Employment Performance, Segmentation, and Inequality in India's Organised Manufacturing Sector: A Plant-Level Study

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GOPAL KRISHNA ROY

CENTRE FOR THE STUDY OF REGIONAL DEVELOPMENT
SCHOOL OF SOCIAL SCIENCES
JAWAHARLAL NEHRU UNIVERSITY
NEW DELHI - 110067
INDIA
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जवाहरलाल नेहरू विश्वविद्यालय
JAWAHARLAL NEHRU UNIVERSITY
Centre for the Study of Regional Development
School of Social Sciences
New Delhi-110067

DECLARATION

Date: 24th July 2017

I, Gopal Krishna Roy, hereby declare that this dissertation entitled "**Employment Performance, Segmentation, and Inequality in India's Organised Manufacturing Sector: A Plant-Level Study"** submitted by me is based on my original research work for the award of the degree of **Master of Philosophy,** Jawaharlal Nehru University. This is my bonafide work and has not been submitted so far in part or full, for any degree or diploma of this University or any other University.

Gopal Krishna Roy
Gopal Krishna Roy

CERTIFICATE

It is hereby recommended that this dissertation be placed before the examiners for evaluation.

26/07/17
Prof. Amaresh Dube
(Supervisor)

Prof. B.S. Butola
(Chairperson)
26.7.17
Chairperson
Centre for the Study of Reg. Dev.
School of Social Sciences
Jawaharlal Nehru University
New Delhi - 110067

Centre for the Study of Reg. Dev.
School of Social Sciences
Jawaharlal Nehru University
New Delhi-110067
Dr. Suresh R.
(Supervisor)

Office Tel: 26704466.....26704463..... Office E-mail: csrd.jnu@gmail.com

Dedicated To My Parents

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Jawaharlal Nehru University

New Delhi

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Chapter 1: Introduction, Review of Literature and Objectives

1.1 Introduction

The structural transformation of the economy occurs as a historically unprecedented proportion of the labour force shifts from traditional agricultural activities to non-agricultural activities in the modern sector, and it is accompanied by an increase in the size of productive units and a shift to the impersonal organization of these units (Kuznets, 1973). The development of the manufacturing sector is argued to take center stage in this process of economic development (Kaldor, 1967, as cited in Besley & Burgess, 2004). The manufacturing sector has a high degree of forward and backward linkages as it provides inputs and generates demand for activities in the primary and tertiary sector of the economy respectively, which leads to production activities in these sectors which may not have otherwise taken place (Rodrik, 2007).

Manufacturing activities generate positive externalities in the form of technological learnings which are then diffused and lend support to productive activities within manufacturing and across sectors (Rodrik, 2007). Productivity and incomes of the workers rise as labour and other resources are shifted from agriculture into modern manufacturing sector (McMillan & Rodrik, 2011). Moreover, growth in manufacturing has a remarkable impact on poverty reduction as it is typically labour intensive and absorbs unskilled labourers from the agricultural sector (Chun, Hasan, & Kumar, 2012). The speed of the structural transformation from agriculture to industries is often the key factor that determines the economic success of a country (McMillan & Rodrik, 2011). Manufacturing is therefore expected to serve as the main driver of development and growth for the developing countries burdened with poverty, a high unemployment rate, and where a significant proportion of the population continues to be engaged in low productive activities in the agricultural sector.

Indian manufacturing has not experienced a significant expansion either in terms of its share in the national income or employment despite the Government initiating many pro-business and pro-market reforms in the 1980s and 1990s, respectively. The sluggish growth of manufacturing in India accompanied by the leapfrogging of the economy from agriculture to the services sector challenges the traditional model of growth process while posing a formidable challenge for the Indian policy makers. This persistent slowness of India's manufacturing sector and its lacklustre performance compared with many of its Asian neighbours has led to a considerable amount of disquiet (Dougherty, Herd, & Chalaux, 2009), while initiating a lot of debates in academia and policy circles.

Indian manufacturing sector is characterized by a striking contrast with regard to the shares of its organized and unorganized segments in total manufacturing output and employment. The share of organized sector output in total manufacturing output has remained high at 64% in 1993-94 decreasing slightly to 61% in 2002-03, while the unorganized output has been low at 36% in 1993-94 increasing slightly to 39% in 2002-03 (Rada, 2010). This must be contrasted with their relative shares in manufacturing employment which runs in the opposite direction, with the organized sector accounting for only 23% and 15% of manufacturing employment in 1983-84 and 1999-2000 respectively, while the unorganized sector accounted for the remaining massive 85 % of the manufacturing employment throughout the period (Rada, 2010). The sluggish employment growth in the organised manufacturing sector is an important concern as it is a high productivity, modern sector which hold an enormous potential to generate "decent jobs" in the economy.

Another pressing issue that concerns the organised manufacturing sector in the globalised economy is the growing segmentation within the sector. Segmentation in a labour market can occur on various accounts like gender, the level of education and skills, diverse economic and socio-cultural characteristics, rural-urban divide, coverage of labour market institutions and instruments of labour market regulations, etc. (Papola, 2013). Saha, Sen, and Maiti (2013) note that there has been a worldwide shift in hiring practice of formal firms with a rising preference for temporary, casual and contract workers as against permanent or formal form of employment in both developed and

developing countries. This phenomenon is dubbed as 'flexibilization' of labour in the literature (Saha et al., 2013).

In the case of Indian manufacturing too, many researchers note that apart from the growth in the share of unorganised sector in total manufacturing employment, there has been an increased use of contract workers in the organised sector itself since the 1980s (Sharma, 2006; Sood, Nath, & Ghosh, 2014). The present study focuses on this specific base of segmentation which is giving rise to a 'duality' within the organised manufacturing sector as captured by the growing share of contract labourers in total employment i.e. rising informality within the formal sector and analyse whether the rising degree of segmentation within the organised manufacturing sector is due to labour market rigidities. Sood et al. (2014) have pointed out that a direct implication of slow employment growth with respect to output and segmentation in terms of rising use of low-wage employments is that the labour share in gross value-added falls.

1.2 Review of Literature

1.2.1 An Overview of the Employment Performance

A substantial literature exists in the context of India's organised manufacturing sector and its performance in generating employment in the country. The reason that organised manufacturing sector attracted so much interest from researchers and policymakers is that it experienced a decade-long spell of high output growth accompanied by a stagnant employment growth during the 1980s. A variety of reasons were advanced to explain this period of "jobless growth" in the sector. A major debate was initiated after the work of Fallon and Lucas (1993) who argued that the reason for poor employment performance in India's organised sector lies in its stringent employment protection legislations. This debate is analysed in detail in the next section (1.2.2).

World Bank (1989) had the notion that weak labour demand in the organised manufacturing sector was due to a surge in product wages because of a thrust by the unions. However, Papola (1994), Kannan (1994) and Nagaraj (1994) refuted this view on the grounds of acceleration in labour productivity and declining bargaining power of workers in the organised manufacturing sector. Papola argued that the labour productivity had outstripped the real wages in the sector and hence, wage rise cannot be held accountable for stagnant employment. He pointed out that the labour intensive

Cotton Textiles and Food Products industries were suffering from a "sick" phase which led to a large-scale closure of these industries. Since these industries accounted for a large share of total employment, their closure had a significant dent on the overall employment level.

Kannan (1994) argued from lack of any evidence that could suggest an incompatibility between the presence of a union and attainment of high labour productivity vis-a-vis growth in product wages. According to him, though the data suggested that the gap between labour productivity and product wage shrunk since the early 1980s, a variety of forces might be into play to narrow this gap e.g. industrial sickness, supply constraints to other inputs and reduced capacity utilisation. Nagaraj (1994), contradicting popular belief, provided evidence for the decline in the bargaining power of workers in the 1980s. He pointed out that the scope of the unions got reduced since there was a shift in the structure of employment in favour of smaller sized establishments.

The phase of "jobless growth" in organised manufacturing was also associated with a period of continuous rise in the capital intensity of production which is considered as a significant deterrent to employment growth (Das & Sen, 2015; Goldar, 2000; Kannan & Raveendran, 2009). Moreover, Nagaraj (1994) and Papola (1994) held the faster growth of capital-intensive industries with low employment intensity and sluggish growth of labour-intensive industries responsible for the failure of organised manufacturing in taking a more labour-intensive path. The reason for the rising capital intensity of production was blamed on India's stringent job protection legislations and highly regulated labour market which presumably disincentivised the firms from employing more workers and lead to the substitution of labour with capital inputs.

Ghose (1994) concluded that the slowdown in employment growth was due to the "capital deepening" approach pursued by firms in the organised sector during the 1980s which were attributable to rise in the real cost of labour because of rigid labour market conditions and macroeconomic policies. However, Das and Sen (2015) rule out this possibility for the post-reform period by correctly arguing on logical grounds that in the absence of any pro-worker labour legislations in the past two decades, it is unreasonable to view labour regulations for the continuous decline in labour intensity during the period. Rather, they argue that it is the relative price of labour vis-a-vis capital that has

risen in the post-reform. They attribute this increase in the wage-rental ratio not to the rise in real wages but trade liberalization and falling import tariffs in the post-reforms period.

The employment scenario of the organised manufacturing sector improved in the first half of the 1990s after a decade of "jobless growth". In the period from 1990 to 1996, the organised manufacturing sector experienced a considerably high growth rate of employment of about 2.83% (Goldar, 2000). He attributed this positive change to a favourable shift in the size structure towards small and medium sized factories and a gradual decrease in the pace of real wage growth. However, Nagaraj (2000) disputed Goldar's conclusion about the reasons for employment growth in the first half of the 1990s. According to him, the job growth was driven by the investment boom which was initiated due to industrial deregulation and trade policy reforms. Moreover, Nagaraj (2004) analysed two-digit industry level ASI data and argued that the employment growth in the early 1990s was short lived and the late 1990s witnessed a decline in employment growth. The various reasons provided by Nagaraj (2004) included for industrial restructuring which involved mass retrenchment drives by firms to cast off excess labour to maintain competitive efficiency under the pressure of increased international and domestic competition after the economic reforms of 1991. He concluded that the introduction of Voluntary Retirement Scheme coupled with retrenchments and layoffs hurt overall employment growth in the period marked by an investment bust.

1.2.2 Labour Market Flexibility and Organised Manufacturing Performance: A Critique

In the western economies, the debate concerning the role of labour market institution, labour market rigidities and the need for higher flexibility to tackle unemployment and boost economic growth intensified after the fall of Keynesian economics and the rise of Neo-classical economics which sought minimum regulations and interventions. Freeman (2005) and Rodgers (2007) provide a detailed account of the rise of "flexibility" debate globally. In case of India too, a belief that the strengthening of employment protection legislations in the late 1970s and early 1980s was the reason for the slowdown in job creation in the 1980s, began to take root (Goldar, 2000; Kannan & Raveendran, 2009). The employment protection legislations were assumed to cause

rigidity in the labour market by restricting the ability of firms to adjust their labour input which motivated the firms to desist from recruiting new workers as layoffs and retrenchments had presumably become more difficult even when necessitated by competitive efficiency (Goldar, 2000; Kannan & Raveendran, 2009). This section critically reviews the rise of labour market flexibility debate and empirical researches undertaken in respect of organised manufacturing sector in India.

The Government of India (GoI) introduced the Industrial Disputes (Amendment) Act in 1976 which inserted a new chapter 'VB' whose several provisions restricted the ability of employers to carry out layoffs, closures and retrenchment in industrial establishment other than establishment of a seasonal character employing a minimum of three hundred workers on an average per working day for the preceding twelve months. The amendment required these establishments to obtain prior permission from the government to lay off any regular worker (exempting casual workers) unless the reason for layoff is power shortage or natural calamity. Retrenchment of regular workers who have served continuously at least for a year needed prior permission from the government too along with provisions of notice, specified compensation, etc. Similarly, closure of an establishment to which chapter VB applies is required to serve a ninety days' notice period and obtain the approval of closing from the appropriate government. Provisions for imposing penalties on employers were provided in the act for noncompliance of the rules. The Industrial Disputes (Amendment) Act, 1982 reduced the threshold size to which chapter VB was applicable from three hundred to one hundred.

Shyam Sundar (2005) takes note of the historical backdrop for the emergence of these controversial provisions of chapter VB in IDA which has been completely ignored in the debate concerning the stringency of India's labour regulation. He cites a study by Sharma (1982) and argues that these provisions were introduced in the time of emergency stimulated by the fact that in the first six months of the period employers took undue advantage of the time and effected mass layoffs, retrenchment and closures affecting more than half a million workers (as cited in Shyam Sundar, 2005).

There have been two waves of empirical studies that examined the role of stringency of job security regulations on industrial performance, one in the 1990s and the other since the mid-2000 which vary based on the methodology adopted to treat stringency of the

job regulation legislations. Bhattacharjea (2006) provides a detailed critical analysis of the empirical works that make use of different frameworks to study the effect of India's labour legislations on various industrial outcomes ranging from employment to productivity. According to him, the first approach uses the "before and after" design which considered the difference in performance outcomes before and after the years in which the Centre adopted acts further to amend the Industrial Disputes Act, 1947 namely, Industrial Disputes (Amendment) Act, 1976 and Industrial Disputes (Amendment) Act, 1982. The second approach exploited the variation in state-level IDA amendments to substantiate the cost of stringent job security regulations reflected in the difference in state-level industrial outcomes (Bhattacharjea, 2006).

The first approach started off with the study of Fallon and Lucas (1993) which constituted an important part of the "jobless growth" debate, and the second approach followed from the work of Besley and Burgess (2004). Fallon and Lucas (1993) argued that typically most countries legislate certain procedures for layoffs and retrenchments involving usually a period of notice and separation compensation, but India and Zimbabwe stand out as these countries provide an additional clause which requires permission from the appropriate government. The main hypothesis of their paper accounted for three different effects of these new regulations that included increased rigidity reflected in the speed of employment adjustment, a decline in employment demand and structural shift in other parameters of the labour demand equation. Their empirical results covering the period from 1959-60 to 1981-82 in India didn't suggest any evidence of a statistically significant rise in the adjustment cost in the post regulations period as reflected in the coefficient of the lagged dependent variable.

Fallon and Lucas argued that this finding didn't necessarily undermine the effect of new regulations on labour demand and demonstrated that 29 out of the 35 industries in India experienced a decline in employment in the post-regulation period. However, Bhalotra (1998) refuted this conclusion by specifying that 25 out of those 29 cases were based on a non-conventional confidence level test of 75%. Moreover, Bhalotra (1998) highlighted the negligence of issues like lax enforcement and bypassing of these laws in the analysis of Fallon and Lucas. Dutta Roy (2004) applied a similar approach in a dynamic interrelated factor demand functions using disaggregate industry level data spanning over an extended period from 1960-61 to 1994-95 and found no effect of these

job security legislations on employment adjustment. Dutta Roy (2004) pointed out an important finding that significant lags in employment adjustment prevailed in the pre-stringency period too which cannot be differentiated from the post-stringency era.

However, another important issue that has been overlooked in Fallon and Lucas (1993) study is the endogeneity problem which further adds inconsistency to their estimates. There are two sources of endogeneity in their paper. One arises from the introduction of lagged term of the dependent variable in the dynamic labour demand model, and the other source of endogeneity is their use of wages variable which they have explicitly assumed to be exogenous to the firm but it is a very strong assumption given that they use industry level data and not unit/plant level.

Bhattacharjea (2006) made some crucial observations and comments on all the major studies which use this first approach discussed above and asserts that "the 1976 and 1982/84 amendments cannot be regarded as events which unambiguously increased labour inflexibility, enabling econometricians to employ their usual techniques" (p. 216). According to him, first, the treatment of 1976 as a structural break in these studies is problematic as none of them took into consideration the political environment during the period. Bhattacharjea (2006) argued that "the amendment was passed during the 1975-1977 State of emergency, during which democratic rights were effectively suspended" (p. 215) and therefore, it is unlikely that employers faced any difficulties in retrenching or laying-off workers. He points out that this view is also empirically backed by the finding of Dutta Roy (2002) who noted that the separation rate in the organised manufacturing witnessed a statistically significant increase following the amendment year 1976 which was opposite to the case that one would expect after tightening of job security regulations.

Secondly, Bhattacharjea argues that these studies overlooked the judicial interpretations and verdicts by Supreme Court and some high courts which made several amendments to section V-B of IDA non-binding for various periods in different states and nationwide. For instance, Section 25(O) was revoked as unconstitutional by the Supreme Court in 1978 in the *Excel Wear vs. Union of India case (1978) 4 SCC 224* (Bhattacharjea, 2006). This was reintroduced later in the 1982 amendment, which came into effect in 1984 only, incorporating several procedural changes apart from reducing the threshold size of the firms under its purview. Similarly, amendments related to

layoffs and retrenchment were also revoked by various high courts on similar grounds which were upheld by the Supreme Court as later as 1992 and 1994 respectively (Bhattacharjea, 2006). Furthermore, he makes an important remark that not all amendments were against increasing rigidity as perceived by many.

However, there is another major limitation of this methodology that is overlooked in the literature and needs to be highlighted. This econometric method is based on capturing the impact of labour market rigidity in the labour adjustment process captured through a statistically significant positive coefficient of the lagged term of the dependent variable in the dynamic labour demand equation and a dummy variable that differentiate the pre-legislation period from the post-legislation. But it has been pointed out by Nickell (1986) that the positive coefficient on the lagged dependent variable term implying slow employment adjustment is not solely due to the stringency of job security regulations as it is sensitive to the assumed structure of these costs which can be easily misperceived in empirical studies. Further, Lichter, Peichl, and Siegloch (2013) argue that economic and technological factors also increase the cost of labour adjustment as it is costly for the firms to invest in training of new employees and there can be indivisibility of production factors too. Since these factors are not controlled for in the above econometric methodology and moreover, the model lacks any direct measure or indicator of rigidity, it remains an indirect and not so sound method to gauge the effect of the labour market rigidity on employment generation.

The second wave of empirical works exploring the relationship between labour regulations and industrial performance kicked off after the seminal work of Besley and Burgess (2004) who deviated in the methodological framework of the other studies till then by exploiting the interstate difference in the IDA amendments over time. Besley and Burgess classified overall 113 state-level amendments to central IDA of 1947 as pro-worker, pro-employer and neutral for the period of their study from 1958 to 1992. To give a quantitative picture to these amendments, Besley and Burgess assigned each pro-worker amendments, neutral amendments, and pro-employer amendments a value of +1, 0 and -1, respectively which helped them to classify states as “treatment” and “control” states. Scores were aggregated in a specific year to give a general direction of change, and a total of 19 changes were identified during their entire period of study. Based on their econometric analysis they concluded that pro-worker amendments

adversely affected manufacturing performance including output and employment; informal sector experienced growth in the states which enacted more pro-worker amendments than others; and, pro-worker amendments were also associated with an increase in urban poverty.

Besley and Burgess (2004) and most of the studies using its methodology to index labour market flexibility concluded that economic performances had been adversely affected in the organised manufacturing sector due to the strengthening of job security regulations and the states with higher flexibility witnessed a superior performance than the states with rigid labour regulations. This approach uses a more direct measure of labour market flexibility than the previous approach and boosted a vibrant debate in the literature, but suffers from severe limitations and drawbacks which are discussed here in detail. The criticism of this approach is three-fold – firstly, misleading and inappropriate interpretation of the IDA amendments made by various states as well as the scores assigned to these amendments and the aggregation technique used to produce an annual direction of change; secondly, weakness of the econometric model specification and results; and lastly, its exclusive focus on de jure nature of reforms and neglecting de facto measures completely.

Bhattacharjea (2006) carefully studied the statements of the amendments used by Besley and Burgess and noted that some of the amendments didn't correspond to the manufacturing sector. Some of his observations are important to mention here to understand the severity of the issue. For instance, he points out that the Andhra Pradesh IDA amendment in 1968 was enforceable to hospitals and dispensaries and similarly the Madhya Pradesh 1982 IDA Amendment was binding only to the construction sector. It is correctly argued in his paper that the insertion of section 11-B in the Andhra Pradesh 1982 IDA Amendment (enacted in 1987) granted the power of a civil court to labour tribunals and labour courts which cannot be regarded as a pro-employer move as it simply increases the power of these courts and not bias them in towards either side. Similar errors in documenting and interpretations were made in the case of Maharashtra, Madhya Pradesh and Orissa amendments in 1981, 1984 and 1983 respectively which is discussed in detail in Bhattacharjea (2006) and Bhattacharjea (2009). A major neglect in their study was the classification of Uttar Pradesh as a neutral state as it didn't amend central IDA at all, but Bhattacharjea (2006) again clarified that

Uttar Pradesh has its own IDA which based on the legislative record should be classified as pro-employer.

All these flaws in the construction of the index led to some questionable characterisation of states which are raised in Bhattacharjea (2006), Anant et. al. (2006) and Hasan, Mitra, and Ramaswamy (2007) e.g. characterising Gujrat as pro-worker and Kerala as pro-employer. Anant et. al. (2006, p.256) cites a World Bank (2003) study and argue that the number of factory inspections annually in small and medium enterprises of Kerala was double of that in Gujarat and Maharashtra. However, it is important here to take into consideration that Besley and Burgess characterisation of states was primarily focused on a state's stringency of labour regulation impacting its flexibility in labour adjustment. But criticism by Anant et al. (2006) are directed towards factory inspection which has a different purpose of ensuring better work environment and compliance by the employers and not much to do with the hiring and firing of workers.

Though Anant et al. criticism against questionable characterisation of Kerala, Maharashtra, and Gujarat are certainly valid, the use of the number of factory inspections in substantiating their argument against characterisation of these states is unsatisfactory. The possibility of a state having high flexibility regarding labour adjustment and a strict inspection environment ensuring better working conditions cannot be ruled out, in no way these two outcomes are mutually exclusive. Apart from all these important criticisms of Besley and Burgess's index, Bhattacharjea (2006) also drew attention towards an important weakness of the Besley and Burgess (2004) econometric results by pointing out that their index failed the robustness test when time trends were included in the analysis.

The work of Ahsan and Pages (2009) is a major break-through in the literature as it provided a crucial insight into the purview of state-level amendments of the IDA 1947. Their work drew attention towards the nature of these amendments which distinguished amendments into two types namely, Employment protection legislations (EPL) and dispute resolution legislations (DL). They followed Besley and Burgess (2004) coding methodology only, but the main attraction of their paper is that instead of aggregating these two types of labour regulations into a single index they introduce two indices of labour regulations. Their study recoded various amendments based on the critiques and

suggestions of Bhattacharjea (2006). They found that dispute resolution laws had a more significant effect on output than EPL, but there was an evidence of complementarities on labour laws in their study suggesting a higher cost and lower manufacturing performance in states characterised by more stringent EPL and minimal DL. They find a small positive impact of EPL on earnings per worker, but their study makes a similar claim like Besley and Burgess (2004) that EPL or DL doesn't benefit workers and paradoxically hurt them as reflected in the labour share of output or wages paid to them. Moreover, they found evidence that performance of labour intensive industries is more likely to be affected by EPL and capital-intensive industries from laws governing disputes resolution.

Hasan et al. (2007) estimated labour demand elasticities to study the impact of trade reforms and labour market rigidity on the organised manufacturing performance using industry-state wise data for the period from 1980 to 1997. Based on their econometric model, main findings of the study included a positive impact of trade reforms on labour demand elasticities; higher elasticities in states with greater flexibility suggesting that rigidity negatively affected employment growth; higher impact of trade reforms on labour demand elasticities in states with greater flexibility; and, reduction in the labour share in value added and output due to trade reforms which they attribute to the decreased bargaining power of the labour. They derive their measure of labour market rigidity using a dummy variable based on the classification of various state-level amendments made to IDA 1947 in Besley and Burgess (2004). Since Besley and Burgess's index included the period up to 1992 only, Hasan et al. applied the cumulative score of amendments in 1992 for the later years up to 1997. In the absence of many variations in the state level cumulative scores on amendments, they classified states with net antiemployee stand as flexible labour markets.

Hasan et al. (2007) changed the classification of three states, which they call "puzzling", obtained from the aggregation technique they applied. They treat Maharashtra and Gujarat as flexible labour markets and Kerala as pro-employer. Their basis of these changes was a survey of manufacturing firms' managers on regulatory barriers conducted by World Bank in 2003, Left orientation of Kerala state government and industrial record of these three states. However, the reasons provided by them for such change are far from convincing and adds an element of discretion in their study.

The weakness of Hasan et al. (2007) labour market flexibility measure is reflected in their own argument which they put forward in the footnote number 28 of their paper for not using Besley and Burgess cumulation of scores technique which reads "it is not clear to what extent a cardinal measure such as the number of cumulative amendments captures the actual difference in labour market rigidity across states" (p. 473). But they go on to classify the states as flexible and rigid labour markets based on those very same amendments in net cumulative year terms. It is not clear how their classification technique addresses the concern they raise over Besley and Burgess technique. The issue that remains unaddressed in their classification and study is the limitation of state-level amendments to IDA 1947 in explaining the interstate difference in labour market rigidity. Moreover, using a dummy variable solely is itself problematic in classifying a state as rigid or flexible as rigidity or flexibility should be logically conceptualised as a dynamic variable meaning its degree changing over time, but a dummy variable is essentially time-invariant.

Hasan et al. (2007) highlighted various specification and estimation issues in their study, and one such issue is endogeneity of wages. They note that the assumption of treating wages as exogenous was strong given that they used industry level data and not the unit level. In a failed attempt to allow wages to be endogenous and use instruments, they couldn't find any suitable instruments for it. Hence, they continued in favour of their exogeneity of wages assumption by arguing that their study uses a higher level of disaggregation, and state-industry units will face a relatively elastic labour supply given the low share of organised manufacturing in non-agricultural employment combined with rural-urban-migration, etc.

Now the final and most important critique of the empirical literature exploring the relationship between stringent labour regulation or labour market rigidity and industrial performance is their exclusive focus on de jure nature of the reforms and complete negligence of the de facto regulatory scenario. Bhattacharjea (2006) provides a detailed review of studies which have raised concern about the actual implementation and situation of regulations which have worsened for labours since the 1980s. Bhattacharjea highlights manipulation of laws by employers, delays in adjudication, nominal fines in case of non-compliance by the employers and changing judicial interpretations of the IDA by various judicial bodies which point towards a shallow reality of the scenario

when labour laws are only considered in examining labour flexibility. Nagaraj (2004) have pointed out loopholes in the regulatory regime to emphasise that employers have found their ways of avoiding labour laws and started implementing labour laws in their own desirable ways i.e. “reforms by stealth” or introducing reforms through the back door.

Papola and Pais (2007) cites various studies and asserts that employers have availed innovative instruments to bypass labour regulations which include substituting permanent workers with workers with a temporary form of employment contracts, subcontracting, switching to capital-intensive modes of production and indulging in corruption by bribing regulatory authorities to avoid any action on them. Moreover, Shyam Sundar (2005) and Shyam Sundar (2006) summarize empirical studies that provide evidence that employers do enjoy a considerable amount of flexibility in adjusting employment and determining wages, irrespective of the size of the firms. Moreover, labour unions have shown adaptability and cooperation with employers in the adjustment of the workforce, conditions of work and modernisation of the production process in the wake of increased competition and globalisation (Shyam Sundar, 2006). All these practices have not only provided for greater flexibility in adjustment of regular workers but also provided elements of extra flexibility in overall labour adjustment through practices like subcontracting and “casualization” of the workforce, without any formal amendments to the existing laws.

Dougherty (2008) and Dougherty, Frisancho, and Krishna (2014) deviated from the Besley and Burgess (2004) methodology as well as index and used a new set of labour regulation index formulated by OECD to capture labour market rigidity in India. The OECD index is based on a state-level survey of All-India Association of Employers (AIOE) in 2007, carried out in 21 states capturing diverse set of eight legal areas related to labour including IDA and Contract labour Act, incorporating fifty specific subjects of labour reform agenda through administrative practices aimed at limiting the enforcement of regulations and formal legal amendments to regulations. Details of the survey questionnaire and its individual constituents can be found in Dougherty (2008). The OECD compiled and quantified the response to the survey questionnaire by giving a score of +1, 0 and +2 in the case of reduction of transaction cost, no reduction in

transaction costs and a further reduction in transaction costs, respectively with a maximum possible score of fifty.

Dougherty (2008) finds a positive correlation between the OECD employment regulation index and their measure of flexibility based on labour turnover computed at the five-digit industry level using the ASI plant-level micro data during the period 2000 to 2004. They conclude that states with the higher number of labour reforms (higher score in the OECD index) do enjoy greater flexibility in terms of labour turnover, but the high rate of both creation and destruction of jobs in relatively flexible states neutralize the universal impact on employment level with virtually no difference between the rigid and flexible states. Dougherty et al. (2014) used a dummy variable specification to classify a state as flexible if it was above the median state based on the OECD labour regulation index and rigid otherwise. They use the plant-level ASI panel data to study the effect of state-level labour market reforms on productivity outcomes during the period 1998-99 to 2007-08. Although their main result focused on total factor productivity concluding that firms in labour intensive or more volatile industries fared better regarding TFP gains in flexible states, they presented their findings on employment too. Their study finds no statistically significant difference in the formal employment between the flexible states and rigid states.

The OECD index, which is an advancement over the Besley and Burgess index for its attempt to incorporate a wider range of laws along with de facto measures, has been criticised on several grounds. Bhattacharjea (2014) questions the inclusion of such a wide number of legislations, a majority of which are not even applicable to organised manufacturing sector, making it irrelevant in studying the extent of employment protection or labour market flexibility. He points out that maintenance of registers and records, inspection, etc have no legitimate bearing on flexibility. Bhattacharjea (2014) also raises the issue of subjectivity involved in coding of reforms as on many occasion it relied on the perception of respondent officials which may not represent the actual situation prevailing in a state. In addition, the OECD index also suffers from the problem of lack of dynamism like the other variations of dummy variable specification of labour flexibility index discussed earlier. This limitation of the OECD index is admitted by Dougherty et al. (2014) themselves in the footnote number 25 who accept that their study could have benefited from a time series variant indicator of labour

market flexibility which could have allowed them to control for fixed effects in their analysis (p. 39). Moreover, as the index characterises states as flexible and rigid based on a survey carried out in 2007, its precision in studying its effect in a period say, few years prior and post to the year of survey remains dubious given the lack of dynamism and subjectivity involved in the construction of the index.

1.2.3 Segmentation within the Organised Manufacturing Sector

This section reviews the literature on the role of labour market rigidity in explaining the growing use of contract labour in the production process. As discussed earlier in the introduction chapter, this phenomenon called "flexibilization" of the workforce is gaining prominence in policy debate worldwide in both developed as well as developing countries as a response to improvement in efficiency necessitated by growing international competition due to globalisation. Use of contract workers, unlike their regular counterparts, are typically unregulated by various employment protection legislation has become a major source of meeting the desired standards of flexibility. Moreover, the contract workers are paid less than their regular counter parts which help firms in making savings by reducing labour input cost on this front. A dominant view in the literature blame labour market rigidities for the rising use of contractual labour in the organised manufacturing sector as contractual labourers are not protected by job security regulations like IDA (Ahsan & Pagés, 2007; Dougherty et al., 2014; Saha et al., 2013).

However, this view is mainly based on intuitions and econometric evidence to back this relationship between labour market rigidities and increased use of contractual labour remain limited and inconclusive. Some of the relevant international studies include Currie and Harrison (1997) and Djankov and Ramalho (2009). Currie and Harrison (1997) analysed the firm-level data on Moroccan manufacturing sector to study the relationship between changes in trade regimes and employment response of the firms. They found that there was effectively no change observed in wages and employment at the aggregate level after the reforms, but firms differed in their response to employment demand based on the characteristics of their ownership. Though private sector firms didn't adjust employment, they found a significant increase in employment of low-wage temporary workers in Public sector enterprises which they attributed to rigid labour market regulations. Djankov and Ramalho (2009) provide cross-country correlation

evidence that suggests rigid labour regulations are associated with the larger informal sector. However, their analysis didn't address the issue of rising informality within the formal sector.

In the Indian context, Goldar and Aggarwal (2010) applied Logit model to estimate the effect of labour market rigidities and increasing import competition in explaining the rising level of informality in the Indian manufacturing using the unit level National Sample Survey 61st round employment-unemployment data for the year 2004-05. They use the OECD index of labour market reforms (discussed in the previous sub-section) from Dougherty (2008) to capture the state-level labour reforms. Their finding suggested that labour market reforms were associated with a greater generation of regular jobs suggesting that labour market rigidity adversely affected regular jobs creation whereas import competition was associated with greater informalization of the manufacturing sector. However, the authors themselves caution against drawing the inference that labour market rigidities and particularly legislations like IDA are responsible for the increased use of contractual and casual labours in the manufacturing sector as their sample for the econometric analyses mostly consisted of the hired workers in the unorganised manufacturing sector to which none of these legislations apply.

