

**RURAL NON-FARM EMPLOYMENT IN
UTTAR PRADESH, 1971-1991
A REGIONAL ANALYSIS**

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I hereby affirm that the research for this dissertation titled "Rural Non-Farm Employment in Uttar Pradesh, 1971-1991: A Regional Analysis" being submitted to the Jawaharlal Nehru University for the award of the degree of Master of Philosophy in Applied Economics was carried out by me at the Centre for Development Studies, Thiruvananthapuram.

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Certified that this dissertation is the bonafide work of Sharad Ranjan. This has not been considered for the award of any other degree by any other University.

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CHAPTER 1.

INTRODUCTION

1.1 THE ISSUE

The non-farm sector has come to acquire an importance of its own in discussions of the rural economy. Particularly so in developing countries like India where it is recognised that the agriculture sector alone cannot absorb the expanding rural labour force. In the interim report of the Economic Advisory Council (1990), Govt of India, it was pointed out that the growth of employment in agriculture had slowed down to 1.20 per cent per annum during the period 1983 to 1987-88 from 2.32 per cent during the period 1972-73 to 1977-78.¹ Limited employment opportunities in agriculture, thus lead to rural urban migration for livelihood. The situation is not much better in the urban areas notably because of the difficulty of absorbing even the natural increases of urban labour force in the urban centres itself. The estimates show that employment growth in urban areas has declined sharply from 4.22 per cent per annum during 1977-78 and 1983 to 2.95 per cent per annum during 1983 and 1987-88.² The generation of non-farm employment opportunities become necessary in view of the fact that rural job seekers are mostly unskilled and uneducated and thus their scope for employment outside the

¹ The Economic Times August 27, 1990, Employment Ploy.

² The Economic Times July 29, 1993, Bleak Scenario against the backdrop of new realities.

rural economy is extremely limited.

1.2 IMPORTANCE OF NON-FARM ACTIVITIES IN THE EXISTING AGRO-DEMOGRAPHIC SCENARIO

It is now fully recognised that in peasant economies, typically characterised by population pressures, agriculture alone cannot provide the ultimate solution for rural un- and under-employment. In projecting the estimates of unemployment, the National Commission on Agriculture came to the conclusion that by 2000 AD, expansion in various agricultural programmes (including those in animal husbandry, fishing and forestry) would generate employment opportunities for about 52 millions. As against this, there would be an increase of 143 million persons in the rural labour force in that year.³ The increase in demographic pressure on agriculture would be reflected in the deteriorating land-man ratio and decline in labour productivity. The current trend in land man ratio and labour productivity would perhaps better explain the severity of the situation. Table 1.1 shows a continuous decline in land man ratio at the all India and state level. The all India average of land man ratio which was 1.44 hectares in 1971 declined to 1.24 hectares in 1981 and further to 1.05 hectares in 1991. Among these states, the ratio is more adverse in Uttar Pradesh, Tamil Nadu, West Bengal and Bihar.

³ Vyas and Mathai 1978, quoted from National Commission on Agricultural Report, (1976), Part XIII, Rural Employment and Special Area Programme, Ministry of Agriculture and Irrigation.

TABLE 1.1: LAND-MAN* RATIOS BY STATE

State	Land-Man Ratios		
	1971	1981	1988-89
1. Punjab	1.66	1.50	1.28
2. Haryana	2.14	1.82	1.49
3. Uttar Pradesh	0.92	0.81	0.66
4. Andhra Pradesh	1.41	1.18	0.97
5. Gujarat	2.09	1.85	1.60
6. Maharashtra	2.25	2.07	1.78
7. Karnataka	1.93	1.66	1.47
8. Rajasthan	2.84	2.35	2.25
9. Madhya Pradesh	2.09	1.83	1.57
10. Orissa	1.28	1.14	1.04
11. Tamil Nadu	0.90	0.84	0.66
12. West Bengal	0.84	0.69	0.56
13. Bihar	0.70	0.62	0.54
All-India	1.44	1.24	1.05

Notes: * Land-Man ratios are Net Sown Area (in hectares) divided by Total Male Agricultural Workers (cultivators plus agricultural labourers).

Source: Bhalla 1989; Indian Agriculture in Brief 1992, Directorate of Economics and Statistics, Ministry of Agriculture, GOI.

The land man ratio in Uttar Pradesh and Tamil Nadu, which was close to one hectare in 1971 has declined to a little over half hectare only by 1991. In addition to that, labour productivity in agriculture has been the lowest and its rate of growth has been marginal relative to other sectors.⁴ The low productivity in agriculture is explained partly by the fact that in large tracts of India, agriculture is still under traditional methods of production and partly by the fact that it absorbs a much higher

⁴ The Economic Times July 29 1993, Plagued by Low Productivity?

proportion of labour (around 63%) than it contributes to output.⁵

The scenario would deteriorate further if labour is substituted for capital in agriculture. Infact, this phenomenon has been observed in various states which had been pioneers in the adoption of Green Revolution technology. Table 1.2 shows that the states- Punjab, Haryana and Uttar Pradesh which are conspicuous for having had production growth rates in excess of 3 per cent per annum over the past ten to fifteen years, have now clearly shifted over to 'labour saving' technologies to increase yields and output, while the states of Andhra Pradesh, Gujarat and Maharashtra, which are relatively newcomers have been adopting 'labour using' technologies. The remaining seven states are all characterised by low rates of output growth together with slow or no growth in labour productivity. In Bihar and West Bengal, the rate of growth in labour productivity is negative.

⁵ Ibid.

TABLE 1.2: TREND RATES OF GROWTH IN PRODUCTION, LABOUR PRODUCTIVITY AND EMPLOYMENT BY STATE: 1971-72 TO 1983-84

States	Trend Rates of Growth in					
	Production (49 crops)	Cross Cropped Area under all crops	Labour Productivity	Employment per hectare	(Man days) Total	Per cent change in person days employment: 1977-78 over 1972-73 (WSS)
	(1)	(2)	(3)	(4)	(5)	(6)
1. Punjab	3.92	2.002 ^c	2.63	-0.887 ^a	1.079 ^a	-2
2. Haryana	3.31	0.589	1.47	-0.357	0.230	-11
3. Uttar Pradesh	3.09	0.743 ^c	1.72	-0.145	0.598	-6
4. Andhra Pradesh	3.31	0.571	1.78	2.779 ^c	3.663 ^c	12
5. Gujarat	3.92	0.371	2.38	3.191 ^c	3.574 ^c	14
6. Maharashtra	5.60	1.676 ^a	4.44	1.730 ^c	3.435 ^c	30
7. Karnataka	2.44	1.114	0.75	1.483 ^c	2.614 ^c	9
8. Rajasthan	2.47	0.659	0.97	0.737	1.393	-9
9. Madhya Pradesh	1.65	0.972 ^c	0.03	-0.976	-0.014	-1
10. Orissa	2.26	0.531	1.15	0.795	1.331 ^b	4
11. Tamil Nadu	1.12	-1.457 ^a	0.26	0.960 ^a	-0.510	-13
12. West Bengal	0.91	0.057	-0.59	2.096 ^c	2.037 ^a	10
13. Bihar	0.49	-0.954	-0.68	1.037	0.074	8

