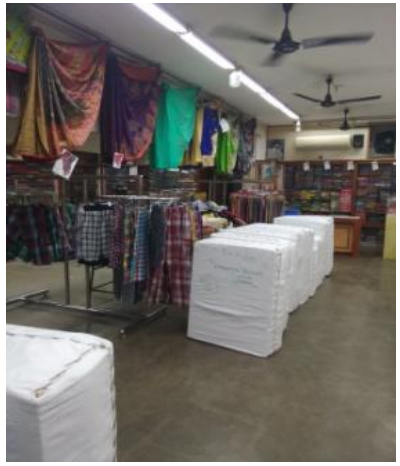
Fastening colour on printed dress materials


Drying final product


Effluents treated and water reused for dyeing

Erode- Textile dyeing and printing Sales unit


Ready Inventory being listed


Inventory packed for exporting



Local sales outlet in Erode

Erode- Paper factory

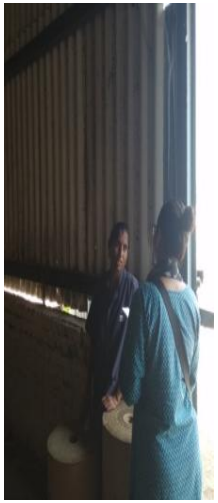




Workers on the paper machine- paper and felt produced **Paper being rolled and loaded onto trucks**








Waste being recycled and sent through belt to form pulp, water is recycled and reused too **Interviewing the workers**

Erode- Cooker factory

Cooker producing cast and machine

Worker and Supervisor

Produced cookers

Erode- Oil press

Oil Press machine

Groundnut ready for pressing

Working on the press

Oil, Soaps, Pickles etc produced

Coimbatore- SITRA, CODISSIA, Industrial School

SITRA and its Labour Research and Training Centre

CODISSIA Technology Centre and Small Industries Trade Fair Complex

GKDITR Industrial School and Tooling Centre

Trainee students and workers

Namakkal- Specific powerloom (Dhoties)

Powerlooms producing dhoties

Checking progress

Dhoties woven by powerloom

Bhagalpur- Silk handlooms (Pitlooms)

Machine & card number

Silk threads for weaving

Weaver sits in a hole in the ground

Tussar Silk Cloth

Bhagalpur- Silk powerlooms





Workers producing gold thread used Tussar silk cloth in powerlooms **Worker with a very old machine**

Bhagalpur- Silk Dyeing



Workers drying bleached and dyed Tussar cloth in the sun




Cloth dyed and pressed **Final production sent to market**

Munger- ITC Cigarette factory and Dairy plant

ITC Cigarette Factory- Manufacture & Packet Printing **ITC Dairy Plant** **ITC Labour Resource and Training Centre**

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