Saha et al. (2013) perform an empirical exercise using Besley and Burgess (2004) index to study the determinants of contract labour employment in India. Their result of the econometric exercise finds a stronger impact of import penetration in increasing contractual employment in pro-worker / rigid states. They concluded that the presence of labour market rigidities promotes the use of contractual employment by employers to get around stringent legislations. However, lack of any direct relationship between labour market rigidities and the increase in contractual employment remains a concern in their study. Moreover, as discussed in the previous sub-section, their use of Besley and Burgess's index which has been criticised severely in the literature makes way for extra scepticism about their conclusion.

1.2.4 Wage Share and Profit Share in the Organised Manufacturing Sector

A declining trend in wage share of workers in gross value added and a growing gap between the wage share and profit share over time have been highlighted in few recent researches. Kannan and Raveendran (2009) show that for about quarter a century between 1981-82 to 2004-05 when output grew by five times at an annual growth rate of about 7.4% accompanied by a virtually insignificant increase in employment except for a short duration from 1989-90 to 1995-96, the share of wages (total emoluments) in output declined from 41% in 1981-82 to 25% in 2004-05. They attribute this decline to slow employment growth and the high difference between the growth of labour productivity and growth of wages. They also note that the decline in wage share of workers was sharper than that of supervisory and managerial staff during the period, indicating that much of the decrease in overall wage share was at the sacrifice of workers.

Sood et al. (2014) note that rise in the share of contract employment in the total employment of workers coupled with stagnant real wages of workers despite experiencing high labour productivity growth has resulted in substantial reduction in the share of wages in gross value added between 1980-81 and 2009-10. Further, they argue that all the gains from high growth in output in the sector have been retained by capital which is reflected in the accelerating profit share. Basu and Das (2017) used aggregate ASI data for past three decades to study profitability. They found a continuous positive trend for the growth of profits during the period. Based on a decomposition analysis, Basu and Das (2017) concluded that technological change as captured in output-capital ratio, the rise in profit share and improvement in aggregate demand conditions were the key reasons for rising profitability in the sector.

Goldar and Sadhukhan (2015) studied the period from 1993-94 to 2011-12 using the ASI aggregate data to analyse wage share, labour productivity, and real wages. They report a declining trend of wage share in GVA from the period between 1993-94 and 2007-08 and a slight recovery between 2007-08 and 2011-12. They report that the wage share declined by about 10 % between 1993-94 and 2007-08. Moreover, the sector witnessed a higher growth rate of labour productivity vis-a-vis growth of real wages until 2004-05, after which the growth of real wage outpaced labour productivity growth.

Sood et al. (2014) and Goldar and Sadhukhan (2015) attribute the growing dissonance between labour productivity and real wage growth to the declining bargaining power of workers over time.

1.2.5 Conclusion and Research Gaps

The organised manufacturing sector in India has witnessed an impressive output growth in the past three decades except during a short period in the late 1990s and early 2000s. But the limited employment growth in the sector remains a concern which has attracted a large body of literature which seeks to explore the factors that affected the employment growth in the sector. Various factors have been highlighted in the literature that accounts for the dissonance between the output growth and employment growth of the sector which include the rise in the capital intensity of the production, Wages and stringent labour regulations. The literature clearly agrees on the adverse effect of rising capital intensity of production on demand for labour. The role of real wage growth is not clear as many researchers have pointed out that the growth of labour productivity has outpaced the growth of real wages and over time the bargaining power of workers has declined considerably. Hence, it is unlikely that the wage rise had a dent on employment.

The debate on the effect of stringent labour regulations and rigid employment protection legislation on employment growth and rising "contractualisation" of the workforce is inconclusive. The debate is unsettled both in terms of an acceptable measure of labour market rigidity/flexibility, and the insufficient and inconclusive empirical evidence in support of the hypothesis that rigid labour regulations have affected employment growth adversely and led to rising use of contract workers. The data used in the literature to carry out analysis mostly consists of aggregate data and the industry level disaggregated data which is a major limitation of the empirical literature studying employment performance in the organised manufacturing sector. The literature certainly lacks a detailed firm-level or plant-level evidence on the subject with the only exception being the work by Dougherty et al. (2014) who utilised the recently available plant-level panel data from ASI.

1.3 Objectives of the Study

- To construct a state-level time-variant labour market flexibility index using both de jure as well as de facto measures that would capture the variation in the state-level degree of labour market flexibility in terms of labour adjustment over time.
- To analyse the performance of organised manufacturing in employment generation and identify possible explanations for its performance with a special focus on the role of labour market flexibility on employment generation.
- To analyse the role of labour market rigidity in explaining the growing segmentation within the organised manufacturing sector concerning limited employment growth of regular/permanent workers and increasing employment of contract workers.
- To examine the growing inequality in the *functional distribution of income* as measured by the labour share and profit share in gross value added (output) and the variation in the share of wages of various categories of employees.

1.4 Statement of Hypotheses

- The variation in the state-level degree of labour market flexibility in terms of employment adjustment doesn't have a significant effect on employment growth and doesn't explain the difference in employment outcomes.
- The *elasticity of employment with respect to output* in the organised manufacturing sector has been weak, and the growth in employment has suffered due to the rising capital intensity in the production process.
- Labour market rigidity is not associated with rising employment of contract workers and limited employment of regular workers as firms belonging to both flexible as well as rigid states prefer contract workers over the permanent ones as contract workers provide a cheaper input into production.

- The position of labour has weakened vis-à-vis capital as there has been a rising inequality in the distribution of income between the share of wages and profits in total gross value addition.

1.5 Brief Chapter overviews

- Chapter 2 discuss various data sources used in the study, construction of balanced and unbalanced panel datasets, construction of labour market flexibility index and other relevant variables, and finally, the theoretical framework and empirical specifications used in the study.
- Chapter 3 presents the stylized facts on labour market flexibility, output growth and employment performance, and discusses the panel data regression results and analyses about the employment performance of the sector and the role of labour market flexibility in employment generation.
- Chapter 4 presents stylized facts about trends in employment of contract workers, regular workers, and segmentation within the organised manufacturing, and discusses the panel data regression results and analyses about the role of labour market rigidity in explaining growing segmentation.
- Chapter 5 presents the estimates of labour share and profit share in gross value added, variation in the share of wages of different categories of employees, difference in outcomes between flexible and rigid states, and implication of growing inequality in the distribution of value added on industrial disputes.
- Chapter 6 provides the summary of findings and concludes the study.

Chapter 2: Data and Methodology

2.1 Data

2.1.1 Annual Survey of Industries Panel Data

Annual Survey of Industries (ASI) Panel data is the primary data source for this study. ASI is the chief source of industrial statistics in India. ASI panel data which is the unit level data with a 'common factory identifier' (plant identifiers that are consistent over time) have been made available only recently and have a slightly different data layout as compared to the general unit level data. ASI panel data is available from the year 1998-99 onwards and the time period analysed in this study constitute a panel data from the year 1998-99 to 2007-08.

ASI extends its coverage to the entire Factory Sector wherein the primary statistical unit of enumeration are factories or plants registered under the Sections 2(m)(i) and 2(m)(ii) of the Factories Act, 1948. The Factories Act defines a factory as 'any premises' where a manufacturing process have been carried out involving ten or more workers with the aid of electricity, or, twenty or more workers without power on any day in the past twelve months. In addition to units covered under the Factories Act, units registered under the Bidi & Cigar Workers (Conditions of Employment) Act, 1966 are also surveyed in ASI. Geographically, ASI extends its coverage to all states for the surveys except for the states of Arunachal Pradesh, Mizoram, and Sikkim in the north-eastern region of the country and Union Territory of Lakshadweep in the south. The scope and coverage of the survey remained unaltered during the period covered in this study.

The sampling design of the ASI follows a core strategy to construct a frame which consists of all the registered units in each state and divides it into two separate sectors namely, "sample" sector and "census" sector. This basic sampling framework has remained intact during the period of this study i.e. from 1998-99 to 2007-08. However, the definition of the census sector and sample sector have undergone few changes during these years. The census sector covers all units belonging to five industrially backward states/UT of Manipur, Meghalaya, Nagaland, Tripura and Andaman & Nicobar Islands. In the remaining states, Census sector includes all large factories

whose size varied from 200 or more workers from 1998-99 to 1990-00 and 100 or more workers from 2000-01 onwards. In addition to this, all factories filing Joint returns are also surveyed under census sector. Joint return refers to a single consolidated return filed by firms having two or more plants in the same state, same industry category and same sector i.e. either sample or census. The remaining smaller firms employing less than 100 workers are covered under the sample sector, and stratified sampling technique is applied to select the units from the sample sector randomly. To classify factories according to their respective industries, two NIC codes have been utilised during the period from 1998-99 to 2007-08 namely, NIC-1998 and NIC-2004. The NIC classifications have not changed much at the broad two or three-digit level and hence concordance exercise is not required to estimate aggregates at the industry level in this study.

ASI provides a wide variety of data on variables ranging from ownership details, fixed capital and assets, inputs, outputs, employment, wages and other expenses to export and import, which are collected in ten different blocks of the schedule. All the variables need to be constructed as per the Tabulation Programme for every year provided by ASI along with the unit level panel data. The tabulation programme for the respective years has been followed to construct variables and to calculate their values for summary statistics and aggregate population estimates. Some of the key variables used in this study include: Gross value addition (GVA), Fixed Capital, Total Employees and various categories of employees as defined in ASI, Man-days employed, Wages and Salaries to various categories of employees, Total Emoluments, and Profits.

2.1.2 Construction of Balanced and Unbalanced Panel Datasets

The ASI panel data provides a unique factory identifier separately from the year 1998-99 onwards that makes it possible to trace firms over the years and make a fixed balanced panel dataset of continuing firms. Some of the recent studies that have utilised the ASI Panel data of late to create a plant-level panel include Harrison, Martin, and Nataraj (2012), Bollard, Klenow, and Sharma (2013), Dougherty et al. (2014), and Sahu and Sharma (2016). But all these studies majorly focused on the productivity aspect of Indian manufacturing without evaluating employment outcome and segmentation issues. This study forms two separate panel datasets - a balanced panel of plants and an unbalanced panel of plants for the period from 1998-99 to 2007-08.

The balanced panel dataset is formed by tracking the units over the years and keeping only those units for which the data was available for all ten years of the period of the study while controlling for exit and entry of firms. On the other hand, the unbalanced panel is constructed by keeping those units also for which the data is not available uniformly throughout the period which takes into consideration the sampling of sample sector units that are not surveyed every year. Thus, the unbalanced panel contains data on individual units which differ on time dimension. An apparent advantage of using unit level panel data is that it makes it possible to study the performance of the organised manufacturing and the associated factors influencing it at a very comprehensive and detailed level (Islam & Nazara, 2000).

The ASI panel data originally included 471,156 plant-year observations for the period of ten years with the number of units surveyed per year ranging from 25,329 in 1998-99 to 66,735 in 2006-07 (after removing of duplicates). Firstly, the observations not belonging to the manufacturing sector (NIC 3-Digit code 151 to 372) were removed from the analysis to restrict the study to the manufacturing sector only. The aggregate and summary statistics on the entire population of manufacturing sector are calculated based on all these observations and using the inverse sampling multiplier weights by following the Tabulation Programme provided with the data. Further, five States/UT categorised as industrially backward as has been discussed above are removed along with Daman & Diu, Dadra & Nagar Haveli, Chandigarh, Pondicherry, and Jammu and Kashmir. The study restricts itself to rest of the twenty-one major states in India. To construct the unbalanced panel, "factories in operation" were only considered with the status of the unit as either "open" or "extracted from the previous year".

Further, factories with missing data and negative values of gross value added were also removed from the analysis. Finally, after all sorts of trimming discussed so far, an unbalanced panel was prepared consisting of 297,489 plant-year observations spanning over the period from 1998-99 to 2007-08 with 38.88 % of the observations belonging to the Census scheme and 61.12 % to the Sample scheme. The unbalanced panel consists of 129217 unique plants observations spread over the entire period with observations per plant ranging from 1 to 10 with an average of 2.3 observations.

To construct the balanced panel dataset, only those plants were considered for identification from the unbalanced panel which were available for all the ten years of

the period under study. So, finally, after tracing the plants using their factory identifier code over the period from 1998-99 to 2007-08, a balanced panel dataset is formed which consisted of 20,470 plant-year observations on 2,047 unique plants over the period of ten years with 92.21 % observations belonging to the Census scheme and only 7.79 % to the sample scheme. Summary statistics for the two panel datasets with relevant variables constructed are provided in Appendix table A1 and A2. As expected, the balanced panel is dominated by large factories with 88.02 % of the observations reporting more than or equal to 100 employees. So, following Harrison et al. (2012) and Doughety et al. (2014), the balanced panel dataset is considered as representing medium and large (Census Scheme) continuing factories rather than the overall population of organised manufacturing sector.

Further, the unbalanced panel dataset can be considered as representing the overall sector and the empirical results obtained from the two datasets can be compared which can provide useful insights into the dynamics of medium and large continuing firms in the manufacturing sector as represented by the balanced panel sample. The medium and large firms are more likely to be affected by employment protection legislations, and evaluation of their employment generating performance holds important implications for policy making. Before concluding the discussion on ASI panel data, it is important to address the issue of the difference between a 'firm' and a 'plant' in ASI. As noted by Harrison et al. (2012) and Dougherty et al. (2014), unit level data are available at the plant-level but the econometric analysis incorporates the theory of firms, and a firm can have one or several plants. So, the assumption of no difference between a plant and a firm for the empirical analysis is questionable. But Harrison et al. (2012) and Dougherty et al. (2014) argue that most of the firms in ASI consist of a single plant only and therefore, a plant may be considered independent as a firm without any negative implications. The balanced panel and unbalanced panel datasets used in this study contain 95.80 % and 95.11%, respectively of the firms comprising of a single plant only.

2.1.3 Other Data Sources

The ASI data are provided in current prices and therefore, need to be deflated by using appropriate price indices to make meaningful comparisons over the years by controlling for inflation. Gross value added has been deflated using NIC 3-Digit industry specific Wholesale Price Index (WPI) with 1993-94 as the base year. Similarly, Fixed Capital value provided in ASI has been deflated using WPI of Machinery and Transport Equipment. The industry wise WPI and WPI of machinery and transport equipment are obtained from the website of the Office of the Economic Adviser, Government of India, Ministry of Commerce & Industry, Department of Industrial Policy & Promotion (DIPP). Wages and other compensation to employees have been deflated using Consumer Price Index for Industrial Workers (CPI-IW). CPI-IW values for various years with the base year 2001 are obtained from the Labour Bureau website.

Data on state-wise turnover rate (accession and separation rate included) among directly employed "regular workers" have been obtained from the various issues of Indian Labour Yearbook and Report on Absenteeism, Labour Turnover, Employment and Labour Cost for various years published by the Labour Bureau. Data on cause-wise distribution (in percentage) of Industrial disputes in India have been obtained from the various issues of Indian Labour Yearbook and Industrial Disputes in India during the year 2003 published by the Labour Bureau. State-wise total number of workers affected due to permanent closures, retrenchments and layoffs have been obtained from various issues of Statistics on Industrial Disputes, Closures, Retrenchments and Layoffs in Industries in India published by the Labour Bureau. Data on various State-level amendments to IDA, 1947 has been obtained from the Besley and Burgess (2004) Data Appendix which has been updated until 2007 using various Web based resources cited in the Appendix Table A3 of this study. The sources for Industrial Employments (Conferment of Permanent Status to Workmen) Act are also cited within table A3 in Appendix.

2.2. Construction of variables

This section discusses the definition and construction of the variables used in the analysis of employment performance, segmentation and inequality in the distribution of value added. The variables constructed using ASI are explained in the following section followed by the discussion of the construction of labour market flexibility index.

2.2.1 Construction of Relevant Variables from ASI

Total Workers: ASI defines workers as all persons employed directly or through contractors who are engaged in any work related to or is the subject of the manufacturing process. So, the measure of total workers can be divided into two constituent groups: Workers employed directly by the employer and Workers employed through contractors.

Employees: Total employees is the sum of all workers whether directly employed or through contractors, Supervisory and Managerial staff engaged in administrative office and 'other' employees which include persons involved in store keeping section and welfare section, sales and procurement department, and watch and ward staff.

Wages to various categories of employees: The wages of various categories of employees discussed above include direct wages or salaries paid to the employee and bonus and exgratia payment paid both at regular and less frequent intervals. The values are reported in nominal terms which are deflated using CPI-IW for respective years. To calculate the average real wages of various categories of employees, total real wages including bonus is divided by the total man-days worked by the respective category.

Total Emoluments: ASI defines emoluments as the sum of Wages and salaries paid to all employees, employer's contribution towards provident fund and other funds and workmen and staff welfare expenses. The values are reported in nominal terms which are deflated using CPI-IW for respective years. To calculate the average real emoluments, total real emoluments as calculated above is divided by the total man-days worked.

Gross Value Added (Output): The real gross value added is considered as the proxy for measuring output in this study. ASI defines gross value added as total output minus total inputs of the factory in each financial year. The values are reported in nominal

terms which are deflated using WPI of respective NIC 3-digit industry to which the factory belongs.

Capital Intensity: Fixed Capital value provided in ASI is considered as the measure of Capital in this study. ASI defines Fixed Capital as those assets that have a normal productive life of more than one year and represents the depreciated value of fixed assets owned by the factory as on the closing day of the accounting year. The value of the Fixed Capital reported in ASI is in nominal terms which have been deflated by WPI of Machinery and Transport Equipment in each year to arrive at the measure of real capital. Though a more conventional method in the literature to calculate capital is the Perpetual Inventory Method but recently many researchers have used Fixed Capital (as reported in ASI) and WPI of Machinery and Transport Equipment to measure real capital in the organised manufacturing sector (Dougherty et al., 2014; Harrison et al., 2012). The capital intensity is measured as the ratio of the real value of Capital and the total number of workers.

Statistical Package Used: Stata 13.1 statistical package has been used in this study to carry out all the data work.

2.2.2 Construction of Labour Market Flexibility Index

It is important, at the outset, to define the concept and scope of labour flexibility/rigidity used in this study before proceeding with the construction of the index. Labour market rigidity in a broad sense refers to any factor in the labour market that limits the possible responses of a firm to adjust employment in case of any exogenous change (Solow, 1998). Several factors contribute towards rigidity by imposing various restrictions e.g. strict regulation of hiring and firing, permissible hours of work, powerful trade unions that enjoy a considerable bargaining power, long and generous unemployment insurance benefits, high minimum wage, etc. (Solow, 1998). Rodgers (2007) provide a detailed discussion on various dimensions of flexibility recognized in the literature which includes employment protection, wage flexibility, internal or functional flexibility and supply side flexibility. Out of these varieties of factors, the focus of this study is primarily concerned with the regulation of hiring and firing practices that affect labour adjustment mechanism of firms in India which is the most important and highly contested source of rigidity deliberated in the policy debates.

A variety of measures of stringency of labour regulation in India or labour market flexibility/ rigidity, in general, have already been discussed critically in the section 1.2.2 of the Review of Literature in the previous chapter. It has been pointed out in the review of literature that there has not been any consensus on an 'accepted' indicator of labour market flexibility in the literature as the existing measures suffers from severe limitations and drawbacks which have been criticized heavily. The current study has made an attempt to introduce a new indicator of labour market flexibility which has been inspired from the existing measures in the literature while taking into consideration various critiques made in the context of the existing measures of rigidity/flexibility. A state-wise composite index is formulated considering both de jure as well as de facto indicators of labour market flexibility in India. Bhattacharjea (2006) was the first to suggest the importance of incorporating de facto regulatory regime in addition to de jure reforms in the analysis of flexibility which Ahsan and Pages (2007) and Dougherty (2008) have later recognized and included in their study.

Labour adjustment processes by firms in the organised manufacturing sector are governed by certain legislative provisions. To capture legislative changes that have a direct bearing on labour market flexibility two acts have been considered in the analysis namely, Industrial Disputes Act (IDA), 1947 and Industrial Employments (Conferment of Permanent Status to Workmen) Act. Firstly, following Besley and Burgess (2004) methodology various state-level amendments to the central IDA, 1947 have been classified into three categories – 'pro-worker' if an amendment seeks to reduce flexibility by decreasing the scope of labour adjustment, 'pro-employer' if an amendment seeks to reduce flexibility by increasing the scope of labour adjustment, and 'neutral' if an amendment is not concerned with labour adjustment process.

IDA, 1947 not only regulates hiring and firing of workers but also provides provisions for investigation, adjudication, and settlement of disputes in the formal industrial sector. So, many amendments to the central IDA, 1947 deal with disputes resolution between workers and employers in addition to labour adjustment processes. Besley and Burgess misinterpret a lot of amendments in their analysis and classify amendments related to industrial disputes under the same category as the amendments regulating labour adjustment or employment protection. As already discussed in detail in section 1.2.2 of the previous chapter, Bhattacharjea (2006, 2009) questioned several of these wrong

interpretations and highlighted several other discrepancies in classification and coding of these amendments. Ahsan and Pages (2007, 2009) deviated from Besley and Burgess methodology and classified these amendments separately under two categories of laws regulating industrial disputes and labour adjustment processes. The same categorisation strategy of Ahsan and Pages (2007, 2009) have been followed in this study and the 'neutral' amendments (described above) which are not concerned with labour adjustment process are classified as either 'not relevant' if the change is only technical or 'neutral simplifying dispute resolution mechanism' if the amendment is concerned with industrial disputes.

Though inspired by Besley and Burgess (2004) as well as Ahsan and Pages (2007, 2009) coding and aggregation strategy, this study uses a slightly different coding and aggregation methodology than theirs'. Every amendment in each year and a given state that makes the process of labour adjustment difficult is considered pro-worker with a code of '-1'. Similarly, every amendment in each year and a given state that eases the process of labour adjustment for employers is considered pro-employer with a code of '+1'. Finally, the amendments classified as 'not relevant' are excluded from the analysis and those classified as 'neutral simplifying dispute resolution mechanism' are coded as zero.

In addition to the state-level amendments to IDA, this study recognizes the enactment of Industrial Employments (Conferment of Permanent Status to Workmen) Act which has been passed separately by the state of Assam and Tamil Nadu. This Act provides provisions for conferring permanent status to workmen who meet certain criteria. Hence, this Act is a move in the pro-worker direction which adversely affects the ability of employers to adjust employment as permanent workers are protected under various provisions of IDA. In both the cases of Assam and Tamil Nadu this act is coded as '-1'. Besley and Burgess (2004) index which is the most widely used index of labour market rigidity in India is restricted in its coverage of the state-level amendments to central IDA, 1947 up to the year 1992, which has been updated in this study up to the year 2007. Table A3 in Appendix lists all the state-level amendments to IDA,1947 and Industrial Employments (Conferment of Permanent Status to Workmen) Act passed by Assam and Tamil Nadu with a detailed discussion on how the literature has viewed the amendments of these laws along with the code assigned in each case.

Out of a total of 125 amendments (including two Conferment of Permanent Status to Workmen Acts) 24 amendments are categorised as pro-labour Amendments reducing labour market flexibility, only 3 amendments are classified as pro-employer amendments increasing labour market flexibility, 76 amendments are classified as neutral amendments simplifying dispute resolution mechanism and 22 are found to be not relevant for the analysis (see Table A4 in Appendix). As far as labour market flexibility is concerned, legislative changes that have a direct bearing on labour market adjustment mechanism are only important for the analysis and not the amendments that regulate labour disputes. It can be noted that there have been only 27 (24 pro-worker and 3 pro-employer) amendments that affect labour market adjustment process in the entire period from 1949 to 2007 which has been rather infrequent across states and time. Hence, instead of Besley and Burgess (2004) and Ahsan and Pages (2007,2009) methodology of aggregating the general direction of change in each year over time, the aggregation technique employed here follows Hasan et al. (2007) to simply cumulate the coded scores over the entire period for each state. For instance, Andhra Pradesh has passed three pro-labour amendments in the entire period, and hence, the cumulative de jure score of labour market flexibility for Andhra Pradesh is -3. Similarly, Gujarat has passed one pro-employer amendment, and Rajasthan has passed two pro-labour as well as one pro-employer amendment in the entire period getting a cumulative de jure score of labour market flexibility of +1 and -1, respectively.

Based on the methodology discussed so far, a time invariant variable is constructed which assigns the cumulative de jure flexibility score for the entire period to each state and form the de jure indicator of labour market flexibility. The amendments that are intended to simplify dispute resolution process have not been considered for the analysis. State-wise number of labour disputes resolution amendments have been reported in Table A4 in Appendix. It is important here to mention that though Bhattacharjea (2006) and several other researchers have argued that Besley and Burgess (2004) ignores the wide domain of labour laws present in India and focuses simply on amendments to Industrial Disputes Act, Bhatatcharjea (2014) himself clarified that "when we talk of employment protection legislation or labour market inflexibility or firing costs, strictly speaking, it is only Chapter V of the Industrial Disputes Act that is relevant" (p. 50). So, criticism of Besley and Burgess methodology and hence, of the de jure indicator used in this study is not valid on this front.

The classification of states, after careful interpretation of the statement of legislations and coding and aggregation method adopted, seems reasonably acceptable. Gujarat and Uttar Pradesh are classified as pro-employer with a relatively flexible labour market as indicated by the legislative regime. Andhra Pradesh, Assam, Karnataka, Maharashtra, Rajasthan, Tamil Nadu and West Bengal are classified as pro-worker with a relatively rigid labour market as indicated by the legislative regime. Rest all other states are classified as neutral. It is evident from the above discussion that the de jure measure gives an incomplete picture of the degree of labour market flexibility/rigidity at a given time and state.

De facto indicators of labour market flexibility suggested in the literature include rising share of contractual workers, weak enforcement of laws and inspections. Of course, contractual employment uses a flexible form of contract and adds to the overall flexibility of the labour market, but in using it as a de facto indicator, we implicitly assume that employment protection legislations have made the labour market adjustment rigid without looking in the actual dynamics of the protected group of workers. Moreover, inspections are carried out to enforce labour standards at the workplace to improve conditions of work without any direct role in contributing to labour market rigidities. Hence, when we consider the effect of employment protection legislations which cover regular workers only, we need a more direct de facto indicator reflecting the actual dynamics of regular workers in determining flexibility.

Theoretically, a direct effect of enforcing stringent employment protection laws can be gauged from the decrease in the turnover rate of the protected workers in the economy by decreasing both the accession rate and separation rate of those workers (Layard & Nickell, 1986; Micco & Pages, 2007; Scarpetta, 2014). So, it is assumed here that the larger the turnover rate among directly employed regular workers in a state, the larger is the flexibility and vice-versa. Over and above that, another widespread assumption among critics of employment protection legislation in India that adds to the perception of rigidity is that it is challenging to obtain permission from the government to carry out layoffs, retrenchment, and closures due to political considerations (Datta Chaudhuri, 1996; Hasan et al., 2007). Hence, it can be inferred that a state where a larger share of workers is affected by layoffs, retrenchments, and closures is more flexible than others. Two indicators are chosen for this purpose to capture de facto

regulatory regime in this study. The first indicator is the state-year wise total turnover of the regular workers in the organized manufacturing sector which is the sum of total accession and separation rate of the regular workers. The second indicator is the share of workers affected by layoffs, retrenchment, and closures in each state which is equal to the ratio of total workers affected by layoffs, retrenchment and closures and total workers in each state and year.

The next step is to construct a state-wise composite indicator of labour market flexibility in India based on the three de jure and de facto indicators discussed above. The de jure indicator is constant throughout the time period of the study (1998-99 to 2007-08) whereas both the de facto variables are time variant. The crucial steps in creating a composite index involve developing a theoretical framework to motivate the selection of indicators and available data, normalization technique applied, handling of missing values, and choice of weighting and aggregation method (Nardo et al., 2005). The theoretical framework and selection of variables for the construction of the index have already been discussed above. The data on state-wise labour turnover among directly employed regular workers were not available for the year 1998-99 from the Labour Bureau. Therefore, the median (average) value of the labour turnover during the period 1999-00 to 2007-08 is assigned to the year 1998-99 to deal with this missing value.

There are various normalization techniques available e.g. ranking, standardization or z-scores, rescaling, etc. to take into account the different units of measurement of different variables and make the indicators comparable (Nardo et al., 2005). The normalization technique adopted here involve rescaling specific indicators in the range of zero to one by using 'min-max' normalization. Equal weights are assigned to all the three normalized individual indicators which have been aggregated using simple arithmetic mean. The choice of the arithmetic mean as the aggregation technique allows for compensability or substitutability among indicators which is important in this case because it has been pointed out earlier that legislative changes governing labour adjustment are rather infrequent, less in number and are concentrated in only a few states in India. Also, as already discussed in the literature review section 1.2.2 of the previous chapter, many researchers have pointed out the disconnect between legislations and its enforcement in India. So, for instance, if a state has passed no

amendments easing labour adjustment process but have a high labour turnover rate and share of workers affected by layoffs, retrenchments, and closures, the overall flexibility score is compensated for the low value of one indicator by the high value of other indicators under the arithmetic mean aggregation. The index is an aggregation of one time-invariant and two time-variant variables which ultimately make it a time variant index allowing for the degree of flexibility in a state to change over time. The range of the index is from zero to one with zero being the least flexible state and one being the most flexible. The formula for the index and normalization is as follows:

Normalization formula:

$$N_{q,s}^{t} = \frac{X_{q,s}^{t} - Min_{q}^{t}}{Max_{q}^{t} - Min_{q}^{t}}$$

Where,

$N_{q,s}^{t}$ is the normalized value of an indicator 'q' of state 's' in time 't'.

$X_{q,s}^{t}$ is the value of an indicator 'q' of state 's' in time 't'.

Min_{q}^{t} is the minimum value of an indicator 'q' in time 't' among all the states.

Max_{q}^{t} is the maximum value of an indicator 'q' in time 't' among all the states.

Labour Market Flexibility Index Formula:

$$FLEX_{s}{}^{t} = ArithmaticMean(Regulation_{s}, Turnover_{s}^{t}, CLR_{s}^{t})$$

Where,

$FLEX_{s}{}^{t}$ is the labour market flexibility score of state a 's' in time 't'.

$Regulation_{s}$ is the normalized value of de jure flexibility score of a state 's' cumulated over time.

$Turnover_{s}^{t}$ is the the normalized value of labour turnover among directly employed regular workers of a state 's' in time 't'.

CLR_{s}^{t} is the normalized value of the share of total workers affected by layoffs, closures and retrenchments in a state 's' in time 't'.

2.3 Theoretical Framework and Empirical Specification

This section outlines the theoretical framework that guides the empirical specification of the models to be estimated. Labour is one of the several factor inputs that a firm uses to produce output to sell in a market and hence, like all factor inputs, demand for labour is a "derived" demand. Hamermesh (1993) derive a static conditional labour demand function faced by a cost-minimizing firm producing a given level of output. For a simple model, having a production function that exhibits constant returns to scale and comprising of only two input factors – capital and labour, the static conditional demand for labour depends on the output produced, wage rate of workers and rental price of capital which can be represented functionally as follows:

$$L = F(Q, w, r),$$

Where L is the demand for labour, Q is the output, w is the exogenous wage rate of workers and r is the exogenous rental price of capital.

The period covered in this study belong to the post-reform period which is characterised by a rising capital intensity of production (Das & Sen, 2015). Trade liberalization facilitated tariff cuts on capital inputs that provided access to a wide range of inputs, including capital inputs, which could be substituted for labour in the production process (Hasan et al., 2007). Choice of technology by a firm is an important determinant of employment and a move towards more capital-intensive technology of production affects employment adversely.

Institutional factors like labour market regulations also affect a firm's demand for labour. A popular view, as already discussed in the literature review, is that labour market flexibility is crucial to employment creation and a highly regulated labour market with stringent employment protection legislations causes rigidity which discourages employers from hiring workers thereby dampening the labour demand. However, the effect of labour market flexibility on employment growth is not straightforward as a highly flexible labour market facilitates both higher rate of hiring as well as firing, leaving the effect on overall employment level ambiguous (Rodgers, 2007). So, the effect of labour market flexibility on employment growth is more of an empirical issue rather than a theoretical one.

Based on the discussion so far, the econometric specification of the static labour demand function to be estimated using panel data regression takes the following equational form:

$$Ln(L_{iIst}) = \beta_1 Ln(Q_{iIst}) + \beta_2 Ln(W_{Ist}) + \beta_3 Ln(KI_{Ist}) + \beta_4 FlexIndex_{st} + \eta_i + \eta_t + \varepsilon_{iIst} \quad ..(1)$$

Where Ln represents natural logarithm; L denotes total employment or total persons engaged in the plant 'i', industry 'I', state 's', in the year 't'; W is the average emoluments per man-day worked received by employees of the industry 'I', in state 's' and year 't' to which the plant 'i' belong; KI is the capital intensity of the industry 'I', in state 's' and year 't' to which the plant 'i' belong; FlexIndex is the labour market flexibility index value of state 's' in the year 't'; η_i is the time-invariant individual specific plant effect which controls for unobserved individual heterogeneity; η_t is the plant-invariant year dummies to control for time-effects that are common to all the plants over the period which captures unobserved macroeconomic demand shocks and other macroeconomic policies that may have an impact on the industrial performance but is common to all plants; Ɛ is the purely idiosyncratic error term.