Notes :

- (1) Col.1 Trend growth rates in production for 49 crops were computed using indices of agricultural production for each state. The indices were prepared by the Commission for Agricultural Costs and Prices, and the data presented in G.S. Bhalla, 'Some Issues in Agricultural Development in India: An Overview', Table 3, in P.R. Brahmaananda & C.V. Panchanukhi (eds), The Development Process and the Indian Economy, Himalaya Publishing House, Bombay, 1987.
- (2) Col.2 Source: 'Estimates of Area and Production of Principal Crops', Directorate of Economics and Statistics, Ministry of Agriculture, 601, Gross Cropped Area under all crops relates to the 18 or fewer crops covered by the cost of production data.
- (3) Col.3 Derived from data presented in G.S. Bhalla, op cit., Table 5, p248.
- (4) Col.4,5 Computed from data gathered under the comprehensive scheme for studying the cost of cultivation of principal crops, for 18 crops, or fewer where data was available for a smaller number of crops only.
- (5) a,b and c in columns 2,4 and 5 indicate T-Values significant at the following levels: a-95 per cent, b-98 per cent, c-99 per cent.
- (6) Source: Col.(6), Table 12 in A. Vaidyanathan, 'Labour Use in Rural India: A Study of Spatial and Temporal Variations', in Economic and Political Weekly Review of Agriculture, 27, Dec. 1986.

Source: Bhalla 1989.

Unfortunately, the task of the agricultural sector (crop production to be more specific) becomes particularly more difficult in view of the preconditions (e.g. a low incidence of hired labour and an egalitarian distribution of land holdings) that must be fulfilled for increasing labour absorption in agriculture. These important preconditions hinge basically on redistribution of land which does not seem to be a realistic policy option in the developing Asian countries (Islam 1987, p 2).

However, the above discussion is not to imply that the possibilities of enhancing labor absorption in crop production have been totally exhausted. Barring the most successful green revolution pockets, like Punjab and Haryana, where the emergence of mechanization as the next step forward in innovation has substantially reduced the elasticity of labour use with respect to increase in output, most regions in the country are still at a stage where improvement in water control, which permits the introduction of High Yielding Varieties and an increase in cropping intensity, can substantially increase labour use per hectare of land (Bhalla 1989). But it has also been demonstrated that even if such technical possibilities are realised, the agricultural sector in some of the land-scarce countries (including India) will be unable to fully employ the rural labour force that is (or will be) available. Examples of Bangladesh and Nepal - the archetypes of densely populated countries are used for this purpose. One calculation for Bangladesh showed that each cropped hectare would have to productively absorb about 298 man-days at the given cropping intensity if agriculture were to provide a reasonable level of employment to a reasonable

proportion of those who depended on this sector as the major source of income. This figure was 61 per cent above the current rate in the country, and 16 per cent higher than the level reached in Japan in 1950 (Islam 1984, p 307). In Japan the per hectare investment is several times higher than in India; the bulk of land is irrigated and per hectare fertilizer consumption is nearly 40 times higher; all modern equipment and expensive infrastructure like glass houses, sprinkler irrigation etc. are readily available to Japanese farmers. India and Japan cannot be compared at their respective stages of development (Vyas and Mathai 1978, pp 341).

In such a scenario, employment creation outside agriculture is essential and in this regards non-agricultural activities needs no emphasis.

1.3 THEORETICAL PERSPECTIVIS: SOME HYPOTHESIS

In theory, it is assumed that economic development brings about, with rising national per capita income and national product, certain broad changes in the structure of production and industrial distribution of the workforce. Owing to differences in income elasticity of demand, for different goods and services, increase in per capita income leads to increased demand for manufactured goods and services of various kinds compared to agricultural products. If the demand shifts away from the agricultural sector then its share in real income will decline. Further, labour force will also decline unless productivity per unit of labour falls (Kuznets 1959, pp 58-59). An application of

Engel's Law to processes of income change over time is the general explanation for the decline in the share of agriculture sector in the labour force and national income. However, this hypothesis ignores or assumes away effects on output arising from prices, substitutability in consumer preferences resulting from relative price changes and sectoral differences in the relative growth of factor supplies (Oberai 1981, p 5). Colin Clark observed a progression in the allocation of labour from primary to secondary and secondary to tertiary employment which he then explains largely on the basis of changes in domestic demand (Clark 1951, p 395). Kuznets, using time series and cross section data substantiated the hypothesis that with rising income per capita, the proportion of workers in agriculture and allied activities falls markedly and those in manufacturing industries rise correspondingly (Kuznets 1959, p 61).

On the other hand, Stephen Hymer and Stephen Resnick (1969) have argued that rural non-farm activities, denoted as "Z" goods, are "inferior goods" and thus the demand for these goods will decline as rural incomes rise. Resnick, in a subsequent article (1970), provided empirical evidence for this contention by tracing the decline of rural industry in Burma, Phillipines and Thailand from 1870 to 1938. Comprehensive time series data were not available, however, and Resnick, of necessity, was forced to rely on fragments of evidence from various sources. Consequently, the results of the study, cannot be considered conclusive.

The 'Kuznets hypothesis' however, does not explain the Indian case. It was observed that in India during 1951 to 1971,

per capita income did increase by nearly 39 per cent and income from agriculture increased by nearly 65 per cent but the proportion of labour force in agriculture remained stable. Vyas and Mathai (1978) have explained this in terms of weak linkages between the agricultural and non-agricultural sectors and lack of resilience on the part of such industries which do exist to meet the demands of the more affluent sections of the peasantry. Secondly, the demand by the affluent sections of the peasantry gets diverted to the organised, capital intensive industries located in urban areas. With the possible exception of the oil pump industry, most of the modern inputs like fertilizers, pesticides, tractors and tools come from the organised sector located in urban areas. Similarly, the demand for consumer goods is largely satisfied by the urban consumer industries. This is evident from the pattern of growth of consumer goods industry. The growth in this industry has taken place in the organised sector and declined in the household sector (Vyas and Mathai 1978, p341).