The coefficients β_1 and β_2 measure employment elasticities with respect to output and wages (price of labour), respectively. $\beta 1$ gives the 'employment elasticity of growth' which measures the percentage change in employment when output changes by one percentage, and serves as a key indicator to provide insights into how employment growth has fared with respect to output growth by analysing the evolution of output growth and employment growth over time (Kaspos, 2006). However, the interpretation of employment elasticity of output is not straightforward due to its inverse relationship with labour productivity i.e. a high value of β_1 (greater than unity) indicate a decline in labour productivity and a low value of β_1 indicate a higher labour productivity.

A low value of labour productivity is undesirable from the viewpoint of the organised manufacturing sector, and while interpreting elasticity we need to be cautious while making conclusions in this regard. So, to interpret the values of employment elasticity of growth, this study follows Kaspos (2006) and ILO (2004) in the desirability of following a particular growth path, either labour intensive or productivity enhancing,

by assuming a balance between the two growth processes. Kaspos (2006) and ILO (2004) suggests that it is important for the employment growth to move in coordination with labour productivity so as to achieve the goals of economic development such as poverty alleviation and inclusivity in the growth process. For developing economies which are relatively labour abundant and face a high incidence of poverty, Khan (2001) suggests a relatively higher employment intensity path with ideally an employment elasticity value of 0.7, until these economies move to a higher income status. This value of 0.7 serves as an important reference point in this study in framing conclusions about the employment elasticity of growth.

The coefficient β_3 captures the effect of technological change on employment by measuring the percentage change in employment when the capital intensity of the industry to which the firm belongs changes by one percent. The coefficient β_4 captures the effect of labour market flexibility on employment generation by measuring the percentage change in employment when flexibility changes by one unit. A positive and statistically significant value of β_4 would indicate that higher degree of labour market flexibility is associated with higher employment generation.

The empirical approach adopted in this study makes use of a static labour demand function which unlike the dynamic models assumes no existence of any adjustment costs (Lichter, Peichl & Siegloch, 2013). Therefore, the labour market flexibility variable in the model captures the long-run effect of flexibility on employment growth in the absence of any other adjustment cost. The output variable included in the equation controls for the output demand shocks faced by the firms (Hasan et al. 2007). Endogeneity of output remains a concern in estimating labour demand equations as output and labour input choices are simultaneously determined. However, since the study uses a static labour demand model, endogeneity of output doesn't possess a serious threat (Quandt & Rosen, 1989). Hence, the output is assumed to be exogenously determined in the model.

Hasan et al. (2007) point out that a primary concern in estimating labour demand equations is the endogeneity problem possessed by wages. Exogeneity of wage rates are an important assumption which is fulfilled here by utilising a higher level of disaggregation as this study uses plant-level data and the wage rate included in the above equation is measured at the industry-ownership-state group level. The Capital

intensity variable is calculated at the industry-state group level which will help in studying the effect of rising use of capital vis-à-vis labour in the production process. Hence, the technology change is assumed exogenous to the plant/firm in this study. Moreover, the capital intensity variable will control for technological shocks during the period.

This study applies linear panel data regression method that takes into account the unobserved individual specific effects and the associated omitted variables bias. Without controlling for such unobserved individual specific effects, the model assumes no correlation between the error term and explanatory variable in a particular period which is an extreme assumption to hold (Wooldridge, 2002, p. 247). A static linear panel data model which controls for time-invariant individual specific unobserved effects like the one stated above (equation 1) can be estimated using two types of panel data estimation procedures namely, the fixed effect model or the random effect model.

The fundamental difference in the two models lies in their treatment of unobserved effects. The Fixed Effect Model allows the time-invariant individual specific unobserved effect to be freely correlated with explanatory variable whereas the Random Effect Model assumes such unobserved effect to be uncorrelated with the other explanatory variables (Wooldridge, 2002). The choice of the appropriate model between a fixed effect model and a random effect model is guided by using the Hausman test. It tests the null that the time-invariant unobserved effects are uncorrelated with the explanatory variables i.e. random effect model's assumption is validated, and hence, random effect model is suitable (Wooldridge, 2002). If we obtain a lower p-value (less than 0.05) for the Hausman test statistic, we reject the null hypothesis and consider Fixed Effect Model suitable for estimation as the time-invariant unobserved effects are correlated with the explanatory variables.

Next, to study the segmentation within the organised manufacturing sector and the role of labour market rigidity in explaining it, a similar labour demand equation has been estimated as the one specified earlier for studying employment performance. As discussed previously in the literature review section 1.2.2, a large body of literature have blamed labour market rigidity arising from stringent employment protection legislation for regular workers as one of the main reasons for the rising use of contractual labourers in the production process. Contract labourers do not fall under the

purview of employment protection legislation, and hence, firms enjoy greater flexibility in adjusting labour input with increased use of contractual labours. Intuitively, the share of contractual labour in total employment could be regressed with labour market flexibility variable along with other control variables, or, a labour demand equation for contract workers with labour market flexibility as one of the explanatory variables could be estimated to study the role of flexibility/rigidity in explaining the rising use of contractual labour. However, the plant-level panel dataset used in this study contains a lot of missing values for the data on contract labourers which requires dropping many observations from the analysis and therefore the results obtained could well be biased. So, an alternative methodology has been adopted to overcome this problem by using the data on regular (directly employed) workers and total workers instead of contract workers. Total workers comprise of directly employed regular workers and contract workers. So, a higher employment elasticity of total workers vis-à-vis the employment elasticity of regular workers would be indicative of segmentation. Moreover, employment of regular workers should be higher in a more flexible labour market. Based on the above discussion, empirical specification of labour demand equation for regular workers and total workers takes the following form:

$$Ln(RW_{iIst}) = \gamma_1 Ln(Q_{iIst}) + \gamma_2 Ln(W_{Ist}) + \gamma_3 Ln(KI_{Ist}) + \gamma_4 FlexIndex_{st} + \eta_i + \eta_t + \varepsilon_{iIst} \quad ..(2)$$

And,

$$Ln(TW_{iIst}) = \delta_1 Ln(Q_{iIst}) + \delta_2 Ln(W_{Ist}) + \delta_3 Ln(KI_{Ist}) + \delta_4 FlexIndex_{st} + \eta_i + \eta_t + \varepsilon_{iIst} \quad ..(3)$$

Where Ln represents natural logarithm; RW denotes Regular or permanent workers employed in the plant ‘i’, industry ‘I’, state ‘s’, in the year ‘t’; TW denotes Total Workers employed in the plant ‘i’, industry ‘I’, state ‘s’, in the year ‘t’; W is the average wages per man-day worked received by employees of the industry ‘I’, in state ‘s’ and year ‘t’ to which the plant ‘i’ belong; KI is the capital intensity of the industry ‘I’, in state ‘s’ and year ‘t’ to which the plant ‘i’ belong; FlexIndex is the labour market index value of state ‘s’ in the year ‘t’; η_i is the time-invariant individual specific plant effect which controls for unobserved individual heterogeneity; η_t is the plant-invariant year

dummies to control for time-effects that are common to all the plants over the time period which captures unobserved macroeconomic demand shocks and other macroeconomic policies that may have an impact on the industrial performance but is common to all plants; Ɛ is the idiosyncratic error term.

Comparing the coefficients γ_1 and δ_1 provide the evidence of segmentation. A higher value of δ_1 as compared to γ_1 indicate that there is a gap in the employment intensity of growth of regular or permanent workers and total workers employed which is attributable to the rising employment of contract workers. A positive and statistically significant value of the coefficient of FlexIndex variable in the equation (2) for regular workers γ_4 will provide evidence for the role of labour market rigidities in explaining segmentation within the organised manufacturing sector. If labour market rigidities are responsible for segmentation regarding rising use of contract workers vis-à-vis regular workers, then alternatively we can assume that increase in flexibility should be associated with higher employment of regular workers. If this is true that increase in flexibility induces greater employment of regular workers, then we can infer that labour market rigidities are associated with the lower demand for regular workers or conversely with the higher segmentation.

A direct implication of slow employment growth with respect to output and segmentation in terms of rising use of low-wage employments is that the labour share in gross value-added falls (Sood et al., 2014). Labour share is defined as the portion of value added that is paid out as labour compensation. Schneider (2011) explains that if we assume a simple production function that uses only two factor inputs – labour and capital to produce output i.e. Y = F (L, K), then labour share is measured as follows:

$$\text{Labour Share} = \frac{WL}{PY}\ , \qquad \text{(Schneider, 2011).}$$

Where W is the average nominal compensation paid to employees, L is the total number of employees, P is the nominal price of output and Y is the quantity of output produced. In the case of two inputs, the rest of the share in gross value added is retained by Capital. Capital is owned by the capitalist class or employers, and all non-labour income including profits constitute the capital share in GVA. The growing capital intensity of production coupled with slow growth of labour's compensation vis-à-vis growth in labour productivity have the direct consequence of widening the gap between labour

share and profit share in gross value added by lowering wage share and increasing profit share. The final objective of this study briefly assesses widening inequality in the *functional distribution of income* in the organised manufacturing sector as measured by labour share and profit share in gross value added. Besides, wage shares of various categories of employees may provide useful insights into the distribution of income among various categories of employees and the dynamics of inequality.

Chapter 3: Employment Performance – Findings and Analyses

3.1 Introduction

This chapter studies the employment performance of the organised manufacturing sector by examining employment elasticity using panel data regression method and provides evidence for the hypothesis formulated about the role of labour market flexibility in explaining the employment performance by using a balanced and an unbalanced sample of plants for the period from 1998-99 to 2007-08. The chapter begins with a discussion of stylized facts about labour market flexibility, trends in real GVA (Output), and employment trends in the sector during the period from 1998-99 to 2007-08. The estimates are presented for the overall organised manufacturing sector as well as the population estimates for the balanced panel of plants which is obtained by using the "multiplier" weights or inverse sampling weights provided with the data by ASI. The population estimates from the balanced panel of plants (hereafter balanced panel) represent estimates for the medium and large continuing plants during the period of the study. Details about the construction of the balanced panel sample is provided in Chapter 2.

3.2 Stylized Facts

Labour Market Flexibility Index: Table 3.1 presents the state-wise scores of the labour market flexibility index constructed using the methodology discussed in Chapter 2, section 2.2.2. The index scores are time-variant, and a higher value of the index indicates a higher degree of labour market flexibility in a state and vice-versa. Uttar Pradesh and Punjab have one of the highest flexibility scores whereas West Bengal, Assam and Jharkhand have one of the lowest flexibility scores throughout the period.

The state-wise flexibility scores of the index constructed in this study rectify a major limitation of the Besley and Burgess (2004) index and methodology with regard to capturing state-level variation in labour market flexibility in India. The states like Haryana, Punjab, Delhi and Madhya Pradesh have not passed either pro-worker or pro-employer amendments to existing labour legislations (See Table A4 in Appendix), but

these states have one of the highest flexibility scores which are comparable to a state like Gujarat that has passed a pro-employer amendment. The flexibility score of these states is compensated for the lack of de jure measures with the de facto measures (labour market turnover rate and share of workers affected by closures, retrenchments, and layoffs) included in the construction of the index.

Similarly, Orissa, Chhattisgarh, and Jharkhand which have not passed either pro-worker or pro-employer amendment have one of the lowest flexibility scores in the index which is comparable to the states like Andhra Pradesh, Karnataka, Assam, etc. that have passed pro-worker amendments. This clearly points out that de jure measures alone are insufficient to identify a state's labour market flexibility status. Besley and Burgess (2004) and other studies which make use of their index or some variant of it suffer from the limitation highlighted above as they make use of only de jure indicators of labour market flexibility which is highly misleading.

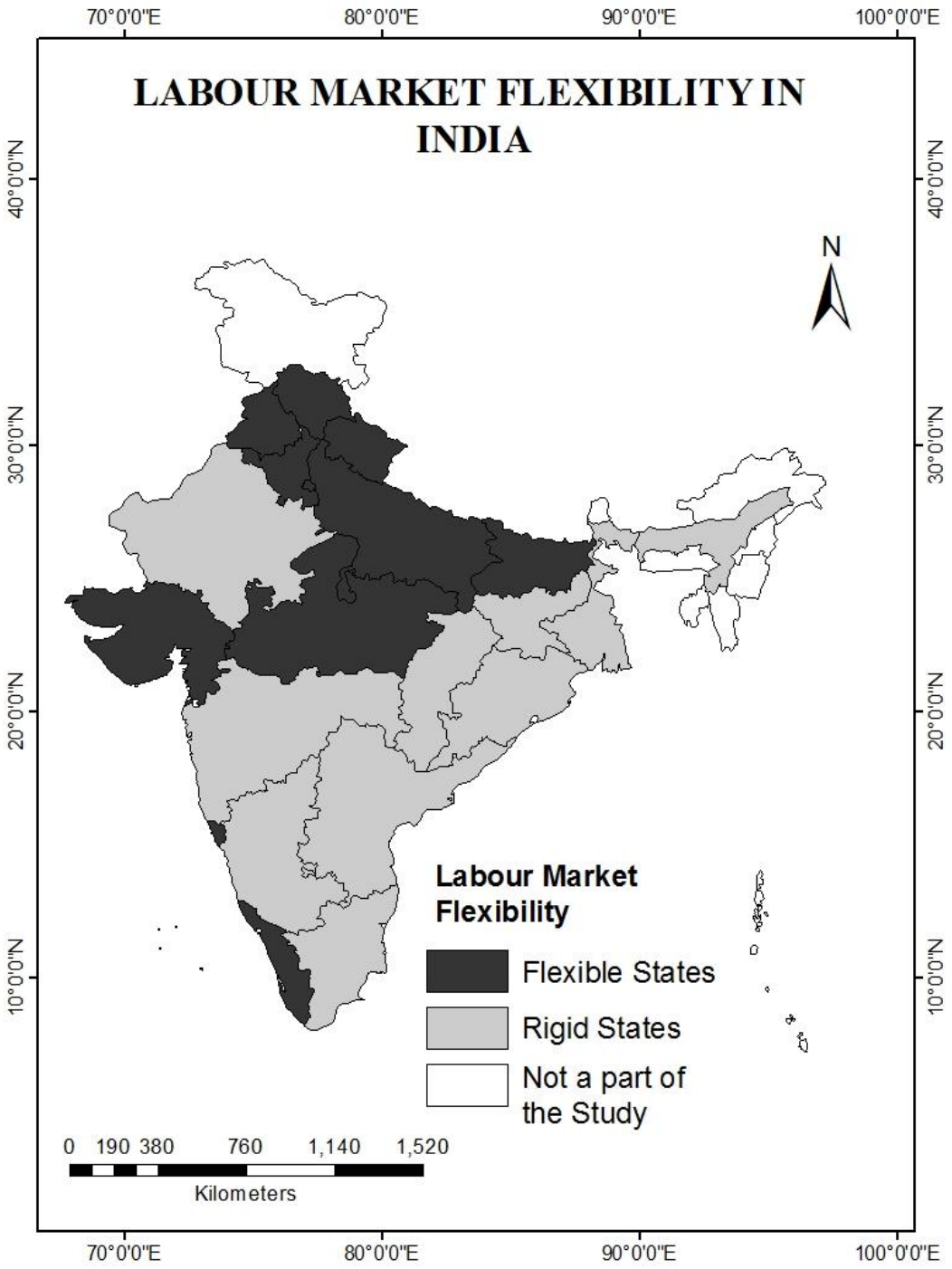
All the twenty-one states analysed in this study can be classified as "flexible" or "rigid" based on the average labour market flexibility index scores of each state during the period from 1998-99 to 2007-08. The states which have an average flexibility score for the entire period greater than or equal to the median state flexibility score are characterized as having a "flexible" labour market. Similarly, the states which have an average flexibility score for the entire period less than that of the median score are characterized as having a "rigid" labour market. Map 3.1 plots the twenty-one major states included in the study as having a rigid or flexible labour market based on the methodology discussed above. The states which have a flexible labour market include Uttar Pradesh, Gujarat, Haryana, Himachal Pradesh, Madhya Pradesh, Punjab, Delhi, Bihar, Kerala, Goa, and Uttarakhand. The states with a rigid labour market include Andhra Pradesh, Assam, Chhattisgarh, Jharkhand, Karnataka, Maharashtra, Orissa, Rajasthan, Tamil Nadu and West Bengal.

Table 3.1: State-wise labour market flexibility index scores (1998-99 to 2007-08).

State / YEAR	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08
Andhra Pradesh	0.400	0.419	0.404	0.319	0.324	0.301	0.409	0.301	0.319	0.350
Assam	0.296	0.261	0.288	0.327	0.251	0.250	0.269	0.343	0.250	0.250
Bihar	0.619	0.373	0.558	0.599	0.545	0.576	0.549	0.457	0.499	0.699
Chattisgarh	0.328	0.340	0.318	0.317	0.324	0.353	0.312	0.332	0.463	0.368
Delhi	0.605	0.510	0.566	0.561	0.508	0.540	0.584	0.408	0.544	0.597
Goa	0.496	0.615	0.693	0.797	0.606	0.511	0.450	0.445	0.659	0.584
Gujarat	0.513	0.492	0.534	0.523	0.482	0.517	0.527	0.409	0.497	0.517
Haryana	0.542	0.529	0.561	0.545	0.536	0.465	0.527	0.412	0.583	0.650
Himachal Pradesh	0.458	0.444	0.756	0.781	0.755	0.775	0.734	0.735	0.702	0.701
Jharkhand	0.323	0.336	0.343	0.306	0.316	0.363	0.441	0.374	0.313	0.342
Karnataka	0.475	0.489	0.510	0.479	0.436	0.468	0.583	0.374	0.477	0.528
Kerala	0.413	0.469	0.421	0.457	0.442	0.505	0.551	0.498	0.712	0.731
Madhya Pradesh	0.467	0.558	0.721	0.438	0.418	0.447	0.401	0.426	0.648	0.413
Maharashtra	0.383	0.385	0.409	0.411	0.359	0.338	0.344	0.265	0.369	0.446
Orissa	0.654	0.569	0.409	0.396	0.498	0.346	0.321	0.536	0.507	0.376
Punjab	0.746	0.972	0.694	0.668	0.651	0.646	0.661	0.647	0.585	0.629
Rajasthan	0.481	0.507	0.495	0.507	0.504	0.446	0.450	0.389	0.500	0.508
Tamil Nadu	0.406	0.402	0.405	0.380	0.364	0.401	0.369	0.327	0.378	0.451
Uttarakhand	0.538	0.515	0.401	0.649	0.527	0.533	0.616	0.408	0.606	0.678
Uttar Pradesh	0.769	0.672	0.855	0.884	0.784	0.640	0.838	0.537	0.808	0.982
West Bengal	0.066	0.040	0.048	0.048	0.038	0.068	0.025	0.033	0.173	0.335

Source: Author's Calculation based on the methodology, data and sources discussed in Chapter 2.

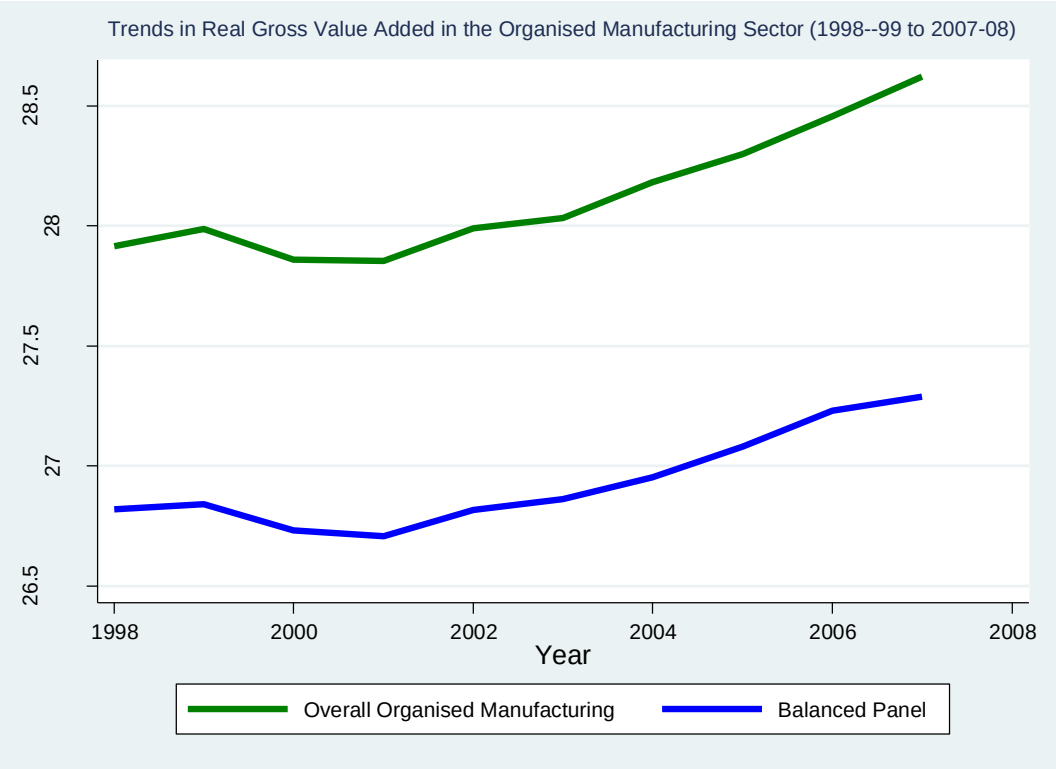
Map 3.1: Categorisation of the States in India as having a Flexible or a Rigid Labour Market.



Source: Author's contribution using the methodology discussed in section 3.2 for the categorization of the states based on the labour market flexibility.

Real gross value added (Output): The real output in the overall organised manufacturing sector grew at an impressive 8.17 % annually (CAGR) during the period from 1998-99 to 2007-08. The real output growth for the balanced panel was 5.33 % p.a. during the same period. The trends in real output growth for the overall manufacturing sector and balanced panel are shown in the figure 3.1. The organised manufacturing sector witnessed a decline during the first few years when the real output growth decelerated until 2001-02 and then experienced a sharp growth from 2001-02 to 2007-08.

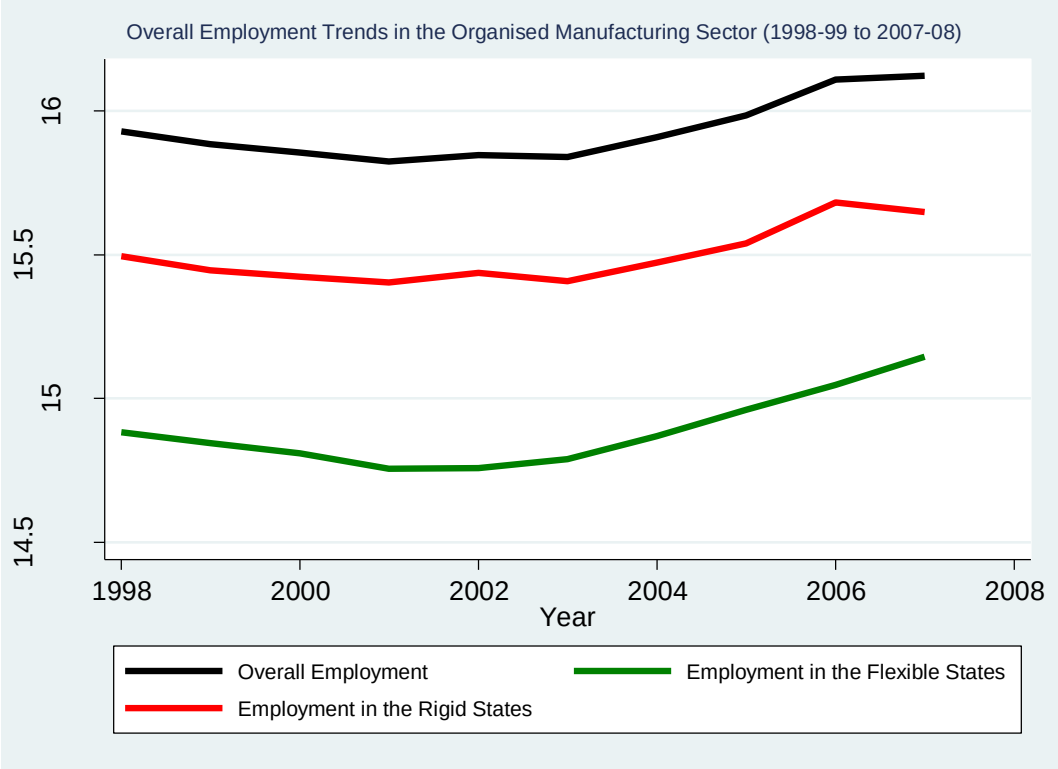
Figure 3.1: Year-wise Real Gross Value Added in the overall Organised Manufacturing Sector and the Balanced Panel of Plants (1998-99 to 2007-08).



Source: Author's calculation using ASI Panel data (1998-99 to 2007-08)

Trends in Employment: Employment growth averaged at a rate of 2.17 % p.a. (CAGR) during the period of the study. States with flexible labour markets experienced a growth of 2.9 % p.a. in employment. Employment in the rigid states grew slowly as compared to flexible states at a growth rate of 1.73% p.a. Figure 3.2 depicts that employment declined during the period from 1998-99 to 2002-03 and recovered after that. The decline in employment was steeper in the flexible states until 2002-03 when the sector witnessed a decline in real output growth (discussed earlier). When the output demand conditions improved in the sector during the period from 2002-03 to 2007-08, the flexible states experienced a more rapid employment growth as compared to rigid states. This clearly points out that employment adjustment is "sticky" in the rigid states and more volatile in the flexible states.

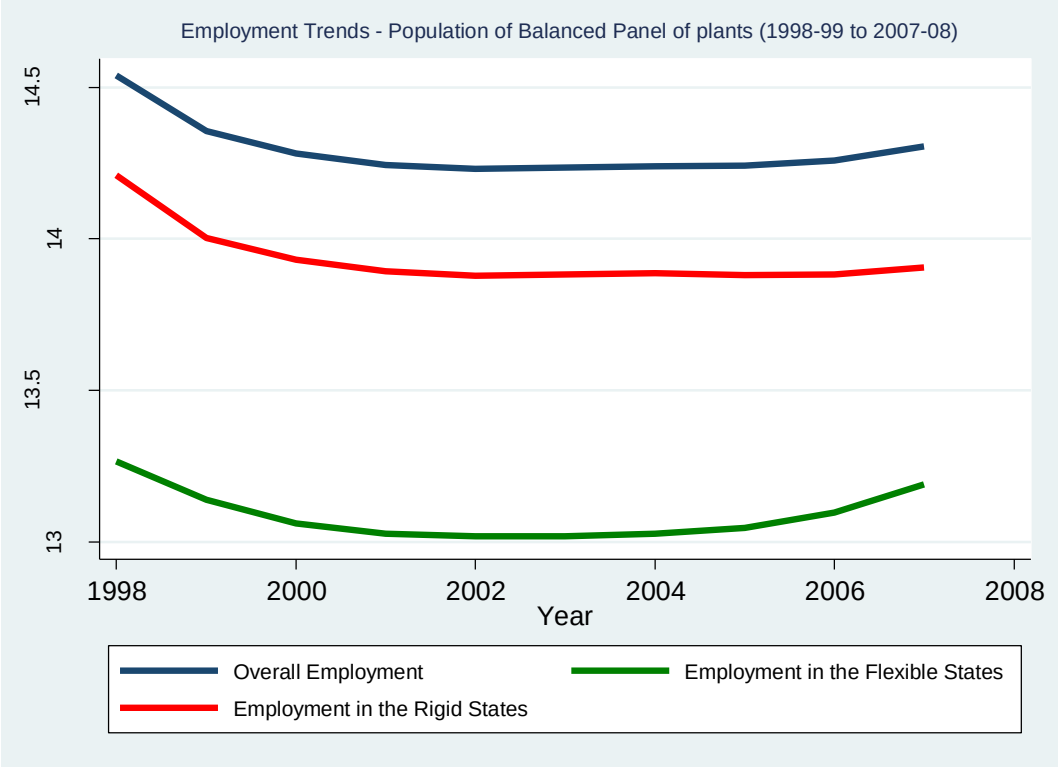
Figure: 3.2: Year-wise Total Employment in the overall Organised Manufacturing sector, Flexible States and Rigid States (1998-99 to 2007-08).



Source: Author's calculation using ASI Panel data (1998-99 to 2007-08).

However, the population estimates from the balanced panel of plants present a different picture. Figure 3.3 shows that employment growth in the balanced panel of plants couldn't recover properly in the post 2002-03 period when demand conditions improved for the sector. The overall employment declined until 2002-03, remained stagnant during the period from 2002-03 to 2005-06 and then witnessed a slight increase eventually in the final two years which was mainly driven by employment growth in the flexible states.

Figure 3.3: Year-wise Total Employment in the Balanced Panel of Plants, Flexible States and Rigid States (1998-99 to 2007-08).



Source: Author's calculation using ASI Panel data (1998-99 to 2007-08).

3.3 Panel Data Regression Results

The labour demand equation to be estimated takes the following specification, as already discussed in Chapter 2: Data and Methodology:

$$Ln(L_{iIst}) = \beta_1 Ln(Q_{iIst}) + \beta_2 Ln(W_{Ist}) + \beta_3 Ln(KI_{Ist}) + \beta_4 FlexIndex_{st} + \eta_i + \eta_t + \varepsilon_{iIst} \quad ..(1)$$

Where Ln represents natural logarithm; L denotes total employment or total persons engaged in the plant 'i', industry 'I', state 's', in the year 't'; W is the average emoluments per man-day worked received by employees of the industry 'I', in state 's' and year 't' to which the plant 'i' belong; KI is the capital intensity of the industry 'I', in state 's' and year 't' to which the plant 'i' belong; FlexIndex is the labour market flexibility index value of state 's' in the year 't'; η_i is the time-invariant individual specific plant effect which controls for unobserved individual heterogeneity; η_t is the plant-invariant year dummies to control for time-effects that are common to all the plants over the period which captures unobserved macroeconomic demand shocks and other macroeconomic policies that may have an impact on the industrial performance but is common to all plants; Ɛ is the pure idiosyncratic error term. First, the Hausman specification test is performed to select the appropriate model for estimating the labour demand equation (1).

3.3.1 Hausman Test Results

The result of the Hausman test for the balanced and unbalanced dataset are presented in Table 3.2 and Table 3.3, respectively. In both the cases, the p-value is less than 0.05 and therefore, we reject the null that Random Effect Model is suitable. So, the labour demand equation (1) is estimated here using the Fixed Effect Model for both balanced and unbalanced panel datasets.

Table 3.2: Hausman Specification Test for the Labour Demand Equation for Total employees from the Balanced Panel Sample.

```
                 ---- Coefficients ----
              |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
              |     fixed        random       Difference          S.E.
--------------+----------------------------------------------------------------
  Log_Output  |    .1420761     .2184976       -.0764215        .0015355
      Log_KI  |   -.0217488    -.0342896        .0125408        .0019404
Log_Emoluments |   -.1208753    -.0713198       -.0495556        .0031284
   FlexIndex  |    .0475198    -.0332161         .080736        .0091397
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg
    Test:  Ho:  difference in coefficients not systematic

                  chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =     2972.83
                Prob>chi2 =      0.0000
```

Source: Author's calculation using ASI Panel Data, 1998-99 to 2007-08.

Table 3.3: Hausman Specification Test for the Labour Demand Equation for Total employees from the Unbalanced Panel Sample.

```
                 ---- Coefficients ----
              |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
              |     fixed        random       Difference          S.E.
--------------+----------------------------------------------------------------
    Log_Output|    .2363634     .4304935      -.1941301        .0010046
        Log_KI|   -.0329792    -.0943134       .0613342        .0017188
Log_Emoluments|   -.0508424     .0240954      -.0749378        .0028084
     FlexIndex|    .0366365    -.0928434       .1294799        .0094568
------------------------------------------------------------------------------
                         b = consistent under Ho and Ha; obtained from xtreg
          B = inconsistent under Ha, efficient under Ho; obtained from xtreg
    Test:  Ho:  difference in coefficients not systematic

                  chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =    39591.60
                Prob>chi2 =      0.0000
```

Source: Author's calculation using ASI Panel Data, 1998-99 to 2007-08.

3.3.2 Fixed Effect Estimation Results

Before proceeding to model estimation, it is important to note that the Fixed Effect Model (FE) is based on "within transformation" that uses the time variation within each cross-section to study the relationship between dependent variable and explanatory variable (Torres-Reyna, 2013, p. 9; Wooldridge, 2002, p. 269). This property of FE estimator has an important implication for the labour demand equation to be estimated in this study. The FlexIndex variable in equation (1) measure the variation in relative state-level labour market flexibility over time. So, the coefficient of the FlexIndex variable calculated using FE estimator will explain the percentage change in employment due to a unit change in labour market flexibility within cross-sectional units (a factory/plant in this case), without providing any insight on the difference in employment outcomes between a flexible and a rigid labour market.