1.4 REVIEW OF LITERATURE: EMPIRICAL EVIDENCES

However, since the early seventies, a noticeable shift did occur towards non-agricultural activities in rural India. This has stimulated considerable research on the significance of rural non-agricultural employment, its pattern and determinants, focussing on the factors behind the recent shift. Broadly, the growth of non-farm employment in the rural areas depends on the linkages between agriculture and related rural activities, in particular agro industry and the linkages with factors external

to the rural economy.

On the relationship between agricultural growth and growth of agro industry, Behari (1983) is of the view

It should be natural to expect the agricultural prosperity is closely linked with the development and concentration of agro units...

But on the basis of his analysis, he remarks:

The ranking of different states with regard to production of foodgrains and concentration of agro units does not indicate that the greater development of agricultural sector would be necessarily accompanied by the establishment of large number of agro units, for example, Punjab has the highest yield per hectare, but the concentration of agro units there ranked fifth. Jammu and Kashmir has the fourth highest per hectare yield but it was nineteenth in the sequence of agro unit concentration. On the other hand Kerala had the second highest agricultural yield and it had the highest concentration of agro-based manufacturing units. Tamil Nadu was third in ranking with respect to both these variables. One is therefore inclined to support the hypothesis that the level of agricultural development is a necessary condition for the growth of agro-based manufacturing units but it is not a sufficient conditions for the same (pp 172-73).

Harriss (1991) also examined the effect on rural non-farm activity of agricultural growth through backward and forward linkages. His analysis reveals that there has been some diversification within the rural economy, though cultivation has continued to absorb roughly the same number of people. In the case of a market town in North Arcot district of Tamil Nadu, Harriss pointed out that activities like rice milling, paddy trading, manufacture of silk sarees, bakeries, wooden furniture manufacture, welding and general engineering and repair services, tailoring, manufacture of metal vessels and trading of various types etc. have expanded due to agricultural growth, though they were still small in size in terms of investment and employment.

But Harriss found that this pattern of demand which was created due to rise in rural incomes did not seem to encourage new, decentralised labour intensive production because most of the items traded and sold in the market town under discussion were from metropolitan areas like Madras, and of urban fashion like soft drinks, cosmetics.

Similarly, Baru (1984) analyzing the relationship between agricultural development and small scale manufacturing in Andhra Pradesh during the period 1976-1982, agrees that manufacturing activity in the green revolution districts (coastal Andhra) has increased during the above period but is highly doubtful on the validity of data and the evidence about the investment of agricultural surpluses in these manufacturing industries.

For the state of Uttar Pradesh, Papola (1987) did not find any association between the district wise shares of workers in household industry in 1981 and inter-district variations in agricultural development, but found that the extent of urbanisation was an important factor. In backward areas, in the absence of any alternative, these activities continue "as a means of subsistence rather than as a commercial proposition". In fast growing areas, it is the performance of rural industrial units, and not the number of enterprises or workers which is affected. Since inter-regional and inter-districts comparisons suggests hardly any relationship between agricultural development and rural industrial activity, he concludes that rural industrialisation should not be treated as an adjunct of agricultural growth, rather as a development which needs to be

fostered independently.

The literature on determinants of non-agricultural employment is focussed on certain broad relationships i.e., whether the shift towards the non-agricultural sector is prosperity (in agriculture) or distress induced; and the role of exogenous factors in this diversification.

1.4.1 RURAL NON-FARM EMPLOYMENT: A PROSPERITY INDUCED PROCESS

The indices of agricultural development are positively related across regions of the country (Vaidyanathan 1986; Unni 1991; Dev 1990) and within states across districts and taluks (Singh 1989; Jayaraj 1989; Shukla 1992). However the hypothesis that agricultural growth by itself leads to increase in non-agricultural employment is not always validated by the data. For example, agricultural development may improve the efficiency of rural non-agricultural enterprises without necessarily increasing their number (Papola 1987). This may reduce the need for non-agricultural workers to undertake non-agricultural activities.

Vaidyanathan (1986) visualised the level of rural non-agricultural employment to be a function of (a) the level of rural demand for non-agricultural goods and services produced locally (b) the level of extra local demand for rural products and services and (c) location, scale and technology of activities catering to these demands. The first would be dependent on agricultural prosperity of the region identified as per capita income of agricultural classes and the degree of inequality in

income/asset distribution. Based on regression analysis, he found a significant and positive relationship between the incidence of non-agricultural employment (NSS, 32nd Round) and crop output per head of agricultural population. But a negative relationship between non-agricultural employment and inequality of operational holdings. From this he concluded that consumption (demand) interlinkages between agriculture and non-agriculture are strong.

Dev's (1990) study is based on 56 agro-climatic regions, unlike Vaidyanathan's state level study. He, unlike Vaidyanathan, did not find any significant association between the crop output per head of agricultural population (1975-76) and rural non-agricultural employment (NSS, 32nd Round) but output per hectare (1975-76). The Gini coefficient of the concentration in rural assets (1971-72) and person day unemployment rate (32nd Round) were also found negatively and significantly associated. The results, according to him indicate that agricultural development has a positive impact on the promotion of rural non-agricultural employment.

Unni (1991) observed that in the initial phase of agricultural development, agriculture may better absorb the labour within the agricultural sector itself. In such a phase, agricultural prosperity need not result in the growth of non-agricultural activities. So agricultural performance may have positive or negative effect on non-agricultural employment depending upon which of the above relationship dominates. In the analysis, she found land productivity (1977-78) to be positively

and significantly associated with the male, female and total non-agricultural employment (NSS 32nd Round), but growth of agricultural production was negatively associated with female and total non-agricultural employment.

She also hypothesized a positive relationship between the level of rural income and percentage of male or overall non-agricultural employment and negative relationship with the percentage of female non-agricultural workers. But she did not find any significant association between agricultural employment (NSS, 32nd Round) and the level of rural income.

Interestingly she obtained a positive and significant association between the Gini-concentration ratio of operational holdings (1976-77) and proportion of rural non-farm workers (NSS 32nd Round), contrary to the findings of Dev (1990) and Vaidyanathan (1986) mentioned earlier.

However, Kumar (1992) did not find any strong linkages between agricultural development and rural non-farm employment (43rd Round). Similar results were obtained when 'changes' in rural non-farm employment (32nd Round and 43rd Round) and agricultural growth (over 80's) were used. This led him to conclude that the linkages between the agricultural sector and rural non-farm activities are weak.