For a better understanding of the effect of labour market flexibility on employment, a simple modification is applied to the labour demand equation (1) to account for the difference in employment outcomes between a flexible and a rigid labour market in addition to the effect of variation in state-level labour market flexibility over time on employment. A dummy variable is introduced to overcome this shortcoming which characterises a state as having a flexible labour market if the average labour market flexibility index score of the state for the entire period is greater than or equal to the median state score over the period from 1998-99 to 2007-08. The flexible states are assigned a value equal to one and zero otherwise.

As the dummy variable is time invariant, it will be absorbed in the FE estimation like other time-invariant characteristics if introduced separately as an explanatory variable term in the equation. Therefore, the labour demand equation (1) is modified to introduce an interaction term involving the labour market flexibility dummy variable and the log of gross value added (output). A positive and statistically significant coefficient of this interaction term provides evidence that employment elasticity of output is higher in states with flexible labour market as compared to states with rigid labour market.

The modified labour demand equation takes the following form:

$$Ln(L_{iIst}) = \beta_1 Ln(Q_{iIst}) + \beta_2 Ln(W_{Ist}) + \beta_3 Ln(KI_{Ist}) + \beta_4 (Ln(Q_{iIst}) * FlexDummy_s) + \beta_5 FlexIndex_{st} + \eta_i + \eta_t + \varepsilon_{iIst} \quad \ldots (2)$$

Where FlexDummy is the labour market flexibility dummy variable. Rest all other specifications are same as earlier equation (1). Here, β_4 is the coefficient term that captures the effect of interaction term involving the labour market flexibility dummy variable and the log of output on the log of employment. Now, the employment elasticity with respect to output is measured by the sum of β_1 and β_4. In both the panel data samples, standard errors are adjusted for the clusters formed at plant-level by calculating "robust" variance estimates to address for any further within-group correlation which is left out after controlling for fixed effects in the model (Nichols and Schaffer, 2007; Wooldridge, 2002).

Table 3.4 presents the Fixed Effect regression results of the labour demand equation estimated for the Balanced Panel sample. The employment intensity or employment elasticity with respect to output in the balanced sample is found to be 0.14 ($\beta_1 + \beta_4$) during the period from 1998-99 to 2007-08 i.e. employment grew by just 0.14% with a percentage rise in output. The low value of the employment elasticity suggests that most of the gain in output is because of labour productivity gains in the medium and large continuing firms (Census scheme) of the organised manufacturing sector. The capital intensity has the expected negative sign on the coefficients which is statistically significant at 5% significance level. Rising capital intensity of production suggests that capital has displaced workers in the production process and has negatively affected the employment growth in the organised sector. Own price elasticity of employment i.e. with respect to real emoluments is also negative and statistically significant which suggests an adverse effect of rising emoluments on employment generation. However, the negative and statistically significant coefficient of the real emoluments term needs a careful interpretation. The period is marked by growth in both real emoluments as well as labour productivity and growth in labour productivity outpaced the growth in real emoluments, so it is unlikely that increase in compensation had a major bite on total employment generation.

The coefficient β_5 on the labour market flexibility index term is negative but statistically insignificant at 5% significance level which indicates that interstate variation in relative labour market flexibility over time didn't have a significant effect on employment outcome. Moreover, the coefficient on the interaction term between the log of output and labour market flexibility dummy is positive but again statistically insignificant at 5% significance level which indicates that elasticity of employment in the flexible States is no different than the elasticity in the rigid States. The insignificant interaction term further strengthens the evidence that labour market flexibility didn't have a significant effect on employment growth as in the balanced panel sample of firms. Most of the time dummies are statistically insignificant at 5 % level of significance except for the years 2002-03 and 2005-06 when employment growth lagged marginally as compared to the year 1998-99. The negative sign on most of the time dummies suggests that the overall improvement in the macroeconomic and demand conditions in the latter half of the period from 2004-05 onwards didn't have a significant effect on employment growth in the balanced panel sample of plants which represents medium and large continuing firms in the sector.

The Fixed Effect regression results for the unbalanced panel of plants covering the period from 1998-99 to 2007-08 is presented in Table 3.5. The employment elasticity or *employment intensity of growth* of the organised manufacturing sector estimated from the unbalanced panel of plants is 0.23 ($\beta_1 + \beta_4$) meaning that a percentage increase in output led to 0.23 % growth in employment. The effect of capital intensity is negative and significant, like the previous case, indicating that rising capital intensity in the organised sector has a bite on employment growth. The own-price elasticity of employment given by the coefficient of the log emoluments term is negative and significant, but again careful interpretation is needed as the employment elasticity is low enough to suggest a high growth rate of labour productivity. The magnitude β_2 of the own-price elasticity term in the unbalanced panel sample is about half the magnitude (0.06) as compared to that of the balanced panel case (0.11). The difference in the magnitude may be explained by the higher wages paid to the employees in large firms due to better bargaining power enjoyed by workers through unionisation. Also, the balanced panel sample has a greater proportion of Public sector firms as compared to the unbalanced sample and Public-sector firms pay a relatively higher labour compensation as compared to other firms.

Table 3.4: Fixed Effect regression result of the labour demand equation for Total Employees from the Balanced Panel sample.

```
Fixed-effects (within) regression               Number of obs      =     20470
Group variable: FACT_ID_no                      Number of groups   =      2047

R-sq:  within  = 0.1013                         Obs per group: min =        10
       between = 0.6060                                        avg =      10.0
       overall = 0.5491                                        max =        10

                                                F(14,2046)         =     32.21
corr(u_i, Xb)  = 0.6395                         Prob > F           =    0.0000

                                  (Std. Err. adjusted for 2047 clusters in FACT_ID_no)
------------------------------------------------------------------------------
                        |               Robust
         Log_Employment |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
------------------------+-----------------------------------------------------------------
             Log_Output |   .1372336   .0130858    10.49   0.000     .1115708    .1628965
                 Log_KI |  -.0210283   .0084556    -2.49   0.013    -.0376108   -.0044459
         Log_Emoluments |  -.1123846   .0168322    -6.68   0.000    -.1453947   -.0793745
              FlexIndex |  -.0096311   .0411658    -0.23   0.815    -.0903622    .0711001
                        |
FLEX_Dummy#c.Log_Output |
                      1 |   .0115368   .0173457     0.67   0.506    -.0224804    .0455539
                        |
                   YEAR |
                   1999 |   .0138443   .0076985     1.80   0.072    -.0012534    .0289421
                   2000 |   .0054757   .0086869     0.63   0.529    -.0115604    .0225118
                   2001 |  -.0147749   .0094405    -1.57   0.118    -.0332888     .003739
                   2002 |  -.0210848   .0102295    -2.06   0.039    -.0411461   -.0010235
                   2003 |  -.0102622   .0107931    -0.95   0.342    -.0314288    .0109045
                   2004 |   -.020897   .0113363    -1.84   0.065     -.043129    .0013349
                   2005 |   -.023993   .0120549    -1.99   0.047    -.0476342   -.0003518
                   2006 |  -.0168908   .0126369    -1.34   0.181    -.0416733    .0078916
                   2007 |   .0043292   .0138096     0.31   0.754     -.022753    .0314115
                  _cons |   4.306701   .2236481    19.26   0.000     3.868099    4.745302
------------------------+-----------------------------------------------------------------
                sigma_u |   1.088598
                sigma_e |  .27950308
                    rho |  .93815391   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Source: Author's calculation using ASI Panel Data 1998-99 to 2007-08.

The coefficient of the labour market flexibility term (FlexIndex) is statistically insignificant at 5 % level of significance, like the previous case, which indicates that variation in labour market flexibility over time didn't have a significant effect on employment growth. However, the interaction term between the log of output and labour market flexibility dummy β_4 presents an impressive result with a negative and statistically significant coefficient which indicates that employment elasticity of growth is, in fact, lower in "flexible" states as compared to the "rigid" states. This certainly challenges the view that higher labour market flexibility is associated with a higher employment growth. The reasons for lower employment elasticity in "flexible" states may be explained by the high turnover rate of workers which involve a higher separation rate, and a rising capital intensity of production. Unlike the balanced panel sample regression results, most of the time dummies are statistically significant at 5 % level in this case except for the year 2003-04. The sign on the time-dummies indicates that the earlier period from 1999-00 to 2003-04 is marked with a decline in employment growth as compared to the year 1998-99 which improved in the latter half of the period from 2004-05 onwards with improvement in the overall demand conditions.

If we consider the unbalanced panel sample as the representative of entire organised manufacturing population of firms and balanced panel sample as the representative of medium and large continuing firms belonging to census scheme (see Dougherty et al., 2014; Harrison et al., 2012), then a comparison between the two can provide some insightful inferences about the job generating potential of the sector. From the above discussion of regression results, it is clear that the overall employment performance has been rather weak in the organised manufacturing sector and more so in the medium and large continuing firms as reflected from the employment elasticity. The employment elasticity estimated from both the panel samples fall far too short of the value of 0.7 suggested by Khan (2001) in reference to labour abundant developing economies, indicating that the organised manufacturing sector didn't follow an employment-intensive path, and growth in labour productivity leads much of the output growth.

Table 3.5: Fixed Effect regression result of the labour demand equation for Total Employees from the Unbalanced Panel sample.

```
Fixed-effects (within) regression               Number of obs      =    297489
Group variable: FACT_ID_no                      Number of groups   =    129217

R-sq:  within  = 0.1816                         Obs per group: min =         1
       between = 0.6597                                        avg =       2.3
       overall = 0.7044                                        max =        10

                                                F(14,129216)       =    645.19
corr(u_i, Xb)  = 0.7052                         Prob > F           =    0.0000

                                 (Std. Err. adjusted for 129217 clusters in FACT_ID_no)
------------------------------------------------------------------------------
                        |               Robust
         Log_Employment |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
------------------------+------------------------------------------------------------------
             Log_Output |   .2400695   .0036947    64.98   0.000      .232828     .247311
                 Log_KI |  -.0372982   .0026617   -14.01   0.000     -.042515   -.0320814
         Log_Emoluments |  -.0651782   .0051236   -12.72   0.000    -.0752203   -.0551361
              FlexIndex |  -.0035538   .0160903    -0.22   0.825    -.0350906     .027983
                        |
FLEX_Dummy#c.Log_Output |
                      1 |  -.0132105   .0052863    -2.50   0.012    -.0235715   -.0028495
                        |
                   YEAR |
                   1999 |  -.0114577   .0050722    -2.26   0.024    -.0213992   -.0015163
                   2000 |  -.0165276    .005029    -3.29   0.001    -.0263843   -.0066709
                   2001 |   -.04064   .0051362    -7.91   0.000    -.0507069   -.0305731
                   2002 |  -.0418451   .0052398    -7.99   0.000     -.052115   -.0315752
                   2003 |  -.0069848   .0053228    -1.31   0.189    -.0174173    .0034478
                   2004 |   .0233371   .0055031     4.24   0.000     .0125511    .0341232
                   2005 |   .0201736   .0058027     3.48   0.001     .0088005    .0315468
                   2006 |   .0317841    .005771     5.51   0.000     .0204731    .0430951
                   2007 |   .0479127   .0061147     7.84   0.000     .0359281    .0598973
                        |
                  _cons |   1.149027   .0570114    20.15   0.000     1.037285    1.260768
------------------------+------------------------------------------------------------------
                sigma_u |  .96204987
                sigma_e |  .37403238
                    rho |  .86869256   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Source: Author's calculation using ASI Panel Data, 1998-99 to 2007-08.

The rising capital intensity in the production process has adversely affected the employment growth in the organised manufacturing sector in India. The regression exercise suggested no evidence in support of a significant effect of labour market flexibility on employment growth in the case of medium and large continuing firms which are more likely to be affected by stringent labour regulations. Moreover, results from the unbalanced panel indicate that employment elasticity was lower in "flexible" States as compared to the "rigid" States. This, in fact, demonstrates that greater flexibility is associated with lowering the employment growth as against increasing it as suggested by many in the literature who argue against India's stringency of employment protection legislations.

Chapter 4: Segmentation within the Organised Manufacturing Sector – Findings and Analyses

4.1 Introduction

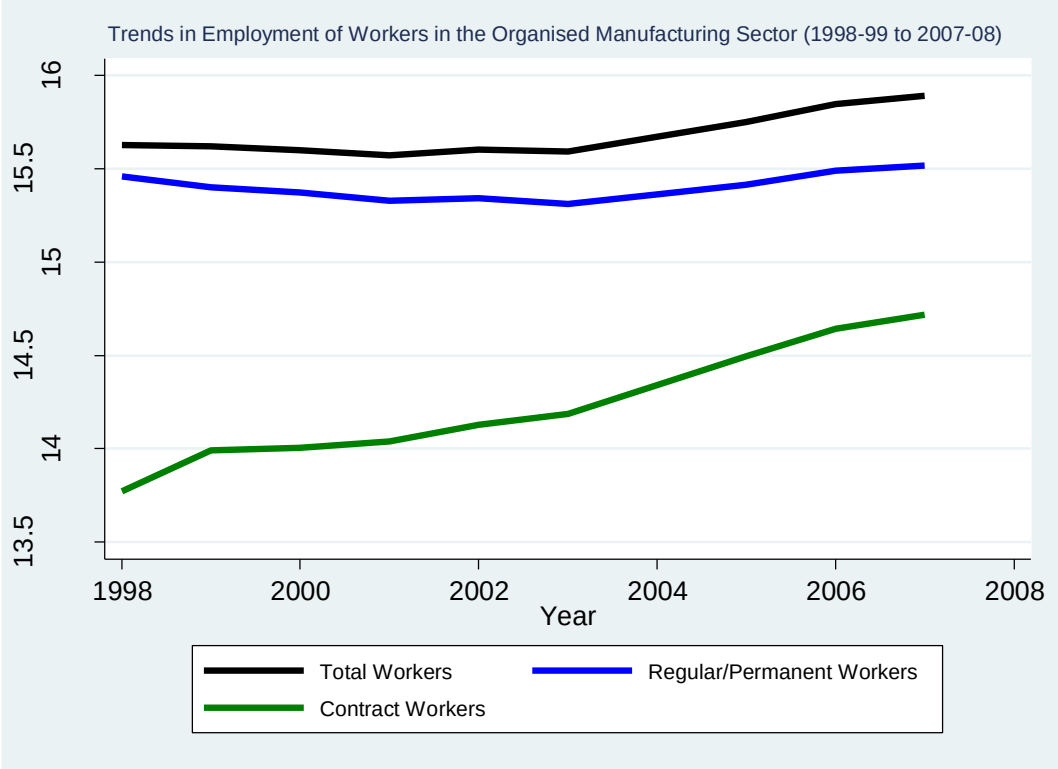
This chapter studies the segmentation within the organised manufacturing sector concerning limited employment growth of regular/permanent workers and the increasing employment of contract workers. While the previous chapter dealt with the overall employment performance, this chapter provides additional useful insights into the quality of the jobs being generated in the organised sector by assessing employment outcome for regular workers, which is a proxy for "decent" jobs, and low-quality contract employments. An econometric analysis has been used to study the role of labour market rigidity in explaining the increasing segmentation within the sector. The chapter begins with a discussion on stylized facts about trends in the employment of contract workers, regular workers and segmentation within the organised manufacturing sector during the period 1998-99 to 2007-08. Like the previous chapter, the estimates are presented for the overall organised manufacturing sector as well as the population estimates for the balanced panel of plants which is obtained by using the "multiplier" weights or inverse sampling weights provided with the data by ASI. The population estimates from the balanced panel of plants represent estimates for the medium and large continuing plants during the period of the study.

4.2 Stylized Facts

Employment of total workers in the organised manufacturing sector grew at an average rate of 2.9 % p.a. between 1998-99 and 2007-08. However, the growth rate of employment of regular workers was only 0.6 % p.a. and the overall employment of workers was mainly driven by the growth of contract workers which grew at a massive rate of 11.12 % p.a. during the period. Figure 4.1 presents the trends in employment of total workers, regular workers and contract workers separately. It can be noticed from the figure 4.1 that employment of contract workers increased continuously, even during the period of slowdown in output demand between 1998-99 to 2002-03 and the

employment of regular/permanent workers recovered only marginally in the post 2002-03 period when output growth increased sharply.

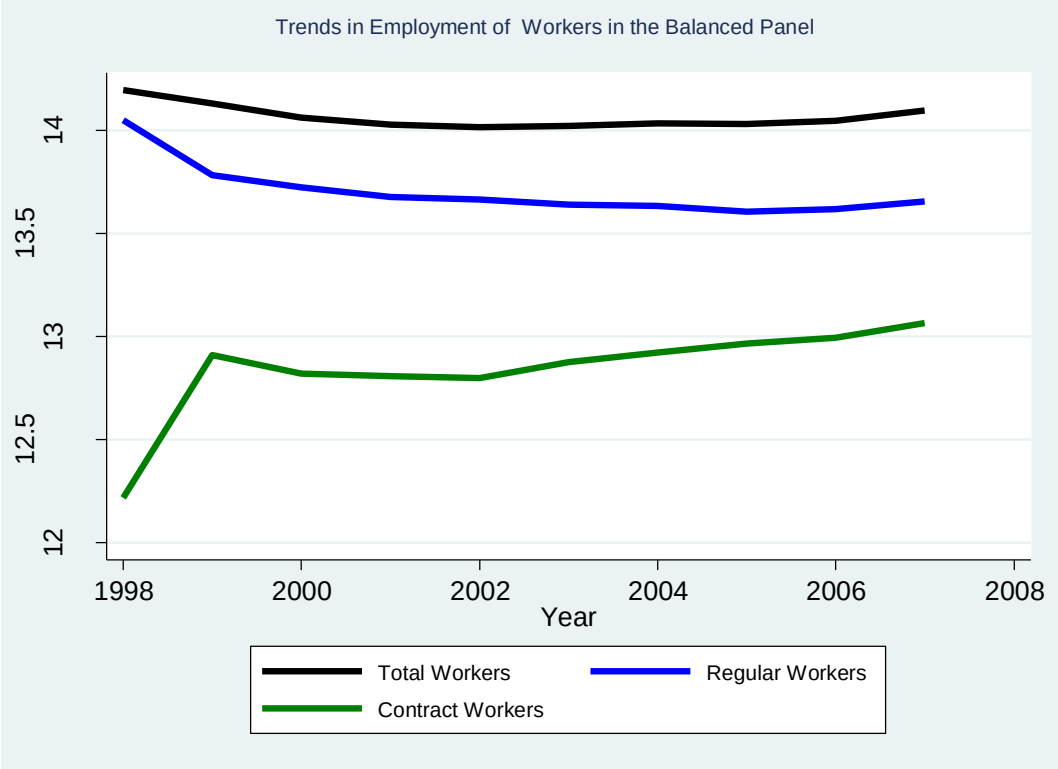
Figure 4.1: Employment of Total Workers, Regular Workers and Contract Workers in the overall Organised Manufacturing Sector (1998-99 to 2007-08).



Source: Author's calculation using ASI Panel data (1998-99 to 2007-08).

Estimates from the balanced panel representing the population of medium and large continuing firms are shown in figure 4.2. The estimates show an alarming declining trend in the employment of workers. The marginal increase in the employment of workers in the post 2002-03 period has been mainly driven by the acceleration in the employment of contract workers, and the employment of regular workers has declined continuously throughout the period except for a moderate recovery after 2006-07.

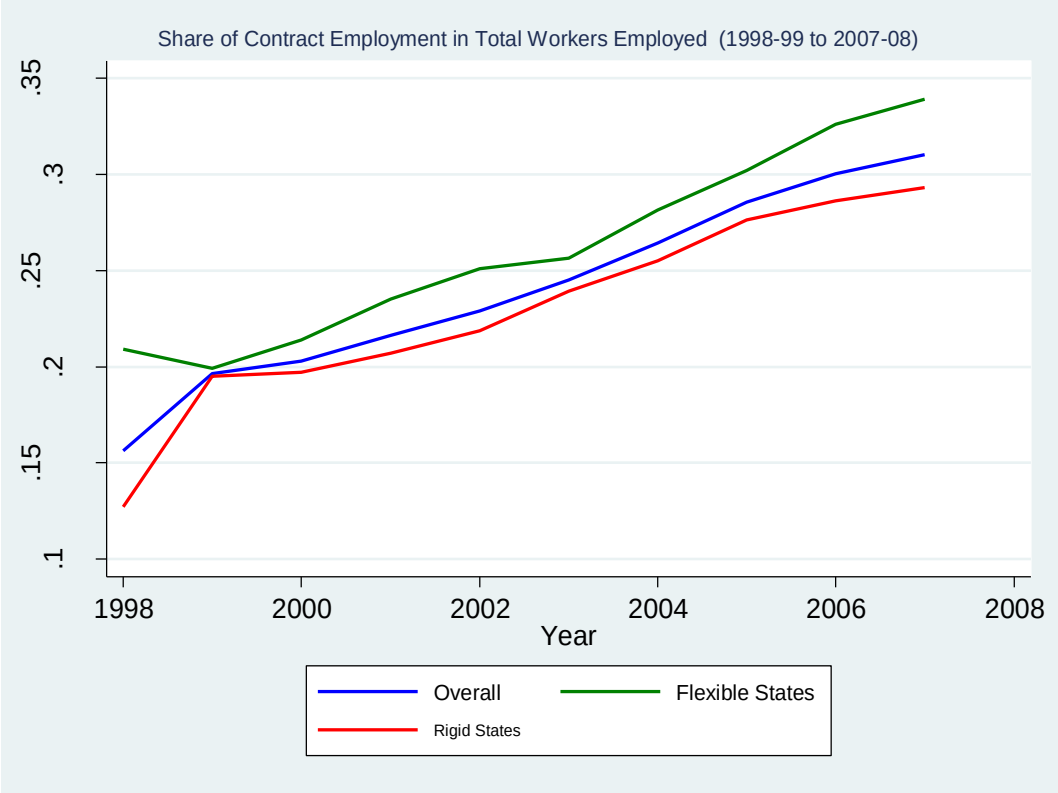
Figure 4.2: Employment of Total Workers, Regular Workers and Contract Workers in the Balanced Panel of Plants (1998-99 to 2007-08).



Source: Author's calculation using ASI Panel data (1998-99 to 2007-08).

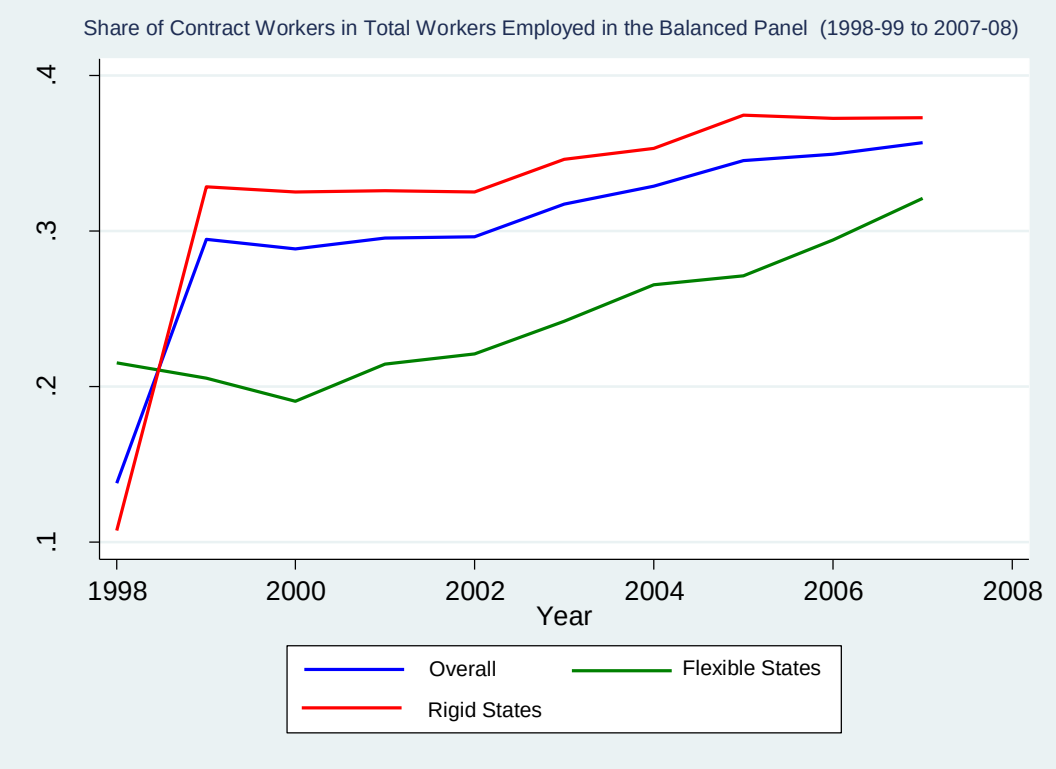
The proportion of contract workers in total workers employed increased from 15.62 % in 1998-99 to 31.03 % in 2007-08 in the organised manufacturing sector. The flexible states had a greater proportion of contract employment as compared to rigid states throughout the period which clearly contradicts the popular belief that labour market rigidity is associated with higher contractual employment (see figure 4.3). The proportion of contract workers in the flexible states increased from 20.9 % in 1998-99 to 33.91 % in 2007-08 and the proportion in the rigid states increased from 12.71 % in 1998-99 to 29.3 % in 2007-08. However, the estimates from the balanced panel presented in figure 4.4 indicate a different picture. Though the proportion of contract workers in total workers employed increased continuously throughout the period, the proportion was higher in rigid states as compared to flexible states which indicate that medium and large continuing firms in the rigid states have increased employment of contractual workers more rapidly.

Figure 4.3: Proportion of Contract workers employed in the overall Organised Manufacturing Sector, Flexible States and Rigid States (1998-99 to 2007-08).



Source: Author's calculation using ASI Panel data (1998-99 to 2007-08).

Figure 4.4: Proportion of Contract Worker employed in the Balanced panel of plants, Flexible States and Rigid States (1998-99 to 2007-08).



Source: Author's calculation using ASI Panel data (1998-99 to 2007-08).

4.3 Panel Data Regression Results

Based on the methodology discussed in chapter 2, two separate labour demand equations for regular workers and total workers (contract workers and regular workers combined) have been estimated using panel data regression technique with the following specification:

$$Ln(RW_{iIst}) = \gamma_1 Ln(Q_{iIst}) + \gamma_2 Ln(W_{Ist}) + \gamma_3 Ln(KI_{Ist}) + \gamma_4 FlexIndex_{st} + \eta_i + \eta_t + \varepsilon_{iIst} \quad ..(1)$$

And,

$$Ln(TW_{iIst}) = \delta_1 Ln(Q_{iIst}) + \delta_2 Ln(W_{Ist}) + \delta_3 Ln(KI_{Ist}) + \delta_4 FlexIndex_{st} + \eta_i + \eta_t + \varepsilon_{iIst} \quad ..(2)$$

Where Ln represents natural logarithm; RW denotes Regular or permanent workers employed in the plant 'i', industry 'I', state 's', in the year 't'; TW denotes Total Workers employed in the plant 'i', industry 'I', state 's', in the year 't'; W is the average wages per man-day worked received by employees of the industry 'I', in state 's' and year 't' to which the plant 'i' belong; KI is the capital intensity of the industry 'I', in state 's' and year 't' to which the plant 'i' belong; FlexIndex is the labour market flexibility index value of state 's' in the year 't'; η_i is the time-invariant individual specific plant effect; η_t is the plant-invariant year dummies to control for time-effects that are common to all the plants over the period; ε is the idiosyncratic error term.

As explained earlier in Chapter 2, a higher value of δ_1 as compared to γ_1 indicate that there is a gap in the employment intensity of growth for regular/permanent workers and total workers employed which is attributable to the rising use of contract workers. A positive and statistically significant value of the coefficient of FlexIndex variable in the equation (1) for regular workers γ_4 will provide evidence for the role of labour market rigidities in explaining segmentation within the organised manufacturing sector. It is assumed here that if labour market rigidities are responsible for segmentation regarding rising use of contract workers vis-à-vis regular workers, then increase in flexibility should be associated with higher employment of regular workers (see chapter 2, section 2.3 for a discussion on this).

4.3.1 Hausman Test Results

Hausman specification test results for the two labour demand equations for the balanced and unbalanced panel datasets are reported in Tables 4.1 to 4.4. All the results indicate a significant p-value (less than 0.05) to reject the null hypothesis that Random Effect Model is suitable for estimation and hence, both the equations for the two samples are estimated using the Fixed Effect model.

Table 4.1: Hausman Specification Test for the Labour Demand Equation for Regular Workers from the Balanced Panel Sample.

```
                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |     fixed        random       Difference          S.E.
-------------+------------------------------------------------------------
  Log_Output |    .1460582     .2170777       -.0710195        .0017059
      Log_KI |   -.0348481    -.0532777        .0184297        .0021906
   Log_Wages |   -.1268888     -.091697       -.0351919        .0038832
   FlexIndex |    .0472326    -.0467383        .0939709        .0100742
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg
    Test:  Ho:  difference in coefficients not systematic

                  chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =     2335.27
                Prob>chi2 =      0.0000
```

Source: Author's calculation using ASI Panel Data, 1998-99 to 2007-08.

Table 4.2: Hausman Specification Test for the Labour Demand Equation for Regular Workers from the Unbalanced Panel Sample.

```
                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |     fixed        random       Difference          S.E.
-------------+------------------------------------------------------------
  Log_Output |    .2467105     .4357046        -.188994        .0011946
      Log_KI |   -.0448823     -.118347        .0734648        .0020277
   Log_Wages |   -.0689615    -.0636177       -.0053437        .0035782
   FlexIndex |    .0233523    -.0963638        .1197161        .0111536
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg
    Test:  Ho:  difference in coefficients not systematic

                  chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =    28032.25
                Prob>chi2 =      0.0000
```

Source: Author's calculation using ASI Panel Data, 1998-99 to 2007-08.

Table 4.3: Hausman Specification Test for the Labour Demand Equation for Total Workers (Contract & Regular combined) from the Balanced Panel Sample.

```
                ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |     fixed        random       Difference          S.E.
-------------+------------------------------------------------------------
  Log_Output |    .1243273     .2132007       -.0888734         .002671
      Log_KI |    -.062633    -.0658879        .0032549        .0034555
   Log_Wages |   -.1125658    -.0502205       -.0623453        .0058777
   FlexIndex |    .0882195    -.0548317        .1430512         .016168
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg
    Test:  Ho:  difference in coefficients not systematic

                  chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =     1296.12
                Prob>chi2 =      0.0000
```

Source: Author's calculation using ASI Panel Data, 1998-99 to 2007-08.

Table 4.4: Hausman Specification Test for the Labour Demand Equation for Total Workers (Contract & Regular combined) from the Unbalanced Panel Sample.

```
                ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |     fixed        random       Difference          S.E.
-------------+------------------------------------------------------------
  Log_Output |    .2023588     .3872371       -.1848783        .0014952
      Log_KI |   -.0336874    -.0932593        .0595719        .0025411
   Log_Wages |   -.0534102     .0016893       -.0550995        .0042535
   FlexIndex |    .0733095    -.1428298        .2161393        .0140036
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg
    Test:  Ho:  difference in coefficients not systematic
                  chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =    16405.90
                Prob>chi2 =      0.0000
```

Source: Author's calculation using ASI Panel Data, 1998-99 to 2007-08.

4.3.2 Fixed Effect Estimation Results

Again, due to the limiting nature of FE estimators in estimating only the "within" effects, modification strategy adopted in the previous chapter have been followed here as well. The two labour demand equations (1) and (2) specified earlier are modified to incorporate an interaction term involving the labour market flexibility dummy variable and the log of employment. The FlexIndex variable in the equations will measure the effect of variation in relative state-level labour market flexibility over time on employment outcomes for the regular and total workers. The interaction term will provide insight on the difference in employment outcomes for the regular and total workers between the "flexible" and rigid "rigid" State during the period. The modified equations with the additional interaction term are specified as follows:

$$Ln(RW_{iIst}) = \gamma_1 Ln(Q_{iIst}) + \gamma_2 Ln(W_{Ist}) + \gamma_3 (Ln(Q_{iIst}) * FlexDummy_s) + \gamma_4 Ln(KI_{Ist}) + \gamma_5 FlexIndex_{st} + \eta_i + \eta_t + \varepsilon_{iIst} \quad \ldots (3)$$

$$Ln(TW_{iIst}) = \delta_1 Ln(Q_{iIst}) + \delta_2 Ln(W_{Ist}) + \delta_3 (Ln(Q_{iIst}) * FlexDummy_s) + \delta_4 Ln(KI_{Ist}) + \delta_5 FlexIndex_{st} + \eta_i + \eta_t + \varepsilon_{iIst} \quad \ldots (4)$$

Where FlexDummy is the labour market flexibility dummy variable giving a score of one to "flexible" states and zero to "rigid" states. Rest all other specifications are same as for the equations (1) and (2) discussed earlier. Here, γ_3 and δ_3 are the coefficient terms that capture the effect of interaction term involving the labour market flexibility dummy variable and the log of output on the log of Regular Workers employed and Total Workers employed, respectively. Now, the employment elasticity of regular workers on output is measured by the sum of γ_1 and γ_3, and the employment elasticity of total workers (contract and regular combined) is measured by the sum of δ_1 and δ_3. Like the previous case, Standard errors are adjusted for the clusters formed at the plant-level for the reasons explained earlier.