The studies at the regional level have shown mixed results (Jayaraj 1989; Singh 1989; Basant and Parthasarthy 1991; Shukla 1991; Chandrasekhar 1993).

Jayaraj (1989) in his village level study in Tamil Nadu explored the factors, internal and /or external to the rural economy, associated with non-agricultural employment in 1981. Interestingly he used gross cropped area per male cultivator as an indicator of agricultural development instead of agricultural worker as followed in other studies. The reason given was that since the incidence of poverty in agricultural labour households is generally higher, variations in income levels of agricultural workers is not likely to exert a significant impact on the extent of non-farm employment. He found that non-agricultural employment is a resultant of both internal and external factors and thus is not an 'undifferentiated' and 'homogenous' phenomenon.

Basant and Parthasarthy (1991) find none of the conventional explanatory variables except irrigation and, to an extent, urbanization emerge as significant explanatory determinants of rural non-agricultural sector. Levels and growth of land productivity, per capita agricultural output, per cent of area under non food crops, land distribution etc. are not significantly related to rural non-agricultural employment. Besides, they note that weak linkages exist between rural non-agricultural activities and the levels and growth of agricultural productivity in the regions of Gujarat.

Shukla (1991) developed an econometric model for non-farm sector that takes into account its functional linkages with agricultural and urban activity in Maharashtra. The model found consumption positively influencing non-farm activity. As regards the production variables, it suggests that regions with high

average land productivity do not necessarily support a large relative size of the non-farm sector. Surprisingly, infrastructure found to impinge negatively upon the incidence of non-farm employment implying thereby that infrastructural investment in rural areas often serves to enhance agriculture's position vis a vis the former. Credit has also been found to have negative influence on its share.

Chandrasekhar (1993), on the basis of West Bengal data found that in the districts where agricultural output grew at a rate greater than the state average, the proportion of male non-agricultural workers has declined during the period 1961-81. He also did not find any significant relationship between the shares in total (and rural) non-agricultural employment and rate of growth of agricultural output or its components in 1981. Besides, no significant relationship was observed between the share of rural non-agricultural workers and rural population densities, cropping intensity or worker population ratios.

1.4.2 RESIDUAL SECTOR HYPOTHESIS TESTED

To verify the 'residual sector hypothesis' Vaidyanathan (1986) employed rural person day unemployment rate (NSS 32nd Round) to measure the imbalance between labour supply and demand in rural areas, which pushes persons into non-agricultural activities. He visualised that the higher the rate of unemployment, the higher was likely to be the share of the non-agricultural sector in total rural employment and lower the non-agricultural wage relative to that in agriculture. A positive

relationship between the NSS person day unemployment rate (32nd Round) and the percentage of rural non-farm workers, according to him, lend some credence to the existence of forces that relate to the "residual sector" hypothesis. However, the conclusion that rural non-agricultural employment has become the residual sector in rural areas was moderated by the finding that the ratio of non-agricultural to agricultural wage rates was not inversely related to the unemployment rate, "this relationship being implicit in the residual sector hypothesis" (Vaidyanathan, 1986, p A143).

Similar was the finding at the agro-climatic regions (Dev, 1990). Kumar (1992) also found significant relationship between non-agricultural employment and current daily unemployment rate (43rd Round). Based on his finding he argued that 'residual sector hypothesis' is more applicable in the Indian case. But he cautions that weak demand and production interlinkage between agriculture and non-agricultural sector in rural areas does not indicate weakened interlinkage between agriculture and non-farm sector if we include the urban areas. This is due to the urban bias in the consumption of rural rich and the fact that most of the inputs of modern agriculture come from the units located in urban areas.

Unni (1991) however questions the positive association between the unemployment rate and non-agricultural workers as capturing the residual sector hypothesis. She argues that 'unemployment rate' in rural areas in fact will be higher in the agriculturally developed regions as the expectation of obtaining

employment is greater in an advanced region than in an agriculturally backward region. This is partly because of migration to developed regions in expectation of employment opportunities. Hence, the positive association between rate of unemployment and non-agricultural employment could really be capturing the latter's association with high agricultural development. Her results found not unemployment rate, but additional variables such as proportion of landless households and incidence of poverty used to analyze residual sector hypothesis, to be positively associated with rural male non-agricultural employment.

1.4.3 ROLE OF OUTSIDE FACTORS

The role of outside factors, viz urbanisation and literacy were found to be positively associated with rural non-agricultural employment in almost all the studies (Singh,1989; Unni,1991; Shukla, 1991; Jayaraj,1989; Basant and Parthasarthy,1991).

1.5 STUDIES ON UTTAR PRADESH

There are not many studies on rural employment in UP. Of the few, Papola's (1987) study was limited to examining the relationship between the extent of employment in rural household industry and agricultural growth/ productivity. On the other hand, Singh (1989) examined the district level workforce behavior for 1971 and 1981. He analysed the growth in non-farm employment at a disaggregated industry (3 digit) level, focussing on the

trend and shift in pattern of non-farm employment between 1971 and 1981. He found that the "marked absolute and relative growth of non-agricultural workforce" (Singh p38) in the Eastern districts of UP was attributable to the operation of the residual sector hypothesis; while the developed, high growth of districts of West UP experienced a shift away from the non-agricultural sector "due to its continuing ability to absorb more labour in agriculture".

1.6 THE PRESENT STUDY

As noted above, studies on the extent of employment diversification, from agricultural to the non-agricultural sector in UP and the factors responsible for explaining this shift are few. Essentially, our study is an extension of Singh's study. We analyze the trends and correlates of non-agricultural employment over the period 1971 to 1991. However, we do not look into employment growth at disaggregated industry (2 or 3 digit) level.

Thus the objectives of the present study are:

- (a) to examine the trend in rural non-agricultural employment in Uttar Pradesh since the early seventies;
- (b) to analyse these trends at a more disaggregated regional and district level, focussing on the two regions East and West; and
- (c) to evaluate the correlates of non-agricultural employment at the regional and district level so as to characterize the shift of employment towards the non-agricultural sector.

1.7 THE PLAN OF THE STUDY

This study is organised into five chapters, including the present one which introduces the issue and some related literature on it, bringing out the significance of agricultural development and urbanisation as important determinants of rural non-farm employment. We discuss the relevant socio-economic characteristics of the state of UP in Chapter 2 focussing on the two regions, East and West, which provides a backdrop for the subsequent analysis. The empirical evidence on trends in and pattern of non-agricultural employment at the state, regional and district level is analyzed in Chapter 3, emphasising the differences across the regions/districts. In Chapter 4, we discuss the broad correlates of non-agricultural employment and the findings at the regional and district level. The focus here will be on differences in the relative importance of these correlates across the regions and over time. The last Chapter summarises the broad findings of the study.

1.8 DATA SOURCES

The present study relies on secondary data provided by diverse but mostly official sources. These sources are decennial Census Reports, Statistical Abstracts, District-wise Indicators of Development, Statistical Diary, Uttar Pradesh Ke Krishi Ankre, Agricultural Census of Uttar Pradesh, CMIE documents, Bhalla and Tyagi (1989), and Inter District Incomes and Economic Profiles of Uttar Pradesh (1974), mimeo, Lucknow University. In case data were not available for 1991, the latest information available was

utilised.

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Bhalla and Tyagi (1989) provide data on the value of output in the farm sector for the seventies and eighties. The quantity output for seventies and eighties is an average of 1970-71, 1971-72, 1972-73 and 1980-81, 1981-82, 1982-83 respectively. This is so because the production figures are based on cuts from a sample of fields and average of three years reduces the margin of error. The prices used by them to arrive at the value of output is of the triennium ending 1969-70. To calculate the value of output in the nineties, we have used the same price structure employed by them.

To arrive at the value of output in nineties, we have taken the production average of three years 1986-87, 1987-88 and 1988-89 made available in the Profiles of Districts, November published by the Centre for Monitoring Indian Economy (CMIE). However, it needs to be mentioned that the value of output figures in the nineties excludes two crops - onion and garlic, for which the prices are not given in Bhalla and Tyagi. This does not affect the results significantly as the CMIE calculates that less than one per cent of the total area and value of output (at current prices) is under these two crops for almost all the districts.

The data on gross cropped area averaged for 1986-87 to 1988-89 is taken from the Uttar Pradesh Ke Krishi Ankre published by the Directorate of Agriculture, Lucknow.

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The area under cash crops for 1970-71 is taken from Baljeet Singh (1974), Inter District Incomes and Economic Profiles of Uttar Pradesh, (mimeo) Department of Economics, Lucknow University. Districtwise Indicators of Development make available the figures of area under cash crops for 1980-81 and 1989-90. However, in view of the unusual figures for the districts of Gorakhpur, Mirzapur and Basti, data has been taken from Uttar Pradesh Ke Krishi Ankre of the relevant year and districts. This source also provides information on the percentage area irrigated for 1989-90. The Statistical Abstracts of the state as also the Agricultural Census of UP gives information on land distribution, that is, percentage of ownership and/or operational holdings by size class of land.

CHAPTER 2

A SOCIO-ECONOMIC PROFILE OF THE STATE OF UTTAR PRADESH

2.1 INTRODUCTION

It was pointed out in the last chapter that aspects of agricultural development and urbanisation are the important determinants of rural non-agricultural employment. The agriculture (and economy) of Uttar Pradesh has undergone substantial transformation in the last couple of decades. The present chapter, therefore presents the broad agro-economic and demographic scenario in the state since the early seventies.

Section 2.2 describes the economic and demographic performance of the state and its relative economic stature vis-a-vis the national economy. It also provides a justification for confining the study to only two regions of state. Issues relating to agricultural development, particularly in these two regions are dealt with in section 2.3. The urbanisation pattern particularly in the two regions is discussed in section 2.4.

2.2 UTTAR PRADESH: A BACKGROUND

Uttar Pradesh is the most populous state in India having a population of 139.1 million, approximately 16.4 per cent of the total and the fourth largest with an area of 2,94,000 square

kilometres.¹ The state has primarily an agrarian economy. The preponderance of the agricultural sector is reflected in the size of the population it supports, the volume of employment it offers and the proportion of income it contributes to the total income of the state. The state is divided into five well-defined economic regions.² All these regions have different agro-climatic conditions, soil types and infra-structural development. Thus to interpret the state as one unit in undifferentiated terms would be misleading. It is against this background that the present chapter explores the inter-regional differences that exists in terms of agro-economic development.

The economic development of the state has been sluggish despite its geographical enormity. With respect to the all India level, the percentage share of the state in total income declined from 16.4 per cent in 1950-51 to about 12 per cent in the eighties. The Table 2.1 charts the decline of income over the period from 1950/51 to 1987/88.

¹ Census Report, 1991.

² **Bundelkhand region:** Banda, Hamirpur, Jalaun, Jhansi, Lalitpur.
Central region: Barabanki, Fatehpur, Hardoi, Kheri, Kanpur Nagar, Kanpur Dehat, Sitapur, Rai-Bareilly, Lucknow, Unnao.
Eastern region: Allahabad, Azamgarh, Mau, Ballia, Bahraich, Basti, Sidharth Nagar, Deoria, Faizabad, Ghazipur, Gonda, Pratapgarh, Sultanpur, Varanasi, Gorakhpur, Maharajganj, Jaunpur, Mirzapur, Sonbhadra.
Hill region: Almora, Pithoragarh, Dehradun, Garhwal, Chamoli, Nainital, TehriGarhwal, Uttarkashi.
Western region: Agra, Mainpuri, Firozabad, Aligarh, Bareilly, Badaun, Bulandshahr, Etah, Etawah, Farukhabad, Mathura, Meerut, Ghaziabad, Moradabad, Pilibhit, Rampur, Muzaffarnagar, Saharanpur, Bijnoor, Haridwar, Shahjahanpur.

**TABLE 2.1: TOTAL INCOME OF INDIA AND UTTAR PRADESH
at constant (1970-71) prices**

Year	Total Income (Crores Rs.)		Percentage share of UP
	India	UP	
1950-51	16731	2738	16.4
1960-61	24250	3321	13.7
1970-71	34235	4256	12.4
1980-81	47414	5693	12.0
1981-82	49934	5799	11.6
1982-83	51154	6383	12.5
1983-84*	55300	6737	12.2
1984-85*	57243	6939	12.1
1985-86+	60143	7155	11.9
1987-88+	62500	7375	11.8

Note: * Provisional Estimates
+ Quick Estimates

Source: State Income Estimates, 1987-88

If per capita income is taken as an indicator of economic development, Uttar Pradesh is one of the poorest states of India (see Table 2.2). As against the all India per capita income of Rs 1916, the per capita income in Uttar Pradesh stood at Rs 1455 in 1987-88. And as a percentage of per capita income in Maharashtra (an industrially advanced State) and Punjab (an agriculturally advanced state), per capita income in Uttar Pradesh stands at 56.4 percent and 44.1 percent respectively.