Table 4.5 and Table 4.6 presents the Fixed Effect regression results estimated from the balanced panel sample for regular workers and total workers, respectively. The employment intensity or employment elasticity with respect to output for the regular workers is 0.12 during the period from 1998-99 to 2007-08 i.e. employment grew by just 0.12 % for regular workers with a one percent growth in output. The employment

intensity of growth or employment elasticity of total workers during the same period is found to be 0.14 i.e. employment of total workers grew by 0.14 % with a percentage growth in output. The difference in employment elasticities indicates a gap in the employment growth of regular workers and total workers which is attributable to the increasing employment of contract workers. The coefficients on the log of wages and the log of capital intensity are both negative and statistically significant at 5 % level of significance.

The balanced sample contains medium and large firms which are more likely to be affected by labour market rigidities, and statistically significant coefficients of the labour market flexibility variable and the interaction term would provide evidence that labour market rigidities are, in fact, responsible for segmentation. Both the coefficient of FlexIndex variable (δ_5 and γ_5) and the interaction term between the log of output and labour market flexibility dummy (δ_3 and γ_3) are statistically insignificant at 5 % level of significance. This clearly indicates that the variation in State-level relative labour market flexibility over time is not associated with employment growth of regular workers. Also, the statistically insignificant interaction term suggests that there is no difference in the employment elasticity with respect to output for regular workers between a "flexible" State and a "rigid" state. Both these facts support the hypothesis that labour market rigidity is not associated with rising segmentation in the organised manufacturing sector.

Table 4.5: Fixed Effect regression result of the labour demand equation for the Regular Workers using the Balanced Panel sample.

```
Fixed-effects (within) regression               Number of obs      =     20470
Group variable: FACT_ID_no                      Number of groups   =      2047

R-sq:  within  = 0.0393                         Obs per group: min =        10
       between = 0.5681                                        avg =      10.0
       overall = 0.4724                                        max =        10

                                                F(14,2046)         =     17.15
corr(u_i, Xb)  = 0.6219                         Prob > F           =    0.0000

                                    (Std. Err. adjusted for 2047 clusters in FACT_ID_no)
------------------------------------------------------------------------------
                        |               Robust
    Log_Regular_Workers |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
------------------------+------------------------------------------------------------------
             Log_Output |   .1285651   .0154755     8.31   0.000     .0982157    .1589144
                 Log_KI |  -.046999   .0112944    -4.16   0.000    -.0691487   -.0248493
  Log_Wages_Reg_Workers |  -.0800619   .0250016    -3.20   0.001    -.1290932   -.0310306
              FlexIndex |   .0139718   .0546596     0.26   0.798    -.0932224     .121166
                        |
FLEX_Dummy#c.Log_Output |
                      1 |  -.0050445   .0221093    -0.23   0.820    -.0484036    .0383145
                        |
                   YEAR |
                   1999 |  -.016222   .0139652    -1.16   0.246    -.0436094    .0111654
                   2000 |  -.035154   .0151899    -2.31   0.021    -.0649433   -.0053648
                   2001 |  -.058978   .0162381    -3.63   0.000    -.0908229   -.0271331
                   2002 | -.0839225   .0182121    -4.61   0.000    -.1196386   -.0482064
                   2003 | -.0882601    .018558    -4.76   0.000    -.1246546   -.0518656
                   2004 | -.0941463   .0201151    -4.68   0.000    -.1335946    -.054698
                   2005 | -.1091347   .0195181    -5.59   0.000    -.1474121   -.0708573
                   2006 | -.1046624    .020355    -5.14   0.000     -.144581   -.0647438
                   2007 | -.0977418   .0219195    -4.46   0.000    -.1407287   -.0547548
                        |
                  _cons |  4.135977   .2635912    15.69   0.000     3.619042    4.652912
------------------------+------------------------------------------------------------------
                sigma_u |   1.222663
                sigma_e |  .46297204
                    rho |    .874598   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Source: Author's calculation using ASI Panel Data, 1998-99 to 2007-08.

Table 4.6: Fixed Effect regression result of the labour demand equation for Total Workers (Contract & Regular combined) using the Balanced Panel sample.

```
Fixed-effects (within) regression               Number of obs      =     20470
Group variable: FACT_ID_no                      Number of groups   =      2047

R-sq:  within  = 0.0864                         Obs per group: min =        10
       between = 0.4549                                        avg =      10.0
       overall = 0.4164                                        max =        10

                                                F(14,2046)         =     28.74
corr(u_i, Xb)  = 0.4996                         Prob > F           =    0.0000

                                    (Std. Err. adjusted for 2047 clusters in FACT_ID_no)
------------------------------------------------------------------------------
                        |               Robust
       Log_Tot_Workers |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
------------------------+------------------------------------------------------------------
            Log_Output |   .1392088   .0137641    10.11   0.000     .1122158    .1662018
                Log_KI |  -.0339675   .0092367    -3.68   0.000    -.0520818   -.0158532
     Log_Wages_Workers |  -.1250717   .0189914    -6.59   0.000    -.1623162   -.0878271
             FlexIndex |  -.0030593    .046975    -0.07   0.948    -.0951832    .0890645
                       |
FLEX_Dummy#c.Log_Output |
                     1 |   .0170264   .0186168     0.91   0.361    -.0194834    .0535362
                       |
                  YEAR |
                 1999  |   .0296604   .0078497     3.78   0.000     .0142661    .0450548
                 2000  |    .012369   .0090552     1.37   0.172    -.0053894    .0301273
                 2001  |  -.0074996      .0098    -0.77   0.444    -.0267186    .0117195
                 2002  |  -.0149013   .0107434    -1.39   0.166    -.0359703    .0061678
                 2003  |  -.0011329   .0113869    -0.10   0.921    -.0234641    .0211983
                 2004  |  -.0106029   .0121965    -0.87   0.385    -.0345217    .0133159
                 2005  |  -.0150236   .0130893    -1.15   0.251    -.0406935    .0106462
                 2006  |  -.0085396   .0135769    -0.63   0.529    -.0351656    .0180864
                 2007  |   .0073575    .014985     0.49   0.623      -.02203    .0367449
                       |
                 _cons |   4.136017    .240332    17.21   0.000     3.664696    4.607338
------------------------+------------------------------------------------------------------
               sigma_u |  1.1287504
               sigma_e |  .31485664
                   rho |  .92780816   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Source: Author's calculation using ASI Panel Data, 1998-99 to 2007-08.

All the time dummies in the labour demand equation (3) for regular workers from 2000-01 onwards are negative and statistically significant (see Table 4.5) suggesting that the demand for regular workers have not increased much over time and have remained significantly below the employment level of regular workers in 1998-99. This indicates that employers are cutting on regular employments and preferring contract workers in medium and large size firms. Since labour market flexibility didn't have a statistically significant effect on employment of regular workers and failed to explain segmentation, we can attribute the rising preference for contract workers vis-a-vis their regular counterparts to cost minimization strategy of the firms. Contract workers are paid typically lesser and hence; it helps employers to save on this part and increase their cost competitiveness.

The regression results from the unbalanced panel sample of plants presented in tables 4.7 and 4.8 further reassure the finding that labour market rigidity is not associated with increasing segmentation within the organised manufacturing sector. The employment elasticity for the regular workers and total workers are 0.20 and 0.24, respectively. This gap in the employment elasticity indicates the growing segmentation within the organised manufacturing sector. The coefficient on the FlexIndex variable is again found to be statistically insignificant in explaining the demand for regular workers indicating that relative variation in State-level labour market flexibility over time is not associated with employment growth of regular workers or total workers. But interestingly, the coefficient on the interaction term γ_3 is negative and statistically significant which suggests that growth in employment of regular workers was, in fact, lower in "flexible" States as compared to the "rigid" states indicating that labour market flexibility rather increased segmentation. The low value of employment growth for regular workers in the flexible states can be explained by the high turnover rate among directly employed workers which include a high separation rate. Given the fact that flexible labour markets are associated with a lower employment of regular workers as compared to a rigid labour market, we can infer that labour market rigidities are not responsible for segmentation within the organised manufacturing sector. Contract workers should be seen as providing relatively cheaper inputs to the firms rather than just substitutes for "highly protected" regular workers.

The time dummies in the result further signal the rising segmentation within the sector. Time dummies in the labour demand estimation of regular workers (see Table 4.7) are all significant and negative from 2000-01 onwards, indicating that employment of regular workers is continuously decreasing as compared to the level in 1998-99 including the latter half of the decade when the demand for output and macroeconomic environment improved significantly. The time dummies in the labour demand estimation for total workers (see Table 4.8) turned from negative and statistically significant in the first half of the period (2001-02 and 2002-03) to positive and statistically significant in the latter half indicating that overall demand for workers improved with the improvement in demand conditions and macroeconomic environment. But as we saw noticed that the time dummies for the regular workers are negative, this suggests that the rise in employment of workers in the latter half of the period was driven by the rising employment of contract workers.

Table 4.7: Fixed Effect regression result of the labour demand equation for Regular Workers using the Unbalanced Panel sample.

```
Fixed-effects (within) regression               Number of obs      =    297489
Group variable: FACT_ID_no                      Number of groups   =    129217

R-sq:  within  = 0.0663                         Obs per group: min =         1
       between = 0.4175                                        avg =       2.3
       overall = 0.4894                                        max =        10

                                                F(14,129216)       =    319.82
corr(u_i, Xb)  = 0.5429                         Prob > F           =    0.0000

                                  (Std. Err. adjusted for 129217 clusters in FACT_ID_no)
------------------------------------------------------------------------------
                        |               Robust
    Log_Regular_Workers |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
------------------------+------------------------------------------------------------------
             Log_Output |   .2075975    .004426    46.90   0.000     .1989226    .2162724
                 Log_KI |  -.0311777   .0038506    -8.10   0.000    -.0387248   -.0236307
  Log_Wages_Reg_Workers |  -.0442718   .0080703    -5.49   0.000    -.0600894   -.0284541
              FlexIndex |   .0005336   .0229518     0.02   0.981    -.0444515    .0455187
                        |
FLEX_Dummy#c.Log_Output |
                      1 |  -.0181723   .0063346    -2.87   0.004    -.0305879   -.0057567
                        |
                   YEAR |
                   1999 |  -.0080874   .0072141    -1.12   0.262     -.022227    .0060521
                   2000 |  -.0249649   .0072903    -3.42   0.001    -.0392537    -.010676
                   2001 |  -.0557869   .0075184    -7.42   0.000    -.0705229    -.041051
                   2002 |  -.0763121   .0076934    -9.92   0.000    -.0913911   -.0612332
                   2003 |  -.0658031   .0077553    -8.48   0.000    -.0810033   -.0506029
                   2004 |  -.0443907   .0080497    -5.51   0.000    -.0601681   -.0286134
                   2005 |  -.0532809   .0084208    -6.33   0.000    -.0697855   -.0367763
                   2006 |  -.0474923   .0085186    -5.58   0.000    -.0641887    -.030796
                   2007 |  -.0334395    .008995    -3.72   0.000    -.0510695   -.0158094
                        |
                  _cons |   .8113409   .0767408    10.57   0.000     .6609302    .9617516
------------------------+------------------------------------------------------------------
                sigma_u |  1.1856895
                sigma_e |  .56657891
                    rho |  .81410793   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Source: Author's calculation using ASI Panel Data, 1998-99 to 2007-08.

Table 4.8: Fixed Effect regression result of the labour demand equation for Total Workers (Contract & Regular combined) using the Unbalanced Panel sample.

```
Fixed-effects (within) regression               Number of obs      =    297489
Group variable: FACT_ID_no                      Number of groups   =    129217

R-sq:  within  = 0.1472                         Obs per group: min =         1
       between = 0.5983                                        avg =       2.3
       overall = 0.6518                                        max =        10

                                                F(14,129216)       =    571.77
corr(u_i, Xb)  = 0.6520                         Prob > F           =    0.0000

                                  (Std. Err. adjusted for 129217 clusters in
FACT_ID_no)
------------------------------------------------------------------------------
                         |               Robust
        Log_Tot_Workers |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
------------------------+-----------------------------------------------------------------
             Log_Output |   .2492054   .0040588    61.40   0.000     .2412502    .2571607
                 Log_KI |  -.0497247   .0031814   -15.63   0.000    -.0559601   -.0434893
      Log_Wages_Workers |  -.0751653   .0068417   -10.99   0.000    -.0885749   -.0617557
              FlexIndex |  -.0189481   .0188191    -1.01   0.314    -.0558331     .017937
                        |
FLEX_Dummy#c.Log_Output |
                      1 |  -.0104393   .0058222    -1.79   0.073    -.0218506    .0009721
                        |
                   YEAR |
                   1999 |  -.0032824   .0059444    -0.55   0.581    -.0149332    .0083684
                   2000 |  -.0083183   .0058543    -1.42   0.155    -.0197925     .003156
                   2001 |  -.0374462   .0059883    -6.25   0.000    -.0491832   -.0257091
                   2002 |  -.0356761   .0060855    -5.86   0.000    -.0476036   -.0237486
                   2003 |  -.0052482   .0061613    -0.85   0.394    -.0173242    .0068278
                   2004 |   .0276847   .0063479     4.36   0.000     .015243    .0401264
                   2005 |   .0222755   .0066786     3.34   0.001     .0091854    .0353655
                   2006 |   .0349094   .0066682     5.24   0.000     .0218398    .0479791
                   2007 |     .04935   .0070391     7.01   0.000     .0355534    .0631465
                        |
                  _cons |   .8807924   .0663252    13.28   0.000     .7507962    1.010789
------------------------+-----------------------------------------------------------------
                sigma_u |  1.0084385
                sigma_e |  .44304784
                    rho |  .83820888   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Source: Author's calculation using ASI Panel Data, 1998-99 to 2007-08.

Chapter 5: Inequality in the Distribution of Value Added – Findings and Analyses

5.1 Introduction

Limited growth of employment vis-à-vis output growth and segmentation concerning growing use of "cheap" contract workers, as discussed in the previous two chapters, have a direct implication on the labour share and profit share in gross value added or output (Sood et al., 2014). Moreover, informalisation also leads to greater income inequality as wages and employment benefits given to contractual workers are much lower than those received by regular wage workers (Aggarwal, 2017). This chapter studies the growing inequality in the *functional distribution of income* as measured by the labour share and profit share in gross value added (output). In addition to overall labour share and profit share in gross value added, variation in the share of wages of different categories of employees have also been studied here to provide useful insight into the status of inequality in the organised manufacturing sector.

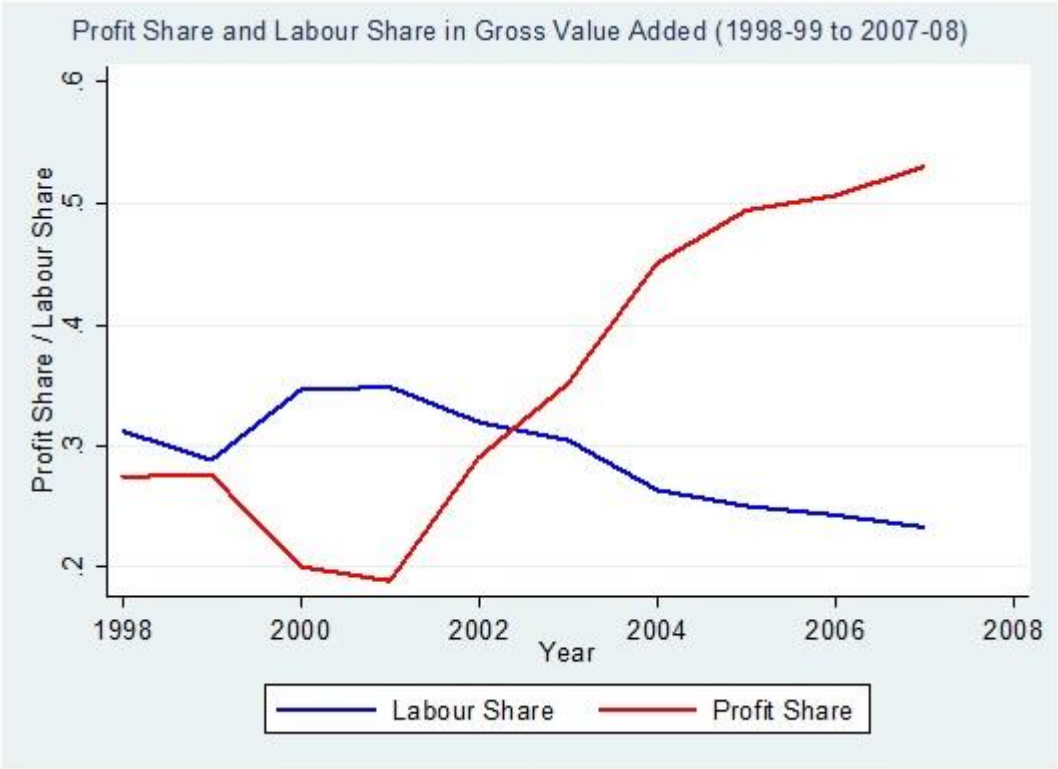
5.2 Labour Share and Profit Share

Figure 5.1 shows the trends in labour share and profit share for the entire organised manufacturing sector during the period 1998-99 to 2007-08. The figure presents some interesting dynamics of the distribution of value added between emoluments and profits during the period. The labour share declined from 31.2 % in 1998-99 to 23.30 % in 2007-08. On the other hand, the profit share increased from 27.50% in 1998-99 to 53 % in 2007-08. During the early phase, the labour share fluctuated between 1998-99 and 2001-02 by witnessing both a decline and an increase whereas the profit share saw a gradual decline remaining lower than the labour share until 2002-03. The explanation for fluctuation in the labour share and a progressive decline in profit share during 1998-99 to 2002-03 lies in the behaviour of gross value addition during this period. As already discussed, the organised manufacturing sector witnessed a decline during this phase which resulted in massive losses to the firms, putting downward pressure on the profit share. Though employment also fell during this phase, the decrease in gross value addition was much larger than the decline in employment growth to put upward

pressure on labour share which led to a higher wage share as compared to the profit share during this period.

The interesting part of the distribution of gross value addition follows after 2001-02 when the sector recovered and experienced a high average annual growth rate of about 13.6 % p.a. in gross value added. The labour share declined steadily whereas the profit share rose sharply between 2001-02 and 2007-08. The figure 5.1 shows an apparently growing dissonance between the labour share and the profit share from 2002-03 to 2007-08 with more than half of the share in gross value added going into profits at the end of the period.

Figure 5.1: Profit Share and Labour Share in the Output in the Organised Manufacturing sector (1998-99 to 2007-08).



Source: Author's calculation using ASI Panel Data, 1998-99 to 2007-08.

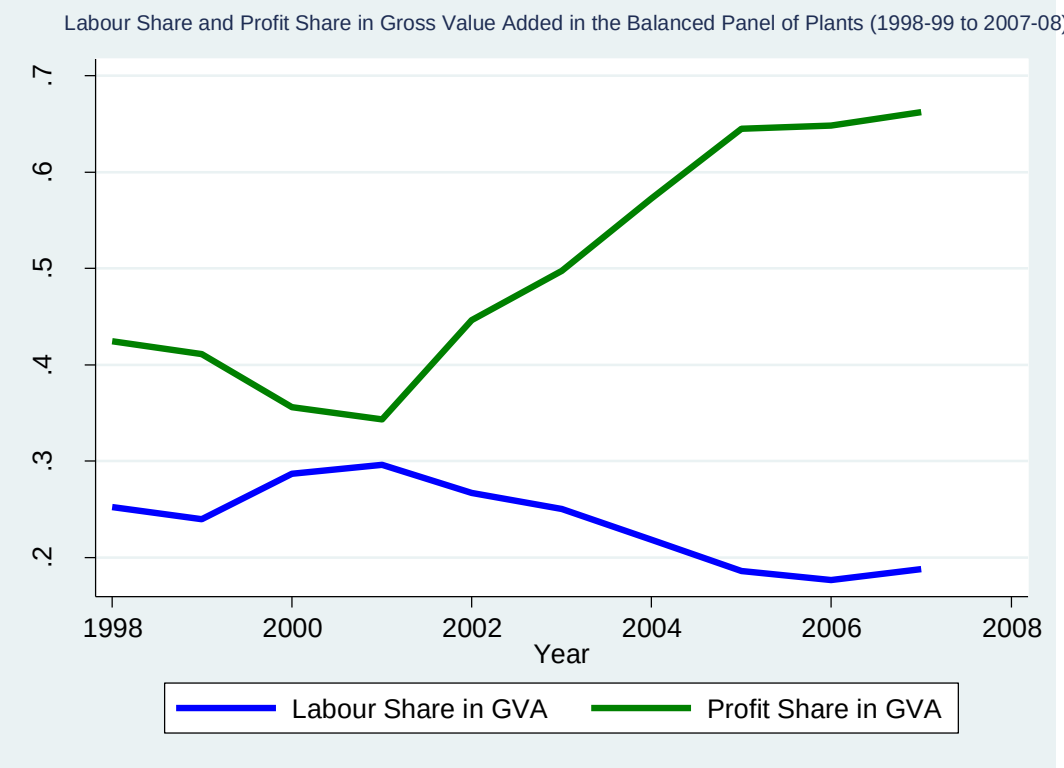
The reason for the shrinking labour share lies in the slow employment growth, growing capital intensity, and the modest increase in real compensation to employees as compared to the average labour productivity. The employment increased at a rate of 2.17 % p.a. during the period when output growth recorded an impressive growth averaging 8.17 % p.a. The growth in labour productivity during the period was 5.06 % p.a. which outpaced the growth in average real emoluments per man-day worked growing at a rate of 2.4 % p.a. Various studies in the literature have argued for the declining bargaining power of workers as the reason for the slow growth of wages vis-à-vis worker's productivity (Sood et al., 2014; Nagaraj, 1994). The growing inequality in the distribution of gross value added indicate that the lion's share of growth in the sector has been retained as profits by the capitalist class without accruing many benefits to labours. Figure 5.2 plots the growth rate of average labour productivity and real average emoluments per man-day received by employees. The figure clearly depicts that the growth in labour productivity has outpaced the growth in average compensation received by employees.

Figure 5.2: Growth Rate of Labour Productivity and Real Average Emoluments in the Organised Manufacturing Sector (1998-99 to 2007-08)

Source: Author's calculation using ASI Panel Data, 1998-99 to 2007-08.

The balanced panel of plants also presents a similar picture of growing inequality in the distribution of gross value added between profit share and labour share during the period from 2001-02 to 2007-08 (see figure 5.3). The gap is growing even wider in the balanced panel plants which represent medium and large continuing plants as compared to the overall manufacturing. The profit share constituted 66.23 % of the gross value added, and the labour share was reduced to merely 18.7 % in 2007-08.

Figure 5.3: Labour Share and Profit Share in Gross Value Added in the Balanced Panel (1998-99 to 2007-08).



Source: Author's calculation using ASI Panel Data, 1998-99 to 2007-08.

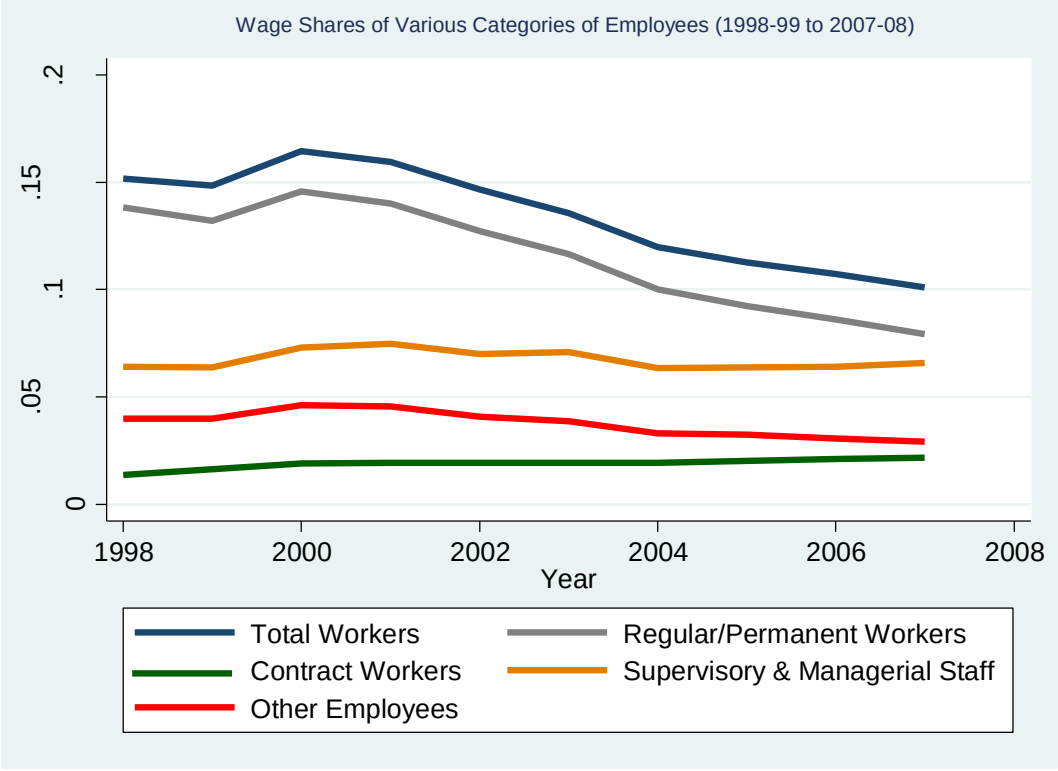
5.3 Wage Shares of various Categories of Employees

Next, following Kannan and Raveendran (2009), different components of total labour share, which include wage share of various categories of employees, have been an analysed to gain additional insights about inequality in the sector. However, Kannan and Raveendran's study split the total emoluments into two broad categories only namely, workers and supervisory & managerial staff, due to the limitation of aggregate

ASI data. Taking advantage of the unit-level ASI panel data, this study incorporates a more detailed disaggregation of various categories of employees defined in ASI.

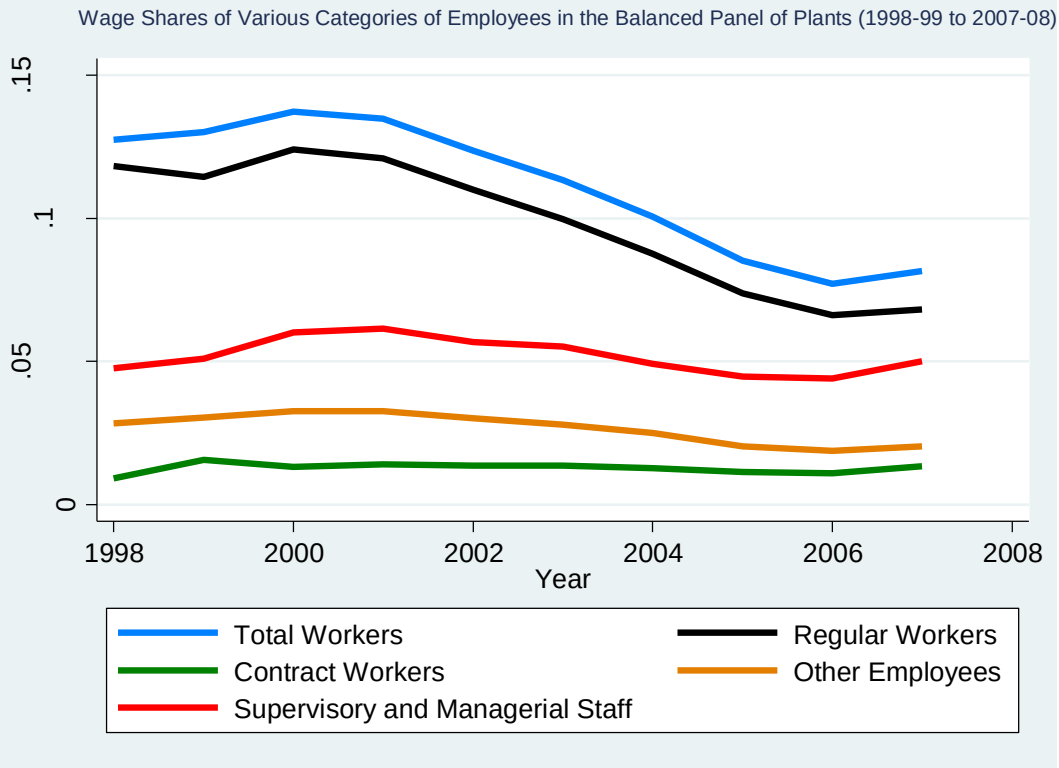
Figure 5.4 presents respective wage shares of different categories employees. As seen in the figure, the wage share of workers (regular and contractual combined) declined from 15.18 % in 1998-99 to 10.10 % in 2007-08. Of the two categories that form worker class, the wage share of regular/permanent workers fell sharply from 13.8 % in 1998-99 to 7.92 % in 2007-08 whereas the share of contract workers saw an increment from 1.3% in 1998-99 to 2.17 % in 2007-08. During the same period, the wage share of supervisory and managerial staff remained stable and increased slightly from 6.40 % in 1998-99 to 6.57 % in 2007-08. The wage share of 'other' employees too remained relatively stable during this period and experienced a slight decline from 3.9% in 1998-99 to 2.93% in 2007-08. The estimates of the wage shares of different categories of employees in the balanced panel of plants are shown in figure 5.5. The various wage shares follow the similar trends as the overall manufacturing sector throughout the period (see figure 5.4).

Figure 5.4: Wage Shares of Various Categories of Employees in the Organised Manufacturing Sector (1998-99 to 2007-08)



Source: Author's calculation using ASI Panel Data, 1998-99 to 2007-08.

Figure 5.5: Wage Shares of Various Categories of Employees in the Balanced Panel of Plants (1998-99 to 2007-08).



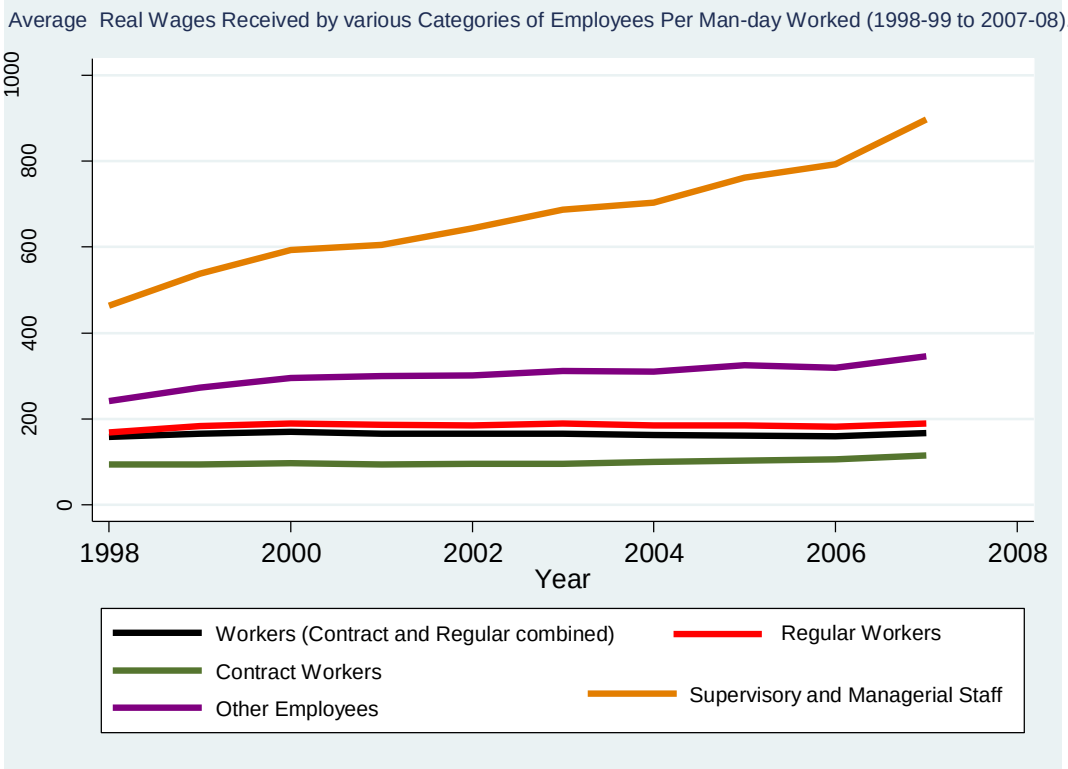
Source: Author's calculation using ASI Panel Data, 1998-99 to 2007-08.

The disintegrated analysis of total labour share clearly points out that a significant part of the decline in labour share is explained by the steep fall in the wage share of workers, given that the wage share of supervisory & managerial staff and other employees remained more or less stable and fared relatively well. The fall in wage share is mainly attributable to the two phenomena, discussed in the previous two chapters, that have characterised the organised manufacturing sector during this period - low employment elasticity of growth and segmentation. Firstly, the overall growth of employment of workers was relatively low as compared to the growth in gross value added and much of the output growth is attributable to worker's productivity growth. The growth in worker's productivity didn't witness a subsequent growth in worker's wages which is stagnant throughout the period.