To judge the overall development of the state by taking into account the primary, secondary and tertiary sectors, the Centre for Monitoring Indian Economy (CMIE) has calculated a 'Relative Index of Development' (RID).³ This index is computed for all the

³ The agricultural sector has a total weightage of 35% in the index. It includes the per capita value of output of crops (weight 25%) and per capita bank credit to agriculture (10%).

states (and districts) and is intended to measure the extent of overall development in a state (or district) vis-a-vis rest of

**TABLE 2.2: PER CAPITA INCOME IN SELECTED STATES IN INDIA
at constant (1980-81) prices**

(Rupees)

State	Per capita income in 1987-88	State	Per capita income in 1987-88
Rajasthan	634*	Orissa	1320
Andhra Pradesh	1530	Gujarat	1942
Uttar Pradesh	1455	Kerala	1416
Karnataka	1914	TamilNadu	1930
Himachal Pradesh	1818	West Bengal	898*
Maharashtra	2813	Haryana	2598
Punjab	3310	All India	1910

Note: * represents figures at 1970-71 prices

Source: Compiled from relevant State Statistical Figures and CSO, GOI.

the states (or districts). The extent of development measured in terms of RID- 72 percent for the state- is considerably below the national average and majority of states. The state is ranked fourth from the bottom having an edge over merely three states, namely Bihar, Orissa and Rajasthan. The low level of RID of the state goes hand in hand with a low level of social development with regard to some demographic indicators which have been presented in Table 2.4.

Mining and manufacturing sector was assigned a total weight of 25%, mining- manufacturing and household workers per lakh of population is given a weightage of 15% and the per capita bank credit to industry, 10%. The service sector carries 40% weightage in the index. The weights given to indicators in this sector are as follows: per capita bank deposit (15%), per capita bank credit to services (15%), literacy (4%) and urbanisation (6%). Centre for Monitoring Indian Economy (CMIE), 1993, Profiles of Districts, November.

It can be seen from the table that the average figures for Uttar Pradesh exceed the average figure for the country as a whole in respect of infant mortality rate, decadal population growth, birth and death rate and percentage of population below poverty line. Life expectancy is lower for Uttar Pradesh in comparison to all-India figures. All that can be inferred from the above is that both economic and demographic performance of the state is far below the majority of the states in India.

TABLE 2.3: RELATIVE INDEX OF DEVELOPMENT (RID) OF THE MAJOR STATES IN INDIA

State	R. I. D. (in percentage)	Rank
Bihar	43	15
Orissa	63	14
Rajasthan	69	13
Uttar Pradesh	72	12
Madhya Pradesh	73	11
Himachal Pradesh	75	10
West Bengal	97	9
Andhra Pradesh	99	8
ALL INDIA	100	
Gujarat	114	7
Karnataka	117	6
Kerala	117	6
Jammu & Kashmir	135	5
Tamil Nadu	135	5
Haryana	136	4
Maharashtra	164	3
Punjab	199	2
Delhi	369	1

Source: Centre for Monitoring Indian Economy (CMIE), Profiles of Districts, November 1993.

TABLE 2.4: SELECTED DEMOGRAPHIC INDICATORS

Indicators	Uttar Pradesh	India
1. Decadal Growth Rate of population (percent) 1981-91	25.48	23.85
2. Infant mortality rate (per 000 live births) 1984	154.0	104.0
3. Birth rate (per 000) 1983-84	38.6	33.8
4. Death rate (per 000) 1983-84	16.2	12.1
5. Life Expectancy (years) 1981	53.0	55.0
6. Percentage of population below poverty line	45.28	37.40

Source: 1. Statistical Diary Uttar Pradesh 1992.
 2-5. Registrar General of India, 1985, Sample Registration Bulletin, Vol XIX No 2, December.
 6. S.R. Hashim and Savita Sharma (Planning Commission) 1988, Estimation of Poverty, Paper for second seminar on Social Statistics, New Delhi, 4-6 February p 16.

TABLE 2.5: DISTRIBUTION OF AREA AND POPULATION IN THE REGIONS OF UTTAR PRADESH

Region	Population ('000)	Area (sq.km)
Hill	5,929 (4.3)	51125 (17.3)
Western	49,547 (35.6)	82196 (27.6)
Central	2,418 (17.4)	45834 (15.8)
Eastern	52,722 (37.9)	85844 (29.1)
Bundelkhand	672 (4.8)	29417 (9.9)
UP	1,39,112 (100.0)	294416 (100.0)

Note: Figures in Parenthesis are percentages
Source: Statistical Dairy Uttar Pradesh 1992.

In this densely populated state, the Eastern and Western regions account for the major proportion of area and population; more than half of the area and approximately three fourth of the population, ie., 57.7 per cent and 73.5 per cent respectively (see table 2.5). The Hill and Bundelkhand regions support a population less than the proportion of area unlike the other

regions. The two regions account for 27.2 per cent of the area but support only 9.1 percent of the population. This may be attributed to the adverse agro-climatic and physical characteristics of these regions. Table 2.6 brings out certain broad distinguishing features of the state and its regions.

TABLE 2.6: LAND UTILISATION IN 1988-89 (in percentages)

	State	Bundel- khand	Cen- tral	East- ern	Hill	West- ern
Net sown area	57.8	63.8	64.6	64.7	12.6	73.8
Forests	17.3	8.1	5.1	9.8	63.9	4.8
Barren Land	3.6	4.2	3.5	2.5	5.6	3.1
Non-agricultural land	8.2	6.5	9.6	10.3	2.3	9.4
Culturable waste	3.5	7.8	3.1	2.3	5.6	2.1
Permanent Pastures and Grazing	1.1	0.3	0.6	0.2	5.1	0.3
Fallow	6.7	8.7	11.6	8.2	1.2	5.8
Others	1.8	0.6	1.9	2.0	3.9	0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Area sown more than once	27.1	7.1	26.8	33.6	8.0	39.2

Source: Uttar Pradesh ke Krishi Ankre, 1988-89.

The Hill region is basically dominated by area under forests, 63.9 per cent, whereas in Bundelkhand region the figures for culturable waste and barren land exceed the state average. It needs to be noted also that average area sown more than once is much lower in both the regions. This partly reflects the relatively inadequate irrigation facilities and unfavourable agro-climatic conditions (i.e. inadequate rainfall) that prevails in the region. Given the relative importance of Western and Eastern UP in terms of area and population, our main analysis concentrates on these two regions.

Agriculture (including allied activities) remains a dominant

source of economic activity in the state. The relative importance of this sector may be adjudged by the fact that it provides employment to 72.8 per cent of the working force. It is followed by the tertiary and secondary sectors which account for 18.1 per cent and 9.1 per cent respectively. Concentration of population in the agricultural sector can be attributed to the backwardness of the non-agricultural sector which provides jobs for just 27.2 per cent workers. This is shown in Table 2.7.

The preponderance of the agricultural sector is also reflected in its relatively high share in the total state income in comparison to all India level. In terms of contribution to the state income, the percentage share of the agricultural sector is very large though this has fallen sharply in the eighties from 49.9 per cent in 1980-81 to 40.1 per cent in 1989-90 and been compensated by the tertiary and secondary sectors (see table 2.8). The tertiary sector is the next important sector its share being 32.4 per cent in 1980-81 which increased to 37.8 per cent in 1989-90. The lowest share among the three is of the secondary sector, 9.6 per cent in 1980-81 which increased to 13.6 per cent in 1989-90.

TABLE 2.7: OCCUPATIONAL DISTRIBUTION OF THE MAIN WORKERS, 1991

Category	Workers (in '000)	Percentage to total population
Agriculture (including allied activities)	30147	72.8
Mining and Quarrying	35	Neg.
Manufacturing	3205	7.8
Household Manufacturing	997	2.4
Non- " "	2208	5.4
Construction	511	1.3
Trade and Commerce	2551	6.2
Transport, storage and communication	771	1.9
Other Services	4128	10.0

Note: Neg. stands for Negligible.

Source: Census Report 1991.

**TABLE 2.8: TOTAL STATE INCOME BY INDUSTRIAL ORIGIN
at constant (1980-81) prices**

Years	Agriculture & Animal Husbandry	Primary	Manufa- cturing	Secondary	Tertiary
1	2	3	4	5	6
1980-81	49.9	52.3	9.6	15.3	32.4
1985-86	46.4	47.8	12.8	17.9	34.3
1987-88	44.4	45.8	13.8	19.0	35.2
1988-89	44.6	45.8	13.7	18.7	35.5
1989-90	42.3	43.4	13.6	18.8	37.8

Source: Statistical Diary, Uttar Pradesh, 1992.

2.3 AGRICULTURAL PRODUCTIVITY

There has been a substantial increase in agricultural production in the wake of the Green Revolution. Table 2.9 presents the data for the triennium ending 1973-74 and the triennium ending 1983-84 in respect of UP and other major states. It can be seen that with regard to value of agricultural production UP improved its rank from sixth to fourth; fourth to third in case of irrigation and from fifth to second and fifth to

third in terms of per capita fertilizer consumption and area under HYV respectively. Hence on average, the state is relatively well developed on the agricultural front.

Nonetheless there are significant differences at the regional level. Prior to mid-sixties, foodgrain output grew at a faster rate in East UP (1.94 per cent per annum) than in Western UP (1.26 per cent). In the post-green revolution period, however the structure of agriculture was transformed drastically, which placed West UP in an advantageous position relative to East UP (Tewari et al 1990, p 4).

A number of studies have been undertaken to explain the stagnation of agriculture in Eastern UP, which may be classified into three inter-related categories viz. (i) those that emphasise lack of adequate irrigation, roads, electrification and slow adoption of new seeds and fertilisers (Dhawan 1980; Parole and Sarin 1984; Pant 1984; and Thakur and Kumar 1984) (ii) those that deal with the non-availability of Finance (Bajpai 1984; and Singh R K 1984) and (iii) those that focus upon non-economic factors (Singh A K 1981; Singh J B 1981; and Subas 1984).

TABLE 2.9: LEVELS OF AGRICULTURAL PRODUCTIVITY ACROSS STATES

States	Triennium ending 1973-74				Triennium ending 1983-84			
	Agriculture production (at 1970-71 prices) per Hectare in Rs.	% of Net Irrigated area	Fertiliser Consumption per hectare in Kg.	% of area under HYV to Net Area Sown	Agriculture production (at 1970-71 prices) per hectare in Rs.	% of Net Irrigated area	Fertiliser Consumption per hectare in Kg.	% of area under HYV to Net Area Sown
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Andhra Pradesh	1248	27.17	247	13.67	1663	32.84	678	36.58
Bihar	1526	28.26	137	26.36	1700	33.04	296	51.25
Gujarat	889	15.46	173	13.40	1320	22.65	446	23.10
Haryana	1453	46.15	256	35.68	1996	62.58	847	68.18
Karnataka	933	12.27	169	7.05	1156	14.50	406	20.03
Madhya Pradesh	601	9.03	68	6.48	712	13.75	139	19.54
Maharashtra	585	8.12	125	8.25	918	10.59	305	26.77
Orissa	1096	16.62	94	7.44	1493	23.42	148	28.48
Punjab	2110	73.09	749	55.52	3083	83.71	137	104.52
Rajasthan	523	14.80	44	5.67	805	19.76	108	15.69
Tamil Nadu	1557	44.12	500	42.72	1394	45.01	929	41.82
Uttar Pradesh	1325	41.64	236	22.28	1855	57.59	878	51.39
West Bengal	2269	25.51	180	18.31	3031	32.20	540	40.82

Sources: Sheila Bhalla, 'The Family Farm in a Transitional Economy' (mimeograph), Table 7, p 10.

It should be noted however that the eighties saw an extension of 'Green Revolution' to East UP with a substantial rise in the number of private pumpsets/tubewells by the medium and large farmers and consequent growth in the proportion of area irrigated. An outcome of the adaptation of modern agro-technology in eastern UP had been the phenomenal rise in the growth rate (compound) of value of agricultural output in eighties measured at constant (1969-70) prices- from a growth rate 2.1 per cent in seventies to 5.9 per cent in the eighties.⁴ The Western region,

⁴ The 'Seventies' imply a period between 1970-73 and 1980-83. 'Eighties' between 1980-83 and 1986-87 to 1988-89. The value output for 1970-73 and 1980-83 has been taken from Bhalla and Tyagi (1989) based on 41 crops. The value output for 1986-87 to 1988-89 is based on 15 major crops which covers over 90 per cent of the gross cropped area in all the districts of a region.

on the other hand, had exhibited a growth rate of 4.2 per cent and 2.4 per cent respectively in this period. In absolute terms, the agricultural output increased by Rs 15 lakhs in the seventies and Rs 33 lakhs in the eighties in Eastern region as opposed to Rs 49 lakhs and Rs 22 lakhs respectively in the Western region. Hence in the eighties, the absolute growth was higher in Eastern UP, despite relatively adverse agro-climatic conditions⁵ and a much lower proportion of area irrigated⁶ as we discuss below.