Moreover, the growth of employment of regular workers was even smaller, and a good fraction of the rise in employment of workers constituted greater employment of contract workers. The average real wage including the bonus for contractual workers

was INR 84.34 per man-day worked as compared to INR 150.59 for regular workers in the year 1998-99. In the year 2007-08, the average wage including the bonus received by the contract workers increased to INR 153.60 per man-day worked as compared to INR 251.57 for regular workers (see figure 5.6). This shows that contract workers receive lesser wages. Both these forces tend to put downward pressure on wage share in gross value added. As already noted in the previous chapter, the rise in capital intensity of production process hurt the employment of workers, and the displacement of workers by capital have contributed to the widening gap in profit share and wage share of workers.

Figure 5.6: Average Real Wages Received by Various Categories of Employees Per Man-day worked (1998-99 to 2007-08).



Source: Author's calculation using ASI Panel Data, 1998-99 to 2007-08.

Figure 5.6 presents the average real wages received by various categories of workers in the organised manufacturing sector. The figure points out that the real wages of regular workers and contract workers remained mostly stagnant throughout the period with a marginal increase after 2006-07. The average wage of supervisory & managerial staffs and 'other' employees increased continuously during the period which indicates the growing inequality in wages received by various categories of employees in the sector.

The above analysis suggests that 'blue-collar' workers as a class, and specifically the regular workers who constitute much of the workforce in the sector, emerge as the greatest losing category concerning their wage share.

5.4 Wage Share and Profit Share in Flexible and Rigid States

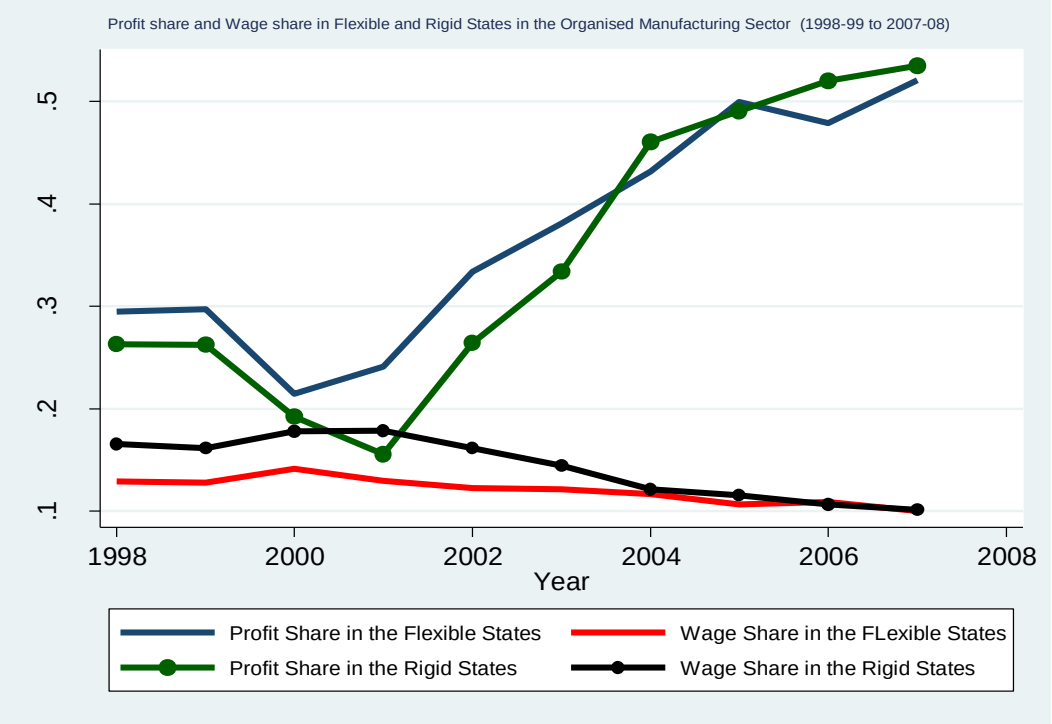
Institutional factors can affect wage share considerably. As already noted, bargaining power of workers is necessary to maintain wages in line with labour productivity and the Indian organised manufacturing sector has witnessed both a decline in the bargaining power of workers and labour share. An additional threat to further deteriorate the wage share lies in the deregulation of labour markets, specifically recall of provisions of Chapter VB of IDA that regulates procedures related to layoffs, retrenchments, and closures. The recall or slack implementation of these provisions tend to worsen the wage share of workers further by making it easier for employers to substitute labour with capital in the production process. The theoretical aspect of a rise in the elasticity of substitution of labour and its effect on labour share in overall output is discussed broadly in Hasan et al. (2007).

Figure 5.7 presents a comparison of the wage share and profit share of the organised manufacturing sector in the fixed and rigid states. The figure interestingly points out that the wage share in the rigid states has been greater as compared to the wage share in the flexible states during the period from 1998-99 to 2003-04. But since 2004-05 there has been effectively no difference in the wage shares in the rigid states and the flexible states. Profit shares also follow a similar trend when profit share of the organised manufacturing sector in the rigid states was lagging as compared to the profit share in the flexible states until 2003-04. But during the post-2004-05 period profit share of the registered manufacturing sector in the rigid states surpassed marginally that of the flexible states.

The figure 5.7 also points out that during the economic downturn when output demand in the sector witnessed a decline from 1998-99 to 2002-03, the employers in the rigid states were hurt more as compared to the employers in flexible states as reflected in the respective profit share. Similarly, the workers in the rigid states faced a lesser blow during the downturn as compared to the workers in the flexible states. However, in the post 2002-03 period when the output growth accelerated, the inequality in the distribution of value added widened both in the flexible states and rigid states equally

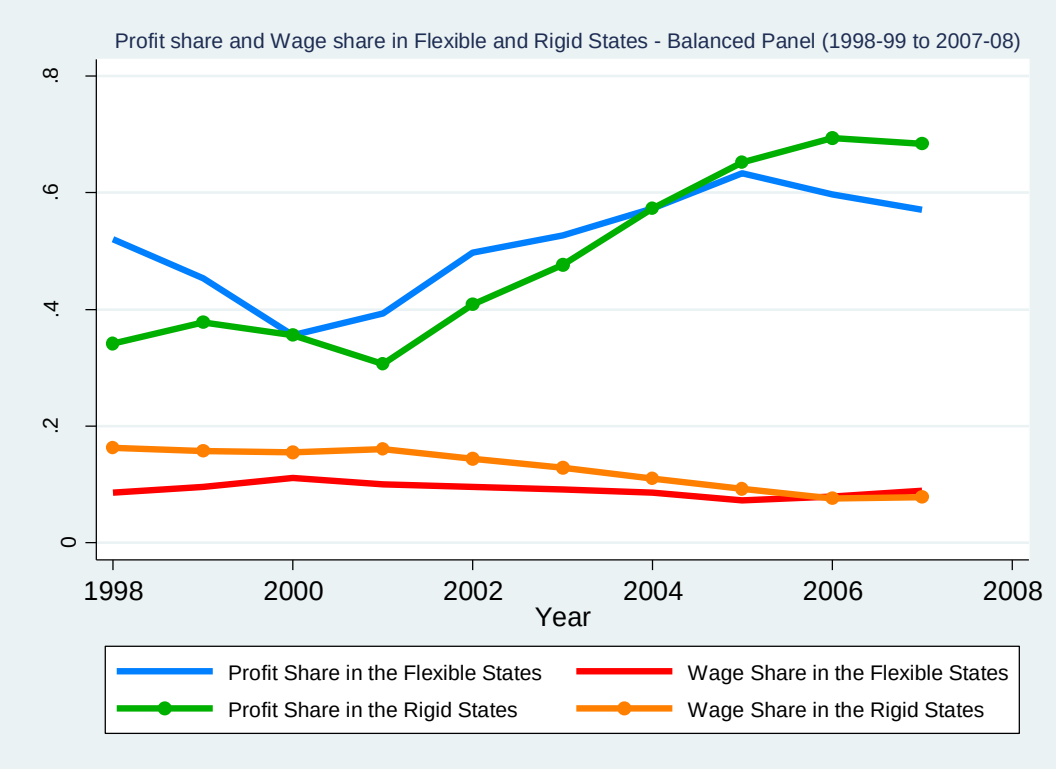
such that at the end of the period in 2007-08 there was effectively no difference in the share of profits and wages between the rigid states and the flexible states. This suggests that during the high growth period workers didn't benefit in both the flexible and rigid states but during the period of economic downturn, the workers in the flexible states faced a larger burden of the slow down as reflected in their wage share. The estimates from the balanced panel of plants also follow the same pattern as the overall organised manufacturing sector, and there is effectively no difference in the profit share and wage share between the flexible states and the rigid states (see figure 5.8).

Figure 5.7: Profit Share and Wage Share in the Flexible States and Rigid States (1998-99 to 2007-08).



Source: Author's calculation using ASI Panel Data, 1998-99 to 2007-08.

Figure 5.8: Profit Share and Wage Share in the Flexible and Rigid States – Balanced Panel (1998-99 to 2007-08).



Source: Author's calculation using ASI Panel Data, 1998-99 to 2007-08.

5.5 Inequality and Industrial Disputes

There is a direct repercussion of declining labour share and growing inequality on industrial relations and disputes in an economy which has been overlooked in the literature. Data from the Labour Bureau show that a primary cause of industrial disputes between employers and workers are 'Wages and Allowances'. Table 5.1 presents the data on the cause-wise distribution of industrial disputes in India during the period from 1998-99 to 2007-08. Out of the nineteen causes identified, 'wages and allowances' constituted the highest share for the reason of disputes throughout the period with 21.2 % in 1998-99 and 22.4% in 2007-8 of all disputes. Another interesting statistic that emerges from the table is disputes caused due to layoffs and retrenchment. As highlighted in the table, layoffs, and retrenchments constitute one of the lowest shares among all causes of disputes that too less than one percentage in most of the years. Layoffs and retrenchments were responsible for merely 0.7 % and 0.6 %, respectively for all the disputes in the year 1998-99 which fell to negligible 0.2 % each in 2007-08.

The statistics presented clearly point that wages and allowances account for the prime reason of industrial disputes which has the tendency to deteriorate industrial relations further given the growing inequality between labour share and profit share and within various categories of employees. The low wages of contract labours as compared to their permanent counterparts have prompted industrial unrest in demand of pay hike and conferment of permanent status to them. Shyam Sundar (2015) pointed out that 'Wages and Allowances" were one of the most important reasons for work stoppages, lockouts and strikes. Some of the major cases of industrial unrest are worth mentioning here. The protest against wage disparity was responsible for unrest at the Honda Motorcycle factory in Gurgaon in 2005 which resulted in massive loss of production at the plant and also resulted in casualties as around hundred workers got injured during the clash with the police (Chatterjee, 2016). Another noteworthy incident of industrial unrest and violence is the protest for wage revision by workers at the Maruti Suzuki plant in Gurgaon in 2011 which resulted in massive fall in the company's net profit and sales share. A year later in 2012, the plant witnessed a series of incidents of violence in which a managerial staff was killed and later, thirteen workers were sentenced to life (Chatterjee, 2016).

Table 5.1 Cause-wise distribution (in percentage) of data on Industrial disputes in India 1998-99 to 2007-08.

Cause-wise distribution (in percentage) of data on Industrial disputes in India 1998-99 to 2007-08.										
Case Group / Year	98	99	00	01	03	04	05	06	07	08
Wages and Allowances	21.2	21.9	20.5	24.6	20.4	18.8	23.9	21.5	18.4	22.4
Personnel	16	13.4	10.9	11	13.5	10.3	12.6	9.4	13.7	13.9
Retrenchment	0.7	1.1	1.6	1.3	2.1	2.2	0.2	0.4	0.7	0.2
Lay-off	0.6	0.4	0.1	0.4	0.3	0.5	-	0.2	0.2	0.2
Indiscipline	20.5	21.5	24.8	22.8	28.7	33.7	38.4	41	33.7	34.4
Violence	0.6	0.4	0.8	0.3	0.9	0.9	0.8	0.4	0.9	0.8
Leave and Hours of Work/Shift Working	1.3	1	0.9	0.1	0.5	0.9	0.4	-	0.7	-
Bonus	11.2	9	8.6	6.5	6.4	6.2	3.4	3.5	3	2.3
Inter/Intra Union Rivalry	0.6	0.9	0.8	1	0.3	0.5	0.4	0.4	-	-
Gherao	-	-	0.1	-	0.2	0.2	-	-	-	-
Non-Implementation of Agreements, Awards	2.9	3.9	3	3.7	2.9	1.1	1.1	0.9	1.9	2.6
Charter of Demands	8.8	11.6	12.8	10.1	10	8.2	5.5	7	11.9	8
Work Load	0.6	0.2	0.4	0.7	0.5	0.4	0.6	1.1	0.5	0.5
Surplus Labour	-	0.3	0.5	0.1	0	-	0.2	-	-	-
Betterment of Amenities	1.1	1.2	1.4	0.9	0.3	0.2	0.2	-	0.2	0.3
Suspension/ Change of manufacturing Process	0.1	0.1	0.3	0.4	-	0.2	-	-	0.2	-
Standing orders/Rule/Service Conditions/ Safety Measures	1.2	2.4	1.8	1	1.7	0.9	2.3	0.2	-	-
Others	8.1	5.2	5.7	6.2	7.1	7.3	5	12.5	9.3	9.8
Not Known	4.5	5.5	5.1	8.5	4.1	7.6	5	1.3	1.9	1
Total	100	100	100	100	100	100	100	100	100	100

Source: Indian Labour Yearbook, various Issues;
Note: The source for the year 2002 is Industrial Disputes in India during the year 2003, Labour Bureau.

Chapter 6: Conclusion

This study analysed the employment performance, growing segmentation concerning rising share of contract workers and rising inequality in the distribution of value added in the organised manufacturing sector in India with a focus on the role of labour market flexibility taking center stage. The study covered the period from 1998-99 to 2007-08 and utilised the recently available ASI Panel data to form two separate panel datasets consisting of a balanced panel of plants and an unbalanced panel of plants to meet the objectives and test the hypotheses of the study.

The state-level time-variant labour market flexibility index constructed in this study by incorporating both de jure as well as de facto measures reaffirms the criticism and limitations of the Besley and Burgess (2004) index highlighted in Bhattacharjea (2006, 2009). For instance, the states like Haryana, Punjab, Delhi and Madhya Pradesh have not passed either pro-worker or pro-employer amendment to existing labour legislations, but these states have one of the highest flexibility scores which are comparable to the score of a state like Gujarat that has passed a pro-employer amendment. The flexibility score of these states is compensated for the lack of de jure measures with the de facto measures (state-wise labour market turnover rate, and proportion of workers affected by closures, retrenchments, and layoffs) included in the construction of the index.

Similarly, Orissa, Chhattisgarh, and Jharkhand which have not passed either pro-worker or pro-employer amendment have one of the lowest flexibility scores in the index which is comparable to the score of the states like Andhra Pradesh, Karnataka, Assam, Maharashtra, etc. that have passed pro-worker amendments. This clearly points out that de jure measures alone are insufficient to identify a state's labour market flexibility status. Besley and Burgess (2004) and other studies which make use of their index or some variant of it suffer from the limitation highlighted above as they make use of only de jure indicators of labour market flexibility which is highly misleading.

The period of the study was marked by a decline in real output growth in the sector during the first few years until 2001-02 and then a sharp increase from 2001-02 to 2007-08. The real gross value added or output in the overall organised manufacturing sector

grew at an impressive 8.17 % p.a. (CAGR) during the period from 1998-99 to 2007-08. The high growth in output was accompanied by a relatively low employment growth of 2.17 % p.a. The decline in employment was steeper in the states with flexible labour market as compared to the rigid states until 2002-03 when the sector witnessed a decline in real output growth.

When the output demand conditions improved in the sector during the period from 2002-03 to 2007-08, the flexible states experienced a more rapid employment growth as compared to the rigid states. This clearly points out that employment adjustment is "sticky" in the rigid states and more volatile in the flexible states. However, the population estimates from the balanced panel of plants present a different picture. The real output growth for the balanced panel of plants was 5.33 % p.a., but the employment growth couldn't recover properly in the post 2002-03 period when demand conditions improved for the sector. The overall employment declined until 2002-03, remained stagnant during the period from 2002-03 to 2005-06 and then witnessed a slight increase eventually in the final two years.

The Fixed Effect regression results estimated for the static labour demand equation for total employees in the balanced panel sample estimated an employment elasticity of 0.14 with respect to the output during the period from 1998-99 to 2007-08, i.e., employment grew by just 0.14% with a percentage rise in output. The employment elasticity estimated from the Fixed Effect model for the unbalanced panel of plants is found to be 0.23. The low value of the employment elasticity suggests that most of the gain in output is associated with labour productivity gains. The capital intensity was found to be statistically significant and negatively associated with total employment in both the samples. This suggests that capital has displaced workers in the production process and deterred the employment growth in the sector.

The own price elasticity of employment, i.e., with respect to real emoluments, is also negative and statistically significant in both the balanced as well as the unbalanced sample which suggests an adverse effect of rising emoluments on employment generation. However, the period is marked by growth in both real emoluments as well as labour productivity and growth in labour productivity outpaced the growth in real emoluments, so it is unlikely that increase in compensation had a major dent on total employment generation. The effect of labour market flexibility as captured by the state-

level labour market flexibility index was statistically insignificant for both the samples which indicate that interstate variation in relative labour market flexibility over time didn't have a significant effect on employment outcome.

Moreover, the study found that the elasticity of employment in the flexible States is no different than the elasticity in the rigid States. This further strengthens the evidence that labour market flexibility didn't have a significant effect on employment growth in the medium and large continuing plants as represented by the balanced panel sample. However, the unbalanced panel sample presented an interesting result in that the employment elasticity of growth is, in fact, lower in the flexible states as compared to the rigid states. This finding certainly challenges the view that higher labour market flexibility is associated with a higher employment growth. The lower employment elasticity in flexible states may be explained by the high turnover rate of workers which includes a higher separation rate and the rising capital intensity of production. This, in fact, demonstrates that greater flexibility is associated with lowering the employment growth as against increasing it as suggested by many in the literature who argue against India's stringent employment protection legislations.

It is clear from the Fixed Effect regression results that the overall employment performance has been rather weak in the organised manufacturing sector and more so in the medium and large continuing firms as reflected from the employment elasticity with respect to output. The employment elasticity estimated from both the panel samples fall far too short of the value of 0.7 suggested by Khan (2001) in reference to labour abundant developing economies to meet development objectives like poverty alleviation and inclusivity in the growth process. The low value of employment elasticity is clearly indicating that the organised manufacturing sector didn't follow an employment-intensive path, and growth in labour productivity leads much of the output growth.

While the findings discussed above dealt with the 'quantity' aspect of employment generation, the following findings provide additional useful insight into the 'quality' of the jobs being generated in the organised manufacturing sector by assessing the employment outcome for regular/permanent workers and contract workers. Employment of total workers in the overall sector grew at an average rate of 2.9 % p.a. between 1998-99 and 2007-08. However, the growth rate of employment of regular

workers was only 0.6 % p.a. and the overall employment of workers was mainly driven by the employment of contract workers which grew at a massive rate of 11.12 % p.a. during the period. The employment of contract workers increased continuously, even during the period of slowdown in output demand between 1998-99 to 2002-03 and the employment of regular/permanent workers recovered only marginally in the post 2002-03 period when output growth increased sharply.

The proportion of contract workers in total workers employed increased from 15.62 % in 1998-99 to 31.03 % in 2007-08 in the organised manufacturing sector. The flexible states had a greater share of contract employment as compared to rigid states throughout the period which clearly contradicts the popular belief that labour market rigidity is associated with higher contractual employment. The proportion of contract workers in the flexible states increased from 20.9 % in 1998-99 to 33.91 % in 2007-08 whereas their proportion in the rigid states increased from 12.71 % in 1998-99 to 29.3 % in 2007-08. However, the estimates from the balanced panel indicated a different picture. Though the proportion of contract workers in total workers employed increased continuously throughout the period, the share was higher in rigid states as compared to flexible states which indicate that medium and large continuing firms in the rigid states have increased employment of contractual workers more rapidly.

The Fixed Effect model estimated for the static labour demand function for the regular workers and total workers provided evidence for segmentation as indicated by the difference in the employment elasticities of regular workers and total workers in both the balanced as well as the unbalanced panel samples. This gap in the employment elasticities of regular workers and total workers (regular and contractual combined) is attributable to the increasing employment of contract workers. The coefficient of the labour market flexibility index term was found to be statistically insignificant for the labour demand equation for regular workers in both the samples. This clearly indicates that the variation in state-level labour market flexibility over time is not associated with employment growth of regular workers.

Also, the interaction term between the log of output and labour market flexibility dummy was found to be statistically insignificant in the balanced panel case which suggests that there is no difference in the employment elasticity with respect to output for regular workers between a flexible state and a rigid state. Since the balanced panel

sample contains medium and large firms which are more likely to be affected by labour market rigidities, both the statistically insignificant terms provide strong support for the hypothesis that labour market rigidity is not associated with rising segmentation within the sector.

Interestingly, the employment elasticity with respect to output for regular workers was, in fact, lower in the flexible states as compared to the rigid states indicating that labour market flexibility is rather associated with increased segmentation. The low value of employment growth for regular workers in the flexible states can be explained by the high turnover rate among directly employed workers which include a high separation rate. Since labour market flexibility didn't have a statistically significant effect on employment of regular workers and failed to explain segmentation, we can attribute the rising preference for contract workers vis-a-vis their regular counterparts to cost minimization strategy of the firms. Contract workers are paid typically lesser, and hence employing them helps employers to save on labour input costs and increase their cost competitiveness. Contract workers should be seen as providing relatively cheaper inputs to the firms rather than solely as substitutes for the “highly” protected regular workers.

Finally, the study looked at the growing inequality in the functional distribution of income as measured by the labour share and profit share in gross value added (output), and variation in the share of wages of different categories of employees during the period of the study. The labour share declined from 31.2 % in 1998-99 to 23.30 % in 2007-08. On the other hand, the profit share increased from 27.50% in 1998-99 to 53 % in 2007-08. The reason for the shrinking labour share lies in the slow employment growth, growing capital intensity, and the modest increase in real compensation to employees as compared to the average labour productivity. The growth in labour productivity during the period was 5.06 % p.a. which outpaced the growth in average real emoluments per man-day worked which grew at a rate of 2.4 % p.a. The growing inequality in the distribution of gross value added indicates that the lion's share of growth in the sector has been retained as profits by the capitalist class without much benefits accruing to the employees. The analysis of the estimates from the balanced panel of plants indicated that the gap between labour share and profit share is growing even wider in the medium and large continuing firms as compared to the overall

manufacturing. The profit share constituted 66.23 % of the gross value added, and the labour share was reduced to merely 18.7 % in 2007-08.

The disintegrated analysis of total labour share by various categories of employees points out that a significant part of the decline in labour share is explained by the sharp fall in the wage share of the workers. The wage share of supervisory & managerial staff and other employees remained stable and fared relatively well. The fall in wage share is mainly attributable to the low employment elasticity of growth and segmentation. Firstly, the employment elasticity of workers with respect to output was weak, and much of the output growth is attributable to workers productivity growth. The growth in workers productivity was not accompanied by a subsequent growth in worker's wages throughout the period.

Moreover, the growth of employment of regular workers was even smaller, and a good fraction of the rise in employment of workers constituted a greater employment of contract workers who receive a much lower wage than regular workers. The average real wage including the bonus for contractual workers was INR 84.34 per man-day worked as compared to INR 150.59 for regular workers in the year 1998-99. In the year 2007-08, the average wage including the bonus received by the contract workers increased to INR 153.60 per man-day worked as compared to INR 251.57 for regular workers. Both these forces tend to put downward pressure on wage share in gross value added. The average wage of supervisory & managerial staffs and 'other' employees increased continuously during the period which indicated that the inequality in wages received by various categories of employees is growing in the sector.

The comparison of the wage share and profit share in the flexible and rigid states gave us the interesting result that the wage share in the rigid states was greater as compared to the wage share in the flexible states during the period from 1998-99 to 2003-04. But since 2004-05 there has been effectively no difference in the wage shares in the rigid states and the flexible states. Profit shares also followed a similar trend when profit share of the organised manufacturing sector in the rigid states was lagging as compared to the profit share in the flexible states until 2003-04. But during the post-2004-05 period profit share of the registered manufacturing sector in the rigid states marginally surpassed that of the flexible states.

The analysis also found out that during the high growth period workers didn't benefit in both the flexible as well as the rigid states but during the period of economic downturn, the workers in the flexible states faced a larger burden of the slow down as reflected in their wage share. The estimates from the balanced panel of plants also follow the same pattern as the overall organised manufacturing sector, and there is effectively no difference in the profit share and wage share between the flexible states and the rigid states.

The study highlighted that there is a direct repercussion of declining labour share and growing inequality on industrial relations and disputes in the sector. Data from the Labour Bureau showed that the primary cause of industrial disputes between employers and workers are 'Wages and Allowances'. Out of the nineteen causes identified, 'wages and allowances' constituted the highest share for the reason of disputes throughout the period with 21.2 % in 1998-99 and 22.4% in 2007-8 of all disputes. There is a tendency for the industrial relations to deteriorate further, given the growing inequality between labour share and profit share and also within various categories of employees. The low wages of contract labourers as compared to their permanent counterparts have provoked industrial unrest in demand of pay hike and conferment of permanent status to them.

The study provided evidence that the variation in the state-level degree of labour market flexibility in terms of easiness of labour adjustment mechanism doesn't have a significant effect on employment growth and doesn't explain the difference in employment outcomes. Moreover, the labour market rigidity is not associated with rising employment of contract workers and limited employment of regular workers as firms belonging to both flexible as well as rigid states are preferring contract employment over regular ones. The growing use of contract workers adds further flexibility to the overall flexibility of the labour market. Therefore, there is a need for careful research and more debates in the policy circle as the deconditioning and/or slack implementation of the employment protection provisions provided under Industrial Disputes Act can have far reaching consequences by making the workforce more vulnerable. Recalling of these provisions will make it easier for employers to substitute labour with capital in the production process which has the potential to widen further the inequality in the distribution of value added between capital and labour and have serious repercussions for the industrial relations in the country.

References

Aggarwal, S. C. (2017, May 7). Structural Change, Jobless Growth and 'Informalization' of Labor: Challenges in Post Globalized India. Retrieved from https://ssrn.com/abstract=2964553

Ahsan, A., & Pagés, C. (2007). *Are All Labor Regulatıons Equal? Assessıng The Effects Of Job Securıty, Labor Dıspute and Contract Labor Laws in Indıa (Social Protection Discussion Paper No. 0713).* Washington, D.C.: The World Bank.

Ahsan, A., & Pagés, C. (2009). Are All Labor Regulations Equal? Evidence from Indian Manufacturing. *Journal of Comparative Economics, 37*(1), 62-75.

Anant, T. C., Hasan, R., Mohapatra, P., Nagaraj, R., & Sasikumar, S. K. (2006). Labor Markets in India: Issues and Perspectives. In J. Felipe, & R. Hasan , *Labor Markets in Aisa: Issues and Perspectives* (pp. 205-300). Hampshire: Palgrave Macmillan.

Basu, D., & Das, D. (2017). Profitability in India's Organized Manufacturing Sector: The Role of Technology, Distribution and Demand. *Cambridge Journal of Economics, bew068*.

Besley, T., & Burgess, R. (2004). Can Labour Regulation Hinder Economic Performance? Evidence From India. *The Quarterly Journal of Economics, 119*(1), 91-134.

Bhalotra, S. R. (1998). The Puzzle of Jobless Growth in Indian Manufacturing. *Oxford Bulletin of Economics and Statistics, 60*(1), 5-32.

Bhattacharjea, A. (2006). Labour Market Regulation and Industrial Performance in India: A critical review of the Empirical Evidence. *Indian Journal of Labour Economics, 49*(2), 211-232.

Bhattacharjea, A. (2009). The Effects of Employment Protection Legislation on Indian Manufacturing. *Economic and Political Weekly, 44*(22), 55-62.

Bhattacharjea, A. (2014). Comments (on S. Dougherty, V. Frisancho, and K. Krishna, State-level Labor Reform and Firm-level Productivity in India). In S. Shah, B. Bosworth, & A. Panagariya (Eds.), *India Policy Forum, 2013-2014* (Vol. 10, pp. 49-52). New Delhi: Sage.

Bollard, A., Klenow, P. J., & Sharma, G. (2013). India's Mysterious Manufacturing Miracle. *Review of Economic Dynamics, 16*(1), 59-85.

Chatterjee, P. (2016, February 23). *10 Worst Labour Agitations in Indian Auto Industry.* Retrieved from The Economic Times: http://auto.economictimes.indiatimes.com/news/industry/10-worst-labour-agitations-in-indian-auto-industry/51099922

CHUN, N., HASAN, R., & KUMAR , U. (2012). Manufacturing Dynamism and the Welfare of Workers and Households in India. *Asian Development Bank*.

Currie, J., & Harrison, A. (1997). Sharing the costs: the impact of trade reform on capital and labor in Morocco. *Journal of Labor Economics, 15*(S3), S44-S71.

Das, D. K., & Sen, K. (2015). Where Have All the Workers Gone? *Economic & Political Weekly, 50*(23), 108-115.

Datta Chaudhuri, M. (1996). *Labor Markets as Social institutions in India (IRIS-India Working Paper No. 10).* Maryland: University of Maryland at College Park.

Djankov, S., & Ramalho, R. (2009). Employment Laws in Developing Countries. *Journal of Comparative Economics, 37*(1), 3-13.

Dougherty, S. (2008). *Labour Regulation and Employment Dynamics at the State Level in India (OECD Economics Department Working Papers No. 624).* Paris: OECD Publishing.

Dougherty, S. M., Herd, R., & Chalaux, T. (2009). What is Holding Back Productivity Growth in India? *OECD Journal: Economic Studies*, 1-22.

Dougherty, S., Frisancho, V., & Krishna, K. (2014). State-level Labor Reform and Firm-level Productivity in India. In S. Shah, B. Bosworth, & A. Panagariya (Eds.), *India Policy Forum, 2013-14* (Vol. 10, pp. 1- 44). New Delhi: Sage.

Dutta Roy, S. (2002). Job Security Regulations and Worker Turnover: A Study of the Indian Manufacturing Sector. *Indian Economic Review, 37*(2), 141-162.

Dutta Roy, S. (2004). Employment Dynamics in Indian Industry: Adjustment Lags and the Impact of Job Security Regulations. *Journal of Development Economics, 73*(1), 233-56.

Fallon, P. R., & Lucas, R. E. (1993). Job Security Regulations and The Dynamic Demand for Industrial Labor in India and Zimbabwe. *Journal of Development Economics, 40*(2), 241-275.

Freeman, R. B. (2005). Labour Market Institutions Without Blinders: The Debate over Flexibility and Labour Market Performance. *International Economic Journal, 19*(2), 129-145.

Ghose, A. K. (1994). Employment in Organised Manufacturing in India. *Indian Journal of Labour Economics, 37*(2), 141-162.

Goldar, B. (2000). Employment Growth in Organised Manufacturing in India. *Economic and Political Weekly, 35*(14), 1191-1195.

Goldar, B., & Aggarwal, S. C. (2010). Informalization of Industrial Labour in India: Are Labour Market Rigidities and Growing Import Competition to Blame? *6th Annual Conference on Economic Growth and Development.* New Delhi: Indian Statistical Institute.

Goldar, B., & Sadhukhan, A. (2015). *Employment and Wages in Indian Manufacturing: Post Reform Performance (Employment Working Paper No. 185).* Geneva: International Labour Office.

Government of Assam. (1994, 4 22). *Assam Industrial Establishments (Conferment of Permanent Status to Workmen) Act, 1985 (Act No. IXof 1994).* Retrieved from Assam Administrative Staff College: http://aasc.nic.in/Acts%20and%20Rules%20(GOA)/Labour%20&%20Employment%20Deptt/The%20Assam%20Industrial%20Establishment%20(Confirment%20of%20Permanen~2.pdf

Government of Chhattisgarh. (2002). *The Chhattisgarh Industrial Relations (Sanshodhan) Adhiniyam, 2002 (Act 29 of 2002).* Retrieved from Laws of India: A Project of PRS Legislative Research: http://www.lawsofindia.org/pdf/chhattisgarh/2002/2002CG29.pdf

Government of Delhi. (2003). *The Industrial Disputes (Delhi Amendment) Act, 2003. Act 9 of 2003.* Retrieved from Laws of India: A Project of PRS Legislative Research: http://www.lawsofindia.org/statelaw/2812/TheIndustrialDisputesDelhiAmendmentAct2003.html

Government of Goa. (1987, 10 21). *The Industrial Disputes (Goa Amendment) Act, 1987. (Act No. 5 of 1987).* Retrieved from The Government Printing Press, Government of Goa: http://goaprintingpress.gov.in/?media_dl=460

Government of Gujarat. (2004, 3 30). *Government of Gujarat (2004): Industrial Disputes (Gujarat Amendment) Act, 2004 (Gujarat Act No. 12 of 2004).* Retrieved from Gujarat Industries and Mines Department: http://www.imd-gujarat.gov.in/Document/2014-11-21_530.pdf

Government of Maharashtra. (2006, 6 26). *Industrial Disputes (Maharashtra Amendment) Act, 2003 (Maharashtra Act No. XXIII of 2006).* Retrieved from Bombay High Court: http://bombayhighcourt.nic.in/libweb/acts/Stateact/2006%20%20acts/2006.23.pdf

Government of Tamil Nadu. (1981, 10 10). *The Tamil Nadu Industrial Establishments (Conferment of permanent status to Workmen) Act, 1981, Tamil Nadu Act No. 46 of 1981, 10 August.* Retrieved from The Tamil Nadu Industrial Establishments (Conferment of Permanent Status to Workmen) Act, 1981 (Act 46 of 1981): http://www.lawsofindia.org/pdf/tamil_nadu/1981/1981TN46.pdf

Hamermesh, D. (1993). *Labour Demand.* Princeton, NJ: Princeton University Press.

Harrison, A. E., Martin, L. A., & Nataraj, S. (2012). Learning Versus Stealing: How Important are Market-Share Reallocations to India's Productivity Growth? *The World Bank Economic Review, 27*(2), 202-228.

Hasan, R., Mitra , D., & Ramaswamy, K. (2007). Trade Reforms, Labor Regulations, And Labor-Demand Elasticities: Empirical Evidence from India. *The Review of Economics and Statistics, 89(3)*, 466–481.

ILO. (2004). *World Employment Report 2004/05. Employment, Productivity and Poverty Reduction.* Geneva: International Labour Organisation.

Industrial Disputes Act: Extracts from State Amendments. (n.d.). Retrieved from Comply4hr: The Indian Labour Law Encyclopedia: http://www.comply4hr.com/docs/nat/ida/IDAT1.htm

Islam, I., & Nazara, S. (2000). *Estimating Employment Elasticity for the Indonesian Economy.* Jakarta, Indonesia: International Labour Office.

Kannan, K. P. (1994). Levelling up or Levelling Down? Labour Institutions and Economic Development in India. *Economic and Political Weekly, 29*(30), 1938-1945.

Kannan, k. P., & Raveendran, G. (2009). Growth Sans Employment: A Quarter Century of Jobless Growth in India's Organised Manufacturing. *Economic and Political Weekly, 44*(10), 80-91.

kaspos, S. (2006). The Employment Intensity of Growth: Trends and Macroeconomic Determinants. In *Labor Markets in Asia* (pp. 143-201). Palgrave Macmillan UK.

Khan, A. R. (2001). *Employment Policies for Poverty Reduction (Issues in Employment and Poverty, Discussion Paper No.1).* Geneva: International Labour Office.

Kuznets, S. (1973). Modern Economic Growth: Findings and Reflections. *The American Economic Review, 63*(3), 247-258.

Layard, R., & Nickell, S. (1986). Unemployment in Britain. *Economica, 53*(10), S121-S169.

Lichter, A., Peichl, A., & Siegloch, S. (2013). *Micro-level labor demand estimation for Germany (NEUJOBS WORKING PAPER D 10.3).* Bonn: Institute for the Study of Labor (IZA).

McMillan, M. S., & Rodrik, D. (2011). *Globalization, Structural Change and Productivity Growth (NBER Working Paper No. 17143).* Cambridge, MA: National Bureau of Economic Research.

Nagaraj, R. (1994). Employment and Wages in Manufacturing Industries - Trends, Hypothesis and Evidence. *Economic and Political Weekly, 29*(4), 177-186.

Nagaraj, R. (2000). Organised Manufacturing Employment. *Economic and Political Weekly, 35*(38), 3445-3448.

Nagaraj, R. (2004). Fall in Organised Manufacturing Employment: A Brief Note. *Economic and Political Weekly, 39*(30), 3387-3390.

Nardo, M., Saisana, M., Saltelli, A., Tarantola, S., Hoffmann, A., & Giovannini, E. (2005). *Handbook on Constructing Composite Indicators: Methodology and User Guide (OECD Statistics Working Paper Series).* Paris: OECD Publications.

Nichols, A., & Schaffer, M. (2007). *Clustered Errors in Stata, In United Kingdom Stata Users' Group Meeting.* Retrieved from StataCorp: http://www.stata.com/meeting/13uk/nichols_crse.pdf

Nickel, S. J. (1986). Dynamic Models of Labour Demand. In O. Ashenfelter, & R. Layard (Eds.), *Handbook of Labor Economics* (Vol. 1, pp. 473-522). Amsterdam: North Holland Press.

Pagés, S. C., & Micco, A. (2007). *The Economic Effects of Employment Protection: Evidence from International Industry-Level Data (Working Paper No. 592).* Washington, D.C: Inter-American Development Bank .

Papola, T. S. (1994). Structural Adjustment, Labour Market Flexibility and Employment. *Indian Journal of Labour Economics, 37*(1), 3-16.

Papola, T. S. (2013). *Role of Labour Regulation and Reforms in India: Country Case Study on Labour Market Segregation (Employment Working Paper No. 147).* Geneva: International Labour Organization.

Papola, T. S., & Pais, J. (2007). Debate on Labour Market Reforms in India: A Case of Misplaced Focused. *The Indian Journal of Labour Economics, 50*(2), 183-200.

Quandt, R. E., & Rosen, H. S. (1989). Endogenous Output in an Aggregate Model of the Labor Market. *The Review of Economics and Statistics, 71*(3), 394-400.

Rada, C. (2010). Formal and informal sectors in China and India. *Economic Systems Research, 22*(2), 129-153.

Rodgers, G. (2007). *Labor Market Flexibility and Decent Work (UN-DESA Working Paper No. 47).* New York: United Nations.

Rodrik, D. (2007). Industrial Development: Some Stylized Facts and Policy Directions. In *Industrial Development for the 21st Century: Sustainable Development Perspectives* (pp. 7-28). New York: United Nations.

Saha , B., Sen , K., & Maiti, D. (2013). Trade openness, Labour Institutions and Flexibilisation: Theory and Evidence from India. *Labour Economics, 24*, 180-195.

Sahu, S. K., & Sharma, H. (2016). Productivity, Energy Intensity and Output: A Unit Level Analysis of the Indian Manufacturing Sector. *Journal of Quantitative Economics, 14*(2), 283-300.

Scarpetta, S. (2014). Employment protection. *IZA World of Labor*, 1-10.

Schneider, D. (2011). *The Labor Share: A Review of Theory and Evidence (No. SFB649DP2011-069).* Humboldt University: Collaborative Research Center 649.

Sharma, A. N. (2006). Flexibility, Employment and Labour Market Reforms in India. *Economic and Political Weekly, 41*(21), 2078-2085.

Shyam Sundar, K. R. (2005). Labour Flexibility Debate in India: A Comprehensive Review and Some Suggestions. *Economic and Political Weekly, 40*(22/23), 2274-2285.

Shyam Sundar, K. R. (2006). Changing Labour Institutions. *Economic and Political Weekly, 41*(3), 204-206.

Shyam Sundar, K. R. (2015). Industrial Conflict in India in the Post-Reform Period: Who Said All Is Quiet on the Industrial Front? *Economic and Political Weekly, 50*(3), 43-53.

Solow, R. (1998). What is Labour-Market Flexibility? What it is good for? *Keynes Lecture in Economics. Proceedings of the British Academy. 97*, pp. 189-211. The British Academy.

Sood, A., Nath, p., & Ghosh, S. (2014). Deregulating Capital, Regulating Labour: The Dynamics in the Manufacturing Sector in India. *Economic and Political Weekly, 49*(26-27), 58-68.

Torres-Reyna. (2007, December). *Panel Data Analysis Fixed and Random Effects using Stata (v. 4.2).* Retrieved from Princeton University Website: https://www.princeton.edu/~otorres/Panel101.pdf

Wooldridge, J. M. (2002). *Econometric Analysis of Cross Section and Panel Data.* Cambridge, Mass: MIT Press.

World Bank. (1989). *India - Poverty, Employment and Social Services. A World Bank Country Study.* Washington, D.C: The World Bank.

APPENDIX

Table A1: Descriptive Statistics from the Balanced Panel sample of plants.

Variable	Obs	Mean	Std. Dev.	Min	Max
Log_Total_Employee	20470	5.878516	1.307096	0	11.03277
Log_Output	20470	17.3976	2.113358	6.594664	25.17261
Log_KI	20470	12.62012	1.146095	7.156823	17.74979
Log_Avg_Emoluments	20470	5.44349	.7124436	2.836503	9.503562
FlexIndex	20470	.4408196	.1673049	.0253637	.9824021
Log_Tot_Workers	20470	5.608259	1.338086	0	10.72505
Log_Avg_Wages_Workers	20470	5.022365	.6267872	2.626005	8.574284
Log_Regular_Workers	20470	5.27517	1.449776	0	10.64278
Log_Wages_Reg_Workers	20470	5.112747	.6771475	2.626005	8.48118

Source: Author's calculation using ASI Panel Data, 1998-99 to 2007-08.

Table A2: Descriptive Statistics from the Unbalanced Panel sample of plants.

Variable	Obs	Mean	Std. Dev.	Min	Max
Log_Total_Employee	297489	3.82034	1.533627	0	11.03277
Log_Output	297489	14.80374	2.212403	.1543174	25.17261
Log_KI	297489	12.53711	1.112215	5.499593	18.13559
FlexIndex	297489	.4604339	.166313	.0253637	.9824021
Log_Avg_Emoluments	297489	5.131279	.6077937	.4357806	10.20653
Log_Tot_Workers	297489	3.52187	1.580404	0	10.74742
Log_Regular_Workers	297489	3.123723	1.682299	0	10.64278
Log_Avg_Wages_Workers	297489	4.761651	.4837625	-.470809	8.574284
Log_Wages_Reg_Workers	297489	4.813459	.5282619	-.470809	8.540678

Source: Author's calculation using ASI Panel Data, 1998-99 to 2007-08.

Table A3: Analysis and Scoring of State-level Amendments to IDA,1947 and Industrial Employments (Conferment of Permanent Status to Workmen) Act Passed until 2007-08.

YEAR, ACT & Section	Description	Comments	De Jure Flexibility Score
1. ANDHRA PRADESH			
1949, IDA, Section 2	"Allows the appropriate government to declare any industry as a public utility if a public emergency or public interest requires so. Public utilities are more limited in having strikes and lock-outs and the government has greater power to refer industrial disputes in public utilities service to the appropriate court." (Besley & Burgess, 2004)	This provision doesn't favour either employers or workers as it limits both strikes (carried out by workers) and lockout (carried out by employers) and rather intends to facilitate faster dispute resolution. Hence, following Ahsan and Pages (2007, 2009), this is coded as 'neutral'. Besley and Burgess (BB hereafter) Index classified this as pro-employer.	0
1949, IDA, Section 10	"States that where a Tribunal has been constituted under this Act for the adjudication of disputes in any specified industry or industries and a dispute exists or is apprehended in any such industry then the employer or majority of workmen may refer the dispute to that Tribunal." (Besley & Burgess, 2004).	This amendment doesn't affect labour adjustment process. Both employers and workers are given the power to refer the dispute to tribunal Hence, following Ahsan and Pages (2007, 2009), this dispute is coded as 'neutral'. BB Index misinterpreted and coded this as pro-employer.	0
1968, IDA, Section 2	"Any services in hospitals or dispensaries are classified as a public utility. Public utilities are	Doesn't affect outcomes in the manufacturing sector. See Bhattatacharjea (2006) or	Not Relevant

	more limited in having strikes and lock-outs and the government has greater power to refer industrial disputes in public utilities service to the appropriate court. In the central act, these services are not classified as public utilities" (Besley & Burgess, 2004)	the Literature Review section for details. BB Index coded this as pro-employer. Ahsan and Pages (2007, 2009) didn't include this amendment in their analysis based on feedback by Bhattacharjea (2006).	
1982/1987, IDA, Section 11C	"A Labour Court or Tribunal is granted the power of a Civil Court to execute its award or any settlement as a decree of a Civil Court." (Besley & Burgess, 2004)	BB Index coded this as pro-employer. Ahsan and Pages (2007, 2009) recoded this as not relevant in either labour disputes reform or labour market adjustment mechanism based on feedback provided by Bhattacharjea (2006). Hence, this amendment is coded as 'neutral'.	0
1987, IDA, Section 25FFF	"Prior payment of compensation to the worker is a condition precedent to the closure of an undertaking. Under the central act payment of compensation does not need to be made prior to closure." (Besley & Burgess, 2004)	Same classification as BB Index, and Ahsan and Pages (2007, 2009). However, coding sign is opposite.	-1
1987, IDA, Section 10A-10K	"If in the opinion of the state government it is necessary or expedient so to do for securing the public safety or the maintenance of public order or services or supplies essential to the life of the community or	This amendment intends to curb industrial disputes and require both workers and employers to comply by order of the state govt. and prohibits both strikes and lockout without giving any side an undue advantage.	0

	for maintaining employment or industrial peace in the industrial establishment it may issue an order which (i) requires employers and workers to observe the terms and conditions of an order. (ii) prohibits strikes and lockouts in connection with any industrial dispute." (Besley & Burgess, 2004)	Hence, following Ahsan and Pages (2007, 2009), this dispute is coded as 'neutral'. BB Index misinterpreted and coded this as pro-employer.	
1987, IDA, Section 25- H	"Where a closed firm is re-opened, workers who were on the roll of a given unit should be given the opportunity to offer themselves for employment in preference to others. Under the central act retrenched workers are given preference but there is less specify as regards rehiring workers from the same unit." (Besley & Burgess, 2004)	Both BB Index, and Ahsan and Pages (2007, 2009) coded this as pro-worker. However, this law only provides for preference for those workers in employment who were on the muster roll of the firm prior to closing down as against new workers. This law seeks to curb disputes at best and doesn't affect labour adjustment process adversely.	0
1987, IDA, Section 25-HH	"Where a worker is reinstated by an award of a Labour Court or Tribunal, his wages will be paid from the date specified in that award." (Besley & Burgess, 2004)	Same classification as BB Index, and Ahsan and Pages (2007, 2009).	-1
1987, IDA, Section 29A	"Failure to comply an order by the state Government which constrains industrial dispute activity in the	BB Index misinterpreted and coded this as pro-employer. The provision of this amendment is equally applicable to	0

	interests of the public is punishable with imprisonment for a period which is not less than six months and with a fine." (Besley & Burgess, 2004)	both employers and workers. Hence, Following Ahsan and Pages (2007, 2009) recoded this amendment is classified as 'neutral' labour disputes reform.	
1987, IDA, Section 2A	"In the case of an industrial dispute involving an individual worker he has the right to apply directly to the Labour Court for adjudication. No such right is specified in the central act." (Besley & Burgess, 2004)	BB Index coded this as pro-worker. This amendment seeks to simplify dispute resolution mechanism where a worker can directly appeal to a labour court. Hence, following Ahsan and Pages (2007, 2009), this amendment is coded as 'neutral'.	0
1987, IDA, Section 33C	"In place of the Collector, the Chief Judicial Magistrate or the Chief Metropolitan Magistrate are given the power to recover from an employer money owing to a worker as the result of settlement of an industrial dispute." (Besley & Burgess, 2004)	BB Index misinterpreted and coded this as pro-worker. This amendment simply refers to the changed role of the Collector and Chief Judicial Magistrate in a dispute resolution mechanism. Hence, following Ahsan and Pages (2007, 2009), this amendment is coded as 'neutral'.	0
1987, IDA, Section 9A	"If an employer wants to change the conditions of service applicable to any worker he has to give him a notice of 42 days (instead of 21)" (Besley & Burgess, 2004)	Same classification as BB Index, and Ahsan and Pages (2007, 2009).	-1

2.ASSAM			
1962, IDA, Section 7A	"Reduction of the qualifications of presiding officer to serve on an Industrial Tribunal. Involves both a reduction in the years of experience and judges from lower levels of the judicial system being allowed to serve." (Besley & Burgess, 2004)	This amendment seeks to address dispute resolution inefficiency. BB Index coded this as 'neutral', and Ahsan and Pages (2007, 2009) exclude Assam in their analysis. Hence, this amendment is coded as 'neutral' simplifying dispute resolution mechanism.	0
1962, IDA, Section 7C	"The presiding officer serving in a labour court, tribunal or national tribunal who has attained the age of 65 is allowed to serve for a further six months." (Besley & Burgess, 2004)	Same explanation as the above.	0
2007, IDA, Section 2	"Amendment Section 2 – In the principal Act, in Section 2, in clause(s), in between the words 'or supervisory work' and 'for hire or reward', the words 'or any work for the promotion of sales' shall be inserted." (Industrial Disputes Act: Extracts from State Amendments, n.d.)	This is an update in the existing information regarding amendments to IDA available in the literature. This amendment included sales workers too in the purview of IDA employment protection legislation who were earlier excluded from the scope.	-1
2007, IDA, Section 33C	"Amendment of Section 33-C – In the principal Act, in Section 33-C, in sub-section (1), for the words -to the collector who shall proceed to recover the same in the same manner as an arrear of land revenue, the	This is an update in the existing information regarding amendments to IDA available in the literature. This amendment simply refers to the changed role of the Collector and Chief Judicial Magistrate in a	0

	words -to the Chief Judicial Magistrate having jurisdiction who shall proceed to realize as if it were a fine imposed by such Magistrate- shall be substituted." (Industrial Disputes Act: Extracts from State Amendments, n.d.)	dispute resolution mechanism. Hence, this amendment is coded as 'neutral' simplifying dispute resolution mechanism.	
1985, (adopted in 1994), The Industrial Employments (Conferment of Permanent Status to Workmen) Act.	"Notwithstanding anything contained in any law for the time being in force every workman who is in continuous service for a period of 180 days in a period of twelve calendar months an industrial establishment shall be made permanent." (Government of Assam, 1994).	This is a new Act which has not been incorporated in any study in the literature pertaining to labour laws in India and labour market rigidity. This act provides provisions for conferring permanent status to workmen who meet certain criteria. Hence, this act is a move in the pro-worker direction which adversely affect the ability of employers to adjust employment as permanent workers are protected under various provisions of IDA.	-1
3. BIHAR			
1959, IDA, Section 7A	"Reduction of the qualifications of presiding officer to serve on an Industrial Tribunal. Involves both a reduction in the years of experience and judges from lower levels of the judicial system being allowed to serve." Besley and Burgess (2004).	This amendment seeks to address dispute resolution inefficiency. BB Index coded this as 'neutral' and Ahsan and Pages (2007, 2009) exclude Bihar in their analysis. Hence, this amendment is coded as 'neutral' simplifying	0

		dispute resolution mechanism.	
4. Chhattisgarh			
2002, The Chhattisgarh Industrial Relations (Amendment) Act, Section 9	"Made provisions to set up an industrial court for the state, consisting of the President and one or more members as the state Govt. may from time to time think fit to appoint." (Government of Chhattisgarh, 2002)	BB Index, and Ahsan and Pages (2007, 2009) didn't include Chhattisgarh in their analysis. This amendment is coded as 'neutral' simplifying dispute resolution mechanism as it refers to setting up an industrial court for the state after separating away from Madhya Pradesh.	0
5. DELHI			
2003, IDA, Section 10	"In the case of a dispute falling under the scope of section 2A, the individual workman concerned may directly, within twelve months from the date of communication of the order of discharge, dismissal, retrenchment or termination, appeal to the labour court or Tribunal for the adjudication of the dispute. Earlier the workmen required to make appeal through the labour department." (Government of Delhi, 2003)	BB Index, and Ahsan and Pages (2007, 2009) didn't include Delhi in their analysis. This amendment is coded as 'neutral' simplifying dispute resolution mechanism as a worker can now appeal directly to an industrial Tribunal or Labour court without having to seek intervention by the labour department.	0
6. GOA			
1987, IDA, Section 7	"Reduction of the qualifications of judge to serve on a Labour Court.	BB Index and Ahsan and Pages (2007, 2009) didn't include Goa in	0

	Involves both a reduction in the years of experience and judges from lower levels of the judicial system being allowed to serve." (Government of Goa, 1987)	their analysis. This amendment seeks to address dispute resolution inefficiency. Hence, this amendment is coded as 'neutral' simplifying dispute resolution mechanism.	
1987, IDA, Section 7A	"Reduction of the qualifications of presiding officer to serve in an industrial Tribunal. Involves both a reduction in the years of experience and judges from lower levels of the judicial system being allowed to serve." (Government of Goa, 1987)	This amendment seeks to address dispute resolution inefficiency. Hence, this amendment is coded as 'neutral' simplifying dispute resolution mechanism.	0
7. GUJARAT			
1962, IDA, Section 7D	"Reduction of the qualifications of presiding officer to serve on an Industrial Tribunal. Involves both a reduction in the years of experience and judges from lower levels of the judicial system being allowed to serve." (Besley & Burgess, 2004)	BB Index coded this as 'neutral', and Ahsan and Pages (2007, 2009) include only one amendment from Gujarat in the year 1973 (Section 30 – 30A) in their analysis which is discussed below.	0
1973, IDA, Section 2	"Insertion of exact definition of council as being a Joint Management Council." (Besley & Burgess, 2004)	BB Index coded this as 'neutral', and Ahsan and Pages (2007, 2009) include only one amendment from Gujarat discussed below.	0
1973, IDA, Section 30-30A	"Failure of the employer to nominate his representatives to Councils within firms is punishable by a fine of	BB Index misinterpreted this amendment as pro-worker. However, this amendment intended to punish employers and	0

	50 rupees and in the case of continuing failure to do so the employer will pay an additional fine which may extend to 50 rupees per day for every day that such failure continues." (Besley & Burgess, 2004)	that too with a minimal fine in case they fail to nominate representatives to councils within firms. This amendment seeks to address dispute resolution inefficiency. Hence, following Ahsan and Pages (2007, 2009), this amendment is coded as 'neutral'.	
1977, IDA, Section 7	"Reduction of the qualifications of judge to serve on a Labour Court. Involves both a reduction in the years of experience and judges from lower levels of the judicial system being allowed to serve." (Besley & Burgess, 2004)	BB Index coded this as 'neutral', and Ahsan and Pages (2007, 2009) didn't include this amendment in their analysis. Hence, this amendment is coded as 'neutral' simplifying dispute resolution mechanism.	0
1977, IDA, Section 7A	"Reduction of the qualifications of presiding officer to serve in an industrial Tribunal. Involves both a reduction in the years of experience and judges from lower levels of the judicial system being allowed to serve." (Besley & Burgess, 2004)	This amendment seeks to address dispute resolution inefficiency. BB Index coded this as 'neutral' and Ahsan and Pages (2007, 2009) didn't include this amendment in their analysis.	0
1984, IDA, Section 2	"Insertion of definition of closure which was repealed in the same year when the amendment was incorporated into the wording of the central act." (Besley & Burgess, 2004)	BB Index coded this as 'neutral' and Ahsan and Pages (2009) didn't include this amendment in their analysis.	Not Relevant
1984, IDA, Section 25SS	"Declaration that notwithstanding anything contained in any other	This amendment seeks to address dispute resolution inefficiency.	0

	law being in force in the state providing for the settlement of industrial disputes, the rights and liabilities of employers and workers in relation to closure will be determined in accordance with the provisions of this law." (Besley & Burgess, 2004)	BB Index coded this as 'neutral', and Ahsan and Pages (2009) didn't include this amendment in their analysis. Hence, this amendment is coded as 'neutral' simplifying dispute resolution mechanism.	
2004, IDA, Section 2 (K), Insertion Of VD	"Special Economic Zones were permitted to lay-off employees without prior government permission." (Government of Gujarat, 2004)	This is an update in the existing information regarding amendments to IDA available in the literature. This amendment is clearly pro-employer as it allows employers in SEZs to lay-off workers without prior permission from the govt.	+1
8. HARYANA			
1976, IDA, Section 7	"Reduction of the qualifications of judge to serve on a Labour Court. Involves both a reduction in the years of experience and judges from lower levels of the judicial system being allowed to serve." (Besley & Burgess, 2004)	This amendment seeks to address dispute resolution inefficiency. BB Index coded this as 'neutral', and Ahsan and Pages (2007, 2009) didn't include this amendment in their analysis.	0
1976, IDA, Section 7A	"Reduction of the qualifications of presiding officer to serve in an industrial Tribunal. Involves both a reduction in the years of experience and judges from lower levels of the judicial system being allowed to	BB Index coded this as 'neutral' and Ahsan and Pages (2007, 2009) didn't include this amendment in their analysis.	0

	serve." (Besley & Burgess, 2004)		
9. Karnataka			
1949, IDA, Section 10	"Pertains to the fact that Karnataka broke away from the state of Madras." (Besley & Burgess, 2004)	BB index coded this as 'neutral' and Ahsan and Pages (2007, 2009) didn't include this amendment in their analysis.	Not Relevant
1963, IDA, Section 7	"Reduction of the qualifications of judge to serve on a Labour Court. Involves both a reduction in the years of experience and judges from lower levels of the judicial system being allowed to serve." (Besley & Burgess, 2004)	BB Index coded this as 'neutral' and Ahsan and Pages (2007, 2009) didn't include this amendment in their analysis.	0
1988, IDA, Section 10	"In the case of an industrial dispute involving an individual worker he may within a six months period have the right to apply directly to the Labour Court for adjudication. No such right is specified in the central act." (Besley & Burgess, 2004)	BB index misinterpreted this as pro-worker, and Ahsan and Pages (2007, 2009) recoded this amendment under labour disputes reform. Hence, following Ahsan and Pages, this amendment is coded as 'neutral'.	0
1988, IDA, Section 11	"Increases the power of the conciliation officer in terms of enforcing attendance at hearings regarding industrial disputes, compelling the production of documents and issuing commissions for the examination of witnesses. Also makes clear what the penalties are for non-attendance or	BB Index misinterpreted and coded this as pro-employer, and Ahsan and Pages (2007, 2009) recoded this amendment under labour disputes reform. Hence, following Ahsan and Pages, this amendment is coded as 'neutral' simplifying dispute resolution mechanism.	0

	failure to produce relevant documents." (Besley & Burgess, 2004)		
1988, IDA, Section 10A-10K	"The state government obtains the power to transfer any industrial dispute pending before a tribunal to any other tribunal constituted by the state government for adjudication." (Besley & Burgess, 2004)	BB Index misinterpreted and classified this amendment as pro-employer. Hence, following Ahsan and Pages (2007, 2009), this amendment is coded as 'neutral' simplifying dispute resolution mechanism.	0
1988, IDA, Section 10A-10K	"If in the opinion of the state government it is necessary or expedient so to do for securing the public safety or the maintenance of public order or services or supplies essential to the life of the community or for maintaining employment or industrial peace in the industrial establishment it may issue an order which (i) requires employers and workers to observe the terms and conditions of the order (ii) prevents any public utility service from closing." (Besley & Burgess, 2004)	BB misinterpreted and coded this amendment as pro-employer. This amendment intends to curb industrial disputes and require both workers and employers to comply by order of the state govt. and prohibits any public utility service from closing down without necessarily being pro-employer or pro-worker move. Hence, following Ahsan and Pages (2007, 2009), this amendment is recoded this amendment under labour disputes reform.	0
1988, IDA, Section 25K	"The rules for lay-off, retrenchment and closure may according to the discretion of the state government be applied to industrial establishments of a seasonal character and which employ more	Same classification as BB Index, and Ahsan and Pages (2007, 2009). However, coding sign is opposite.	-1

	than 100 but less than 300 workers. Under the central act these rules only apply to permanent establishments, which employ more than 300 workers." (Besley & Burgess, 2004)		
10. KERALA			
1971, IDA, Section 7A	"Reduction of the qualifications of presiding officer to serve on an Industrial Tribunal. Involves both a reduction in the years of experience and judges from lower levels of the judicial system being allowed to serve." (Besley & Burgess, 2004)	BB Index code this as 'neutral' and Ahsan and Pages (2007, 2009) didn't include this amendment in their analysis. Hence, this amendment is coded as 'neutral' simplifying dispute resolution mechanism.	0
1979, IDA, Section 10A-10K	"If in the opinion of the state government it is necessary or expedient so to do for securing the public safety or the maintenance of public order or services or supplies essential to the life of the community or for maintaining employment or industrial peace in the industrial establishment it may issue an order which (i) requires employers and workers to observe the terms and conditions of the order (ii) prevents any public utility service from closing." (Besley & Burgess, 2004)	BB index misinterpreted and coded this amendment as pro-employer. This amendment intends to curb industrial disputes and require both workers and employers to comply by order of the state govt. Hence, following Ahsan and Pages (2007, 2009), this amendment is recoded this amendment under labour disputes reform.	0

1979, IDA, Section 29A	"Failure to comply an order by the state Government, which constrains industrial dispute activity in the interests of the public is punishable with imprisonment for a period, which is not less than six months and with a fine." (Besley & Burgess, 2004)	BB Index misinterpreted and coded this as pro-employer. The provision of this amendment is equally applicable to both employers and workers. Hence, following Ahsan and Pages (2007, 2009), this amendment is coded as 'neutral'.	0
11. MADHYA PRADESH			
1982, IDA, Section 7	"Increases the power of the labour court to try offences covered both under the Industrial Disputes Act as well as offences covered under a range of other Acts pertaining to labour (which are specified in the Second Schedule of the Industrial Disputes Act)." (Besley & Burgess, 2004)	BB Index misinterpreted and coded this as pro-employer. This amendment seeks to address dispute resolution inefficiency by increasing the power of labour courts. Hence, following Ahsan and Pages (2007, 2009), this amendment is coded as 'neutral'.	0
1982, IDA, Section 10	"This amendment refers to part A of the second schedule instead of the whole second schedule. Second schedule describes matters within the jurisdiction of labour courts. The schedule for Madya Pradesh is renumbered so actually the change is only technical." (Besley & Burgess, 2004)	BB Index code this as 'neutral'. Ahsan and Pages (2007, 2009) didn't include this amendment in their analysis.	Not Relevant
1982, IDA, Section 34	"Labour court is given the power to deal with every offence punishable	BB Index misinterpreted and coded this as pro-employer. Hence,	0

	under the Labour Disputes Act as well as under a range of other central acts dealing with labour issues." (Besley & Burgess, 2004)	following Ahsan and Pages (2007, 2009), this amendment is coded as 'neutral'.	
1982, IDA, Section 11A-11D	"In the case of criminal cases the Labour Court shall have all the powers under the Code of Criminal Procedure of a Judicial Magistrate of the First Class." (Besley & Burgess, 2004)	BB Index misinterpreted and code this as pro-employer. Hence, following Ahsan and Pages (2007, 2009), this amendment is coded under labour disputes reform.	0
1983, IDA, Section 25 O	"(i) Undertakings dealing with construction of buildings, bridges, roads, canals, dams or other construction work are no longer exempted from procedures for closing down undertakings. (ii) State government as opposed to central government is deemed the appropriate government in dealing with negotiations regarding procedures for closing down undertakings." (Besley & Burgess, 2004)	This amendment is applicable to construction sector and doesn't affect manufacturing sector. See Bhattacharjea (2006) or Literature Review Section for clarification. BB Index coded this as pro-worker. Ahsan and Pages (2009 recoded this as not relevant.	Not Relevant
1983, IDA, Section 25 R	"Amendment is required given that the section of the central act referring to procedures for closing down undertakings has been amended. Effectively no change." Besley and Burgess (2004).	BB Index coded this as 'neutral'. Ahsan and Pages didn't include this amendment in their analysis	Not Relevant

12. Maharashtra			
1974, IDA, Section 7	"Reduction of the qualifications of judge to serve on a Labour Court. Involves both a reduction in the years of experience and judges from lower levels of the judicial system being allowed to serve." (Besley & Burgess, 2004)	This amendment seeks to address dispute resolution inefficiency. BB Index coded this as 'neutral' and Ahsan and Pages (2009) didn't include this amendment in their analysis.	0
1974, IDA, Section 7A	"Reduction of the qualifications of presiding officer to serve on an Industrial Tribunal. Involves both a reduction in the years of experience and judges from lower levels of the judicial system being allowed to serve." Besley and Burgess (2004).	BB Index coded this as 'neutral' and Ahsan and Pages (2009) didn't include this amendment in their analysis.	0
1981, IDA, Section 2	"Discontinuation or reduction of power supply to an industrial establishment can be used a reason for lay-off (for which workers will receive compensation). Under the central act only shortage of coal, power or raw materials or the accumulation of stocks or the breakdown of machinery are listed as valid reasons for lay-offs." (Besley & Burgess, 2004)	Same classification as BB Index, and Ahsan and Pages (2009). However, coding sign is opposite.	-1
1981, IDA, Section 25C	"If being laid off is not due to electricity problems then the workers receive 100% of	Same classification as BB Index, and Ahsan and Pages (2009). However, coding sign is opposite.	-1

	their wages as compared to the normal 50%." (Besley & Burgess, 2004)		
1981, IDA, Section 25K	"The rules for lay-off, retrenchment and closure may according to the discretion of the state government be applied to industrial establishments of a seasonal character and which employ more than 100 but less than 300 workers. Under the central act these rules only apply to permanent establishments which employ more than 300 workers." (Besley & Burgess, 2004)	No such provisions were made. See Bhattacharjea (2006) for a detailed critique. BB Index wrongly reported this amendment in their analysis and coded this as pro-worker. Ahsan and Pages (2007, 2009) code this as hurting labour market adjustment based on BB classification even though taking Bhattacharjea's critique into consideration.	Not Relevant
1981, IDA, Section 25O	"Any employer or worker affected by the decision to close down an enterprise is permitted for 30 days from the date of permission to close being granted appeal to an Industrial Tribunal to overturn the decision." (Besley & Burgess, 2004)	This was in 1981 and not in 1983 as stated in BB. See Bhattacharjea (2009) for a critique. BB Index misinterpreted and coded this as pro-worker. Ahsan and Pages (2007, 2009) coded this as hurting labour market adjustment based on BB classification. However, this provision allows both employers and workers to appeal against a decision of closure to an Industrial Tribunal. Hence, this amendment is coded as 'neutral' simplifying dispute resolution mechanism.	0
1981, IDA, Section 25R	"Amendment is required given that the section of the central act referring	Wrong year in BB Index. BB Index coded this as 'neutral'. Ahsan and	Not Relevant

	to procedures for closing down undertakings has been amended. Effectively no change." (Besley & Burgess, 2004)	Pages didn't include this amendment in their analysis.	
2003/2006, IDA, Section-2	"In section 2 of the IDA 1947, in clause (s), in sub-clause (iv), for the words -one thousand six hundred rupees- the words - six thousand five hundred rupees- shall be substituted." (Government of Maharashtra, 2006). This amendment was passed in 2006.	This is an update in the existing information regarding amendments to IDA available in the literature. This amendment raised the amount of penalty from one thousand six hundred rupees to six thousand five hundred rupees on employers in case an employer is found guilty of carrying out lay-offs and retrenchment without prior govt. permission.	-1
2003/2006, IDA, Section-9A	"In Section 9A of the principal Act, after clause (b), the following clause shall be added, namely : where the change is effected due to updating or replacing of the existing machinery, computerisation or increase in the immovable property and increase in production and that , - such change shall not affect the total wages of the workmen and their hours of work; and the employer provides all the legitimate and required facilities ; such as training etc, to the workmen to acquire the	This is an update in the existing information regarding amendments to IDA available in the literature. This amendment imposed extra 'transaction' cost on employers in case they plan to modernize or update the production technique. The amendment required the employers not to effect any changes in wages or hours of work of workers and provide the necessary training to cope up with the new technology. This amendment adversely affects an employer's decision to carry out	-1

	skill of new job." (Government of Maharashtra, 2006). This amendment was passed in 2006.	changes in production technology and the required labour adjustment for the same.	
13. ODISHA			
1960, IDA, Section 7A	"Reduction of the qualifications of presiding officer to serve on an Industrial Tribunal. Involves both a reduction in the years of experience and judges from lower levels of the judicial system being allowed to serve." (Besley & Burgess, 2004)	BB Index coded this as 'neutral', and Ahsan and Pages (2007, 2009) didn't include this amendment in their analysis.	0
1960, IDA, Section 7A	"Reduction of the qualifications of presiding officer to serve on an Industrial Tribunal. Involves both a reduction in the years of experience and judges from lower levels of the judicial system being allowed to serve." (Besley & Burgess, 2004)	BB Index coded this as 'neutral', and Ahsan and Pages (2009) didn't include this amendment in their analysis.	0
1983, IDA, Section 25K	"The rules for lay-off, retrenchment and closure may according to the discretion of the state government be applied to industrial establishments, which employ more than 100 workers. Under the central act these rules only apply to establishments, which employ more than 300 workers." (Besley & Burgess, 2004)	Same change as the Central IDA amendment, 1982. See Bhattacharjea (2006) or Literature Review section for a critique. BB Index coded this as pro-worker. Ahsan and Pages (2009) incorporate Bhattacharjea's critique and recoded this as not relevant.	Not Relevant

1983, IDA, Section 25O	"Any employer or worker affected by the decision to close down an enterprise is permitted for 30 days from the date of permission to close being granted appeal to an Industrial Tribunal to overturn the decision." (Besley & Burgess, 2004)	See Bhattacharjea (2009) who make a critique of the same amendment arguing that no such provision was made and it was identical to the central amendment. BB Index wrongly reported it and coded this as pro-worker. Ahsan and Pages (2009) coded this as hurting labour market adjustment based on BB classification.	Not Relevant
1983, IDA, Section 25R	"Amendment is required given that the section of the central act referring to procedures for closing down undertakings has been amended. Effectively no change." (Besley & Burgess, 2004)	BB Index coded this as 'neutral'. Ahsan and Pages (2007, 2009) didn't incorporate this in their analysis.	Not Relevant
14. PUNJAB			
1957, IDA, Section 7	"Reduction of the qualifications of judge to serve on a Labour Court. Involves both a reduction in the years of experience and judges from lower levels of the judicial system being allowed to serve." (Besley & Burgess, 2004)	BB Index coded this as 'neutral', and Ahsan and Pages (2009) didn't include this amendment in their analysis.	0
1957, IDA, Section 7C	"Reduction of the qualifications of judge to serve on a Labour Court." (Besley & Burgess, 2004).	BB Index coded this as 'neutral' and Ahsan and Pages (2009) didn't include this amendment in their analysis.	0

15. Rajasthan			
1960, IDA, Section 2	"Arbitration proceeding is exactly defined." (Besley & Burgess, 2004)	This amendment seeks to address dispute resolution inefficiency. BB Index coded this as 'neutral', and Ahsan and Pages (2009) didn't include this amendment in their analysis.	0
1960, IDA, Section 2	"Renumbering of sections to take into account precise definition of arbitration proceedings." (Besley & Burgess, 2004)	BB Index coded this as 'neutral', and Ahsan and Pages (2009) didn't include this amendment in their analysis.	Not Relevant
1960, IDA, Section 2	"Member is defined as someone who is an ordinary member of a Union and who has paid a subscription of not less than four annas per month and who is not in arrears as regards these payments. Such an exact definition does not exist under the central act." (Besley & Burgess, 2004)	BB Index misinterpreted and code this as pro-employer. . This amendment seeks to address dispute resolution inefficiency by giving a precise definition of a member of a union. Hence, following Ahsan and Pages (2007, 2009), this amendment is coded as 'neutral'.	0
1960, IDA, Section 2	"The definition of employer in the context of an industrial dispute also includes owners who have contracted with persons for the execution of work as part of the industry." (Besley & Burgess, 2004).	BB Index misinterpreted and coded this as pro-worker. This amendment seeks to address dispute resolution inefficiency by giving a precise definition of an employer in the context of industrial disputes. Hence, following Ahsan and Pages (2007, 2009), this amendment is coded as 'neutral'.	0

1960, IDA, Section 2	"Registrar is defined as the person appointed to be the Registrar of Unions. This makes it clear who is involved in the bargaining process on behalf of the unions. This definition does not appear in the central act and hence might be subject to interpretation." (Besley & Burgess, 2004).	BB Index misinterpreted and coded this as pro-employer. This amendment seeks to address dispute resolution inefficiency by giving a precise definition of a Registrar of Unions. Hence, following Ahsan and Pages (2007, 2009), this amendment is coded as 'neutral'.	0
1960, IDA, Section 2	"Union is defined to be a trade union of employees registered under the Indian Trade Unions Act, 1926. This makes it clear who is involved in the bargaining process on behalf of the unions. This definition does not appear in the central act and hence might be subject to interpretation." (Besley & Burgess, 2004)	BB Index misinterpreted and coded this as pro-employer. This amendment seeks to address dispute resolution inefficiency by giving a precise definition of a Union. . Hence, following Ahsan and Pages (2007, 2009), this amendment is coded as 'neutral'.	0
1960, IDA, Section 2	"The definition of worker in the context of an industrial dispute also includes workers who have contracted with employers for the execution of work as part of the industry." (Besley & Burgess, 2004)	BB Index misinterpreted and coded this as pro-worker. This amendment seeks to address dispute resolution inefficiency by giving a precise definition of a worker in the context of industrial disputes. Hence, following Ahsan and Pages (2007, 2009), this amendment is coded as 'neutral'.	0
1960, IDA, Section 3	"The state government has to appoint a Registrar of Unions and may also	BB Index misinterpret and coded this as pro-employer. This	0

	appoint Assistant Registrars of Unions to work in local areas. This makes it clear who can represent unions within Work Committees." (Besley & Burgess, 2004)	amendment seeks to address dispute resolution inefficiency. Hence, following Ahsan and Pages (2007, 2009), this amendment is coded as 'neutral'.	
1970, IDA, Section 10A-10K	"The state government has the right to refer an industrial dispute to an Industrial Tribunal if it is satisfied that (i) public peace or safety is threatened, serious or prolonged hardship of part of the community is likely to be caused or the industry concerned is likely to be seriously damaged, (ii) the industrial dispute is unlikely to be settled by other means or (iii) it is in the public interest to do so." (Besley & Burgess, 2004)	BB Index misinterpreted and coded this as pro-employer. This amendment seeks to address dispute resolution inefficiency. Hence, following Ahsan and Pages (2007, 2009), this amendment is coded as 'neutral'.	0
1970, IDA, Section 10A-10K	"If in the opinion of the state government it is necessary or expedient so to do for securing the public safety or the maintenance of public order or services or supplies essential to the life of the community or for maintaining employment or industrial peace in the industrial establishment it may issue an order which (i) requires employers and workers to observe the	BB misinterpret and code this amendment as pro-employer. This amendment intends to curb industrial disputes and require both workers and employers to comply by order of the state govt. and prohibits any public utility service from closing down without necessarily being pro-employer or pro-worker move. Hence, following Ahsan and Pages (2007,	0

	terms and conditions of the order. (ii) prevents any public utility service from closing." (Besley & Burgess, 2004)	2009), this amendment is coded as 'neutral'.	
1970, IDA, Section 30-30A	"Failure to comply an order by the state Government, which constrains industrial dispute activity in the interests of the public is punishable with imprisonment for a period, which may extend to one year or with a fine, which may extend to two thousand rupees or with both." (Besley & Burgess, 2004)	BB Index misinterpreted and coded this as pro-employer. The provision of this amendment is equally applicable to both employers and workers. Hence, following Ahsan and Pages (2007, 2009), this amendment is coded as 'neutral'.	0
1970, IDA, Section 33C	"Widens the scope of awards for which the worker can obtain judicial help with securing money owed by a employer to include awards made as the result of an order issued by the state Government to constrain industrial dispute activity in the interests of the public." (Besley & Burgess, 2004)	BB Index misinterpret and code this as pro-worker. This amendment seeks to address dispute resolution inefficiency and curb industrial disputes. Hence, following Ahsan and Pages (2007, 2009), this amendment is coded as 'neutral'.	0
1970, IDA, Section 9C	"This describes the supervisory duties of the Registrar of Unions and the rules for registration of unions (which is obligatory). One duty of the Registrar is to ensure that only one union (that with the largest	BB misinterpreted and coded this as pro-employer. This amendment seeks to address dispute resolution inefficiency and curb industrial disputes. Hence, following Ahsan and	0

	employment) represents a single unit within an industry." (Besley & Burgess, 2004)	Pages (2007, 2009), this amendment is coded as 'neutral'.	
1984, IDA, Section 25K	"The rules for lay-off, retrenchment and closure may according to the discretion of the state government be applied to industrial establishments of a seasonal character and which employ more than 100 but less than 300 workers. Under the central act these rules only apply to permanent establishments, which employ more than 300 workers." (Besley & Burgess, 2004)	Same change as the Central IDA amendment, 1982. See Bhattacharjea (2006 for a critique. BB Index wrongly reported and coded this as pro-worker. Ahsan and Pages (2009) incorporated Bhattacharjea's critique and recoded this as not relevant.	Not Relevant
1984, IDA, Section 25L	"Under the central act the central government is deemed as the -appropriate government- for dealing with rules for lay-off, retrenchment and closure. This amendment changes this definition to read -the state government shall have no powers-" (Besley & Burgess, 2004).	BB Index coded this as 'neutral' and Ahsan and Pages (2007, 2009) didn't include this amendment in their analysis.	Not Relevant
1984, IDA, Section 25M	"(i) Substitutes state government for appropriate government as being the government, which has the power to grant permission to lay-off workers. (ii) The expression (Amendment) Act 1976 should be substituted with (Rajasthan Amendment)	BB Index coded this as 'neutral' and Ahsan and Pages (2007, 2009) didn't include this amendment in their analysis.	Not Relevant

	Act 1984. (iii) The state government (as opposed to central government) has the right to refer lay-off matters to a labour court." (Besley & Burgess, 2004)		
1984, IDA, Section 25M	"Under the central act where workers in a mine have been laid off for reasons of fire, flood or gas explosion the employer doesn't have to receive prior consent. However, the employer has to apply for permission to continue the lay-off beyond 30 days. Here that condition is removed." (Besley & Burgess, 2004)	Applicable to the Mining and quarrying sector only and doesn't affect the Manufacturing sector. Both BB Index and Ahsan and Pages (2007, 2009) coded it wrongly as pro-employer and easing labour market adjustment.	Not Relevant
1984, IDA, Section 25N	"Union representatives have to be involved in any negotiations concerning retrenchment of workers. Their involvement is not stipulated under the central act." (Besley & Burgess, 2004)	Same classification as BB Index, and Ahsan and Pages (2007, 2009). However, coding sign is opposite.	-1
1984, IDA, Section 25N	"(i) State government as opposed to central government is deemed the appropriate government in dealing with negotiations regarding retrenchment of workers." (Besley & Burgess, 2004)	BB Index code this as 'neutral', and Ahsan and Pages (2007, 2009) didn't include this amendment in their analysis.	Not Relevant
1984, IDA, Section 25O	"Undertakings dealing with construction of buildings, bridges, roads, canals, dams or other	This amendment is applicable to construction sector and doesn't affect	Not Relevant

	construction work are no longer exempted from procedures for closing down undertakings." (Besley & Burgess, 2004)	manufacturing sector. BB Index misinterpreted and coded this as pro-worker. Ahsan and Pages (2009) wrongly use BB Index classification to classify this amendment as adversely affecting the labour market adjustment.	
1984, IDA, Section 25P	"In the central act government can order undertakings closed down before the commencement of the Industrial Dispute (Amendment) Act 1976 to reopen. This amendment stipulates that such decisions can be referred to an Industrial Tribunal for adjudication." (Besley & Burgess, 2004)	BB Index coded this as 'neutral', and Ahsan and Pages (2007, 2009) didn't include this amendment in their analysis.	0
1984, IDA, Section 25PP	"Special provisions were put in place to reinstate workers who had been retrenched in the six months prior to passing the Industrial Disputes (Rajasthan Amendment) Act 1984. This section was only in force for six months hence unlikely to have long-term effects." (Besley & Burgess, 2004)	BB Index coded this as 'neutral', and Ahsan and Pages (2007, 2009) didn't include this amendment in their analysis.	Not Relevant
1984, IDA, Section 25Q	"The maximum penalty for lay-off and retrenchment of workers without permission is increased to imprisonment for three	Same classification as BB Index and Ahsan and Pages (2007, 2009) coding.	-1

	months or a fine of two thousand rupees or both (from the one-month imprisonment or a fine of one thousand rupees or both) which are the terms stipulated in the central act." (Besley & Burgess, 2004)		
1984, IDA, Section 25R	"Amendment is required given that the section of the central act referring to procedures for closing down undertakings has been amended. Effectively no change." (Besley & Burgess, 2004)	BB Index coded this as 'neutral', and Ahsan and Pages (2007, 2009) didn't include this amendment in their analysis.	Not Relevant
1984, IDA, Section 25S	"The procedures for lay-off and retrenchment specified in Chapter VA of the central act are deemed to be applicable to industrial establishments of a seasonal character and which employ more than 100 but less than 300 workers. Under the central act these rules only apply to permanent establishments which employ more than 300 workers." (Besley & Burgess, 2004)	Same classification as BB Index, and Ahsan and Pages (2007, 2009). However, coding sign is opposite.	1
16. TAMIL NADU			
1949, IDA, Section 2	"Allows the appropriate government to declare any industry as a public utility if a public emergency or public interest requires so. In	BB Index misinterpreted and coded this as pro-employer. This provision doesn't really favour either employers or workers as it limits both	0

	the central act only industries in the First Schedule (public utilities) may be declared thus. Public utilities are more limited in having strikes and lock-outs and the government has greater power to refer industrial disputes in public utilities service to the appropriate court." (Besley & Burgess, 2004)	strikes (carried out by workers) and lockout (carried out by employers) and rather intends to facilitate faster dispute resolution. Hence, following Ahsan and Pages (2007, 2009), this amendment is coded as 'neutral'.	
1949, IDA, Section 10	"States where a Tribunal has been constituted under this Act for the adjudication of disputes in any specified industry or industries and a dispute exists or is apprehended in any such industry then the employer or majority of workmen may refer the dispute to that Tribunal. This facilitates referral of disputes to Tribunals as the process does not need to be intermediated by government. In the central act both sides have to apply to the government so it can refer the dispute to a court." (Besley & Burgess, 2004)	BB Index misinterpreted and coded this as pro-employer. This amendment addresses dispute resolution mechanism rather than labour adjustment process. Both employers and workers are given the power to refer the dispute to tribunal. Hence, following Ahsan and Pages (2009) this amendment is coded as 'neutral'.	0
1981, The Tamil Nadu Industrial Establishmen -ts (Conferment	"Notwithstanding anything contained in any law for the time being in force every workman who is in continuous service for a	This is a new Act which has not been incorporated in any study in the literature pertaining to labour laws in India and labour market rigidity.	-1

of Permanent Status of Workmen) Act	period of 480 days in a period of twenty-four calendar months an industrial establishment shall be made permanent." (Government of Tamil Nadu, 1981).	This act provides provisions for conferring permanent status to workmen who meet certain criteria. Hence, this act is a move in the pro-worker direction which adversely affect the ability of employers to adjust employment as permanent workers are protected under various provisions of IDA.	
1982, IDA, Section 10A-10K	"If in the opinion of the state government it is necessary or expedient so to do for securing the public safety or the maintenance of public order or services or supplies essential to the life of the community or for maintaining employment or industrial peace in the industrial establishment it may issue an order which (i) requires employers and workers to observe the terms and conditions of the order and (ii) prevents any public utility service from closing." (Besley & Burgess, 2004)	BB Index misinterpreted and coded this amendment as pro-employer. This amendment intends to curb industrial disputes and require both workers and employers to comply by order of the state govt. and prohibits any public utility service from closing down without necessarily being pro-employer or pro-worker move. Hence, following Ahsan and Pages (2007, 2009) this amendment is coded as neutral.	0
1982, IDA, Section 29A	"Failure to comply an order by the state government, which constrains industrial dispute activity in the interests of the public is punishable with imprisonment for a	BB Index misinterpreted and coded this as pro-employer. The provision of this amendment is equally applicable to both employers and workers. Hence, following Ahsan and	0

	period which is not less than six months and with a fine." (Besley & Burgess, 2004).	Pages (2007, 2009) this amendment is coded as 'neutral'.	
1988, IDA, Section 11	"Increases the power of the conciliation officer in terms of enforcing attendance, compelling the production of documents and issuing commissions for the examination of witnesses." (Besley & Burgess, 2004).	BB Index misinterpreted and coded this as pro-employer. This amendment seeks to address dispute resolution inefficiency and it is equally enforceable on both workers and employers. Hence, following Ahsan and Pages (2007, 2009) this amendment is coded as 'neutral'.	0
1988, IDA, Section 2A	"In the case of an industrial dispute involving an individual worker he has the right to apply directly to the Labour Court for adjudication. No such right is specified in the central act." (Besley & Burgess, 2004).	BB Index misinterpreted and coded this as pro-worker This amendment seeks to simplify dispute resolution mechanism where a worker can directly appeal to a labour court. Hence, following Ahsan and Pages (2007, 2009) this amendment is coded as 'neutral'.	0
17. UTTAR PRADESH			
1951, IDA, Section 7	"Reduction of the qualifications of judge to serve on a Labour Court. Involves both a reduction in the years of experience and judges from lower levels of the judicial system being allowed to serve." (Besley & Burgess, 2004).	BB Index coded this as 'neutral' and Ahsan and Pages (2007, 2009) didn't include this amendment in their analysis.	0

1983, Own IDA, Section 6V	"Uttar Pradesh amended its own 1947 IDA in 1983 to insert Section 6-V, setting the threshold for permission for layoffs, retrenchment and closures at 300." (Bhattacharjea, 2006).	See Bhattacharjea (2006) for a detailed discussion on this amendment. Both BB Index, and Ahsan and Pages (2007, 2009) didn't include this amendment in their analysis.	+1
18. WEST BENGAL			
1958, IDA, Section 7A	"Reduction of the qualifications of presiding officer to serve on an Industrial Tribunal. Involves both a reduction in the years of experience and judges from lower levels of the judicial system being allowed to serve." (Besley & Burgess, 2004).	BB Index coded this as 'neutral', and Ahsan and Pages (2007, 2009) didn't include this amendment in their analysis.	0
1959, IDA, Section 7C	"The presiding officer serving in a labour court, tribunal or national tribunal who has attained the age of 65 is allowed to serve for a further six months." (Besley & Burgess, 2004).	BB Index coded this as 'neutral', and Ahsan and Pages (2007, 2009) didn't include this amendment in their analysis.	0
1974, IDA, Section 2	"Any worker who presents himself and is given employment for that day cannot be laid off for that day. However, if he didn't receive a work within 2 hours he is deemed as being laid off. Under the central act only the second condition holds." (Besley & Burgess, 2004).	Same classification as BB Index and Ahsan and Pages (2007, 2009). However, coding sign is opposite.	-1

1980, IDA, Section 2	"Workers involved in sales promotion are included in the definition of workers. This category of employment is not specified in the central act." (Besley & Burgess, 2004).	Same classification as BB Index, and Ahsan and Pages (2007, 2009). However, coding sign is opposite.	-1
1980, IDA, Section 2	"Retrenchment, which means termination of employment of a worker, does include workers terminated on grounds of continued ill-health. In the central act termination for these workers is excluded from the definition of retrenchment." (Besley & Burgess, 2004).	Same classification as BB Index, and Ahsan and Pages (2007, 2009). However, coding sign is opposite.	-1
1980, IDA, Section 12	"A report of the outcome of conciliation proceedings must be submitted within 60 days of the commencement of conciliation proceedings. In the central act, the same report must be produced within 14 days." (Besley & Burgess, 2004).	BB Index misinterpreted and coded this amendment as pro-worker. This amendment seeks to address dispute resolution inefficiency. Hence, Following Ahsan and pages (2007, 2009), this amendment is coded as 'neutral'.	0
1980, IDA, Section 20	"In the case of public utility service, the conciliation proceeding is deemed to start on the day, the notice of a strike or lockout is received by a conciliation officer. In the case of other industries, the conciliation proceeding is deemed to start on the	BB Index misinterpreted and coded this amendment as pro-worker. This amendment seeks to address dispute resolution inefficiency. Hence, Following Ahsan and pages (2007, 2009), this amendment is coded as 'neutral'.	0

	date conciliation officer asked the parties to join a conference. Under the central act the conciliation proceeding in all industries have to start on the day that notice of a strike or lockout is received by a conciliation officer." (Besley & Burgess, 2004).		
1980, IDA, Section 11A-11D	"A Labour Court or Tribunal is granted the power of a Civil Court to execute its award or any settlement as a decree of a Civil Court." (Besley & Burgess, 2004).	BB Index misinterpreted and coded this as pro-employer. Bhattacharjea (2006) provide a critique of BB's classification of this amendment as pro-employer about Andhra Pradesh. Ahsan and Pages (2007, 2009) recode this under dispute resolution amendment.	0
1980, IDA, Section 17A	"(i) Provides greater detail on the procedures for making awards from Labour Courts or Tribunals including necessary signatories and the timing of awards. (ii) The state government also retains the right to reject, modify any award made by a Labour Court or Tribunal." (Besley & Burgess, 2004).	BB Index misinterpreted and coded this amendment as pro-worker. This amendment seeks to address dispute resolution inefficiency. Hence, following Ahsan and Pages (2007, 2009) this amendment is coded as 'neutral'.	0
1980, IDA, Section 25C	"The limit of 45 days for workers receiving 50% of their wages upon being laid off (if they worked more than a year) is removed." (Besley & Burgess, 2004).	Same classification as BB Index and Ahsan and Pages (2007, 2009). However, coding sign is opposite.	-1

1980, IDA, Section 25E	"Where a lay-off extends for more than seven days then the worker only has to present himself once a week at the plant in order to be entitled to compensation as opposed to daily as stipulated under the central act." (Besley & Burgess, 2004).	Same classification as BB Index and Ahsan and Pages (2007, 2009). However, coding sign is opposite.	-1
1980, IDA, Section 25FFF	"Prior payment of compensation to the worker is a condition precedent to the closure of an undertaking. Under the central act payment of compensation does not need to be made prior to closure." (Besley & Burgess, 2004).	Same classification as BB Index and Ahsan and Pages (2007, 2009). However, coding sign is opposite.	-1
1980, IDA, Section 25H	"Where a closed firm is re-opened, workers who were on the roll of a given unit should be given the opportunity to offer themselves for employment in preference to others. Under the central act retrenched workers are given preference but there is less specify as regards rehiring workers from the same unit." (Besley & Burgess, 2004).	Both BB Index and Ahsan and Pages (2007, 2009) coded this as pro-worker. However, this amendment only provides for preference for those workers in employment who were on the muster roll of the firm prior to closing down as against new workers. This amendment seeks to curb disputes at best without having to necessary being characterised as pro-worker in the sense that it affects labour adjustment process adversely.	0

1980, IDA, Section 25HH	"Where a worker is reinstated by an award of a Labour Court or Tribunal, his wages will be paid from the date specified in that award whether or not he has been reinstated by the employer." (Besley & Burgess, 2004).	Same classification as BB Index and Ahsan and Pages (2007, 2009). However, coding sign is opposite.	-1
1980, IDA, Section 25K	"The rules for lay-off, retrenchment and closure may according to the discretion of the state government be applied to industrial establishments, which employ more than 50 workers. Under the central act these rules only apply to establishments, which employ more than 300 workers." (Besley & Burgess, 2004).	Same classification as BB Index and Ahsan and Pages (2007, 2009). However, coding sign is opposite.	-1
1980, IDA, Section 25M	"The period after which, if the appropriate government has not responded, the employer can commence layoffs (i.e. treat his application as granted) is extended from 2 to 3 months." (Besley & Burgess, 2004).	Same classification as BB Index and Ahsan and Pages (2007, 2009). However, coding sign is opposite.	-1
1980, IDA, Section 25C	"In place of the Collector, the Chief Judicial Magistrate or the Chief Metropolitan Magistrate are given the power to recover from an employer money owing to a worker as the result of settlement of an	BB Index misinterpreted this amendment as pro-worker. This amendment simply refers to the changed role of the Collector and Chief Judicial Magistrate in a dispute resolution mechanism. Hence,	0

	industrial dispute." (Besley & Burgess, 2004).	following Ahsan and Pages (2007, 2009), this amendment is classified as 'neutral'.	
1980, IDA, Section 25A	"If an employer wants to change in the conditions of service applicable to any worker he has to give him a notice of 42 days (instead of 21)" (Besley & Burgess, 2004).	Same classification as BB Index and Ahsan and Pages (2007, 2009). However, coding sign is opposite.	-1
1981, IDA, Section 19	"Refers to a section of the central act which was added as the result of an amendment introduced by this state." (Besley & Burgess, 2004).	BB Index coded this as 'neutral'. Ahsan and Pages didn't include this amendment in their analysis.	Not Relevant
1986, IDA, Section 15	"Provides greater detail on the duties of Labour Courts, Tribunals and National Tribunals with respect to procedure, hearings, commencement of award and the amount of interim relief admissible to workers that have been discharged, dismissed or retrenched." (Besley & Burgess, 2004).	BB Index misinterpreted and coded this amendment as pro-worker. This amendment seeks to address dispute resolution inefficiency. Hence, following Ahsan and Pages (2007, 2009), this amendment is classified as 'neutral'.	0
1989, IDA, Section 7	"Reduction of the qualifications of judge to serve on a Labour Court. Involves both a reduction in the years of experience and judges from lower levels of the judicial system being allowed to serve." (Besley & Burgess, 2004).	BB Index coded this as 'neutral', and Ahsan and Pages (2009) didn't include this amendment in their analysis.	0
1989, IDA, Section 10	"In the case of an industrial dispute involving an individual	BB Index misinterpreted and coded this amendment as pro-	0

	worker if no settlement is arrived at within 60 days the party raising the dispute can apply directly to a conciliation officer. Within 60 days from the conciliation officer's certificate they can apply to refer the dispute to labour court. No such right is specified in the central act." (Besley & Burgess, 2004).	worker. This amendment seeks to address dispute resolution inefficiency. Hence, following Ahsan and Pages (2007, 2009), this amendment is classified as 'neutral'.	
1989, IDA, Section 38	"Change needed as the result of another amendment being made by this state." (Besley & Burgess, 2004).	BB Index coded this as 'neutral'. Ahsan and Pages didn't include this amendment in their analysis.	Not Relevant
1989, IDA, Section 25O	"In their application to close down an undertaking the employers have to demonstrate their ability to discharge their liability for payment of compensation to workers." (Besley & Burgess, 2004).	Same classification as BB Index, and Ahsan and Pages (2007, 2009). However, coding sign is opposite.	-1
1989, IDA, Section 25P	"In the central act government can order undertakings closed down before the commencement of the Industrial Dispute (Amendment) Act 1976 to reopen. This amendment stipulates that such decisions can be referred to an Industrial Tribunal for adjudication." (Besley & Burgess, 2004).	BB Index coded this as 'neutral', and Ahsan and Pages (2007, 2009) didn't include this amendment in their analysis.	0

1989, IDA, Section 2A	"Refusal of employment is added as grounds for an individual worker to enter into an industrial dispute with his/her employer. Only discharge, dismissal, retrenchment or other termination of employment, are mentioned as grounds in the central act." (Besley & Burgess, 2004).	BB Index misinterpreted and coded this amendment as pro-worker. This amendment seeks to address dispute resolution inefficiency. Hence, following Ahsan and Pages (2007, 2009), this amendment is classified as 'neutral'.	0
1990, IDA, Section 7A	"Reduction of the qualifications of presiding officer to serve on an Industrial Tribunal. Involves both a reduction in the years of experience and judges from lower levels of the judicial system being allowed to serve." (Besley & Burgess, 2004).	BB Index coded this as 'neutral', and Ahsan and Pages (2007, 2009) didn't include this amendment in their analysis. Hence, this amendment is coded as 'neutral' simplifying dispute resolution mechanism.	0

Source: Besley and Burgess (2004) Data Appendix; Ahsan and Pages (2007, 2009); Bhattacharjea (2006, 2009); and updated until 2007 using various Web based resources cited within the Table.

Note: Source for the Industrial Employments (Conferment of Permanent Status to Workmen) Act passed by Assam and Tamil Nadu are cited within the Table.

Table A4: Total Number of Amendments and Cumulative De Jure Scores of various States.

State Name	Number of Pro-labour Amendments reducing labour Market Flexibility	Number of Pro-Employer Amendments increasing labour Market Flexibility	Cumulative de jure flexibility score	Number of 'Neutral' Amendments Simplifying Dispute Resolution
Andhra Pradesh	*3*	*0*	*-3*	*8*
Assam	*2*	*0*	*-2*	*3*
Bihar	*0*	*0*	*0*	*1*
Chhattisgarh	*0*	*0*	*0*	*1*
Delhi	*0*	*0*	*0*	*1*
Goa	*0*	*0*	*0*	*2*
Gujarat	*0*	*1*	*+1*	*6*
Haryana	*0*	*0*	*0*	*2*
Himachal Pradesh	*0*	*0*	*0*	*0*
Jharkhand	*0*	*0*	*0*	*0*
Karnataka	*1*	*0*	*-1*	*5*
Kerala	*0*	*0*	*0*	*3*
Madhya Pradesh	*0*	*0*	*0*	*4*
Maharashtra	*4*	*0*	*-4*	*3*
Orissa	*0*	*0*	*0*	*2*
Punjab	*0*	*0*	*0*	*2*
Rajasthan	*2*	*1*	*-1*	*12*
Tamil Nadu	*1*	*0*	*-1*	*6*
Uttarakhand	*0*	*0*	*0*	*0*
Uttar Pradesh	*0*	*1*	*+1*	*1*
West Bengal	*11*	*0*	*-11*	*14*

Source: Author's Calculation using the methodology discussed in Chapter 2.