2.3.1 IRRIGATION

The performance of the agricultural sector relies heavily on the extent of assured irrigation. Besides being an essential input, it raises intensity of cropping (and to some extent net sown area). The extent of irrigated area varies substantially between the Eastern and Western regions of the State at 46.1 per cent and almost 75 per cent respectively. This is shown in Table 2.10 which explicitly suggests the need for the development of irrigation in the Eastern region of the State. It is noticed that even in 1988-89, the percentage gross irrigated area remained substantially lower in Eastern region than the level in the Western region in 1975-76. Apart from this, the gap between these two regions has widened over a period of time. Whereas the

⁵ Agro-climatic conditions are adverse in East UP. During summer, rivers in East UP normally get flooded while in winter when Rabi crops need water, rivers dry up. As a consequence, the Kharif crops are generally rainfed but prone to severe flood damages. On the contrary, the Rabi crops depend entirely on irrigation.

⁶ In eighties, ground water utilisation ranges between 10 to 30 per cent in the districts of East UP while it was 60 to 80 per cent in West UP.

gap was 18.6 per cent in 1975-76, it had risen to 28.5 per cent in 1988-89. Moreover, an analysis at the district level takes us further by revealing that the coefficient of variation of the percentage gross area irrigated exhibits a declining trend in the Western region (29.9 per cent in 1971, 20.0 in 1981, 14.1 in 1989-90) while in the Eastern region, the coefficient of variation declined from 29.9 per cent to 25.8 per cent in the first period but rose to 28.6 per cent in the second phase suggesting an increase in inter-district variations, that is, gross irrigated area improved in some districts only.

TABLE 2.10: PERCENTAGE GROSS IRRIGATED AREA TO TOTAL AREA IN THE EASTERN AND WESTERN REGIONS OF THE STATE

	Year		
	1975-76	1980-81	1988-89
Eastern	35.1	40.4	46.1
Western	53.7	61.7	74.6
State	40.1	46.3	57.0

Source: Uttar Pradesh ke Krishi Ankre (relevant years)

2.3.2 SOURCES OF IRRIGATION

The variation in the extent of irrigated area in the regions is better understood in terms of the different irrigation sources. Table 2.11 shows the relative importance of different irrigation sources for the two regions. The major sources of irrigation in the state are tubewells, canals, other wells and tanks and lakes. A perusal of the Table 2.11 leads to the following conclusions.

Pumpsets, a source of assured irrigation, are vitally important in the state. A striking feature of the table is the sharp increase in the proportion of area irrigated by pumpsets in East UP which narrowed down the differences between these two regions. Though gross area irrigated is much lower in Eastern UP, the region has made up by increased use of pumpsets.

It will be in fitness of things to view this development, ie. the increased number of pumpsets and area irrigated by them as providing employment opportunities in the rural sector. More controlled irrigation (eg. tubewells) is likely to affect the cropping pattern, intensity etc, more positively than canal or tank irrigation by increasing labour demand in many ways (Mehra 1976; and Agarwal 1980). In some cases, however, a shift from traditional well irrigation may reduce labour insofar as bullock based irrigation operation is more labour intensive when compared to power based irrigation operation (Basant 1987a, p 1298). Another difference to be noted between the two regions is that while dependence on canals has declined in West UP over a period of time, it has registered an increase in East UP.

TABLE 2.11: NET AREA IRRIGATED BY DIFFERENT SOURCES IN UP
(in percentages)

Items	Eastern Region		Western Region		State	
	1975-76	1988-89	1975-76	1988-89	1975-76	1988-89
Canals	21.6(3)	27.6(2)	32.3(2)	23.2(2)	34.6(2)	30.1(2)
Pumpsets	38.1(1)	63.9(1)	50.3(1)	68.8(1)	40.2(1)	60.0(1)
Other Wells	23.2(2)	3.1(3)	14.7(3)	5.0(3)	16.6(3)	4.6(3)
Tanks and Lakes	9.2(4)	2.4(5)	0.6(5)	Neg.(5)	4.3(4)	1.2(5)
Other Sources	7.9(5)	3.0(4)	2.1(4)	3.0(4)	4.3(4)	3.1(4)

Note: 1. Figures in parenthesis are ranks in ascending order
2. Neg. stands for Negligible.

Source: As in table 2.11

2.3.3 CROPPING PATTERN

One of the manifestations of the application of improved technology and irrigation facilities in agriculture is the change in cropping pattern: from low yielding crops to high yielding crops and from mono cropping to a multiple cropping regime. The trends are summarised in table 2.12.

Foodgrains (cereals and pulses combined) dominate the agricultural landscape in the state. The state average of area under foodgrain crops, which was 82.2 per cent in 1975-76 has remained stable, falling only slightly in 1988-89 to 80.7 per cent. However variations at the regional level may be observed. The per cent area under foodgrains is substantially higher in Eastern region vis-a-vis the Western region and the state average. The area under foodgrains, which was 89 per cent in 1975-76 had exhibited a near constancy at 89.6 per cent in 1988-89 in the Eastern region. On the other hand in Western region, it was 73.3 per cent in 1975-76 and declined to 68.3 per cent in 1988-89. The scenario of cropping pattern in each of the regions is important in understanding the employment shift from the agricultural sector since a higher degree of commercialisation can be expected to generate a higher level of non-agricultural employment.

However, despite its overall constancy in terms of foodgrains/ non-foodgrain crops, the cropping pattern has undergone some alteration in the Eastern region. In 1975-76 the first six most important crops in the region were Rice (32 per

TABLE 2.12: PERCENTAGE AREA UNDER DIFFERENT FOODCROPS

	Food- grains (1)	Pulses (2)	Wheat (3)	Rice (4)	Bajra (5)	Barley (6)	Gram (7)	Jowar (8)	Maize (9)	Sugar cane (10)	Potato (11)	Cash crops (12)
<u>Eastern Region</u>												
1975-76	89.0	12.7(3)	23.9(2)	32.8(1)	2.0(8)	6.9(4)	5.6(6)	1.9(9)	5.7(5)	4.0(7)	0.9(10)	11.0
1981-82	89.4	10.7(3)	31.3(2)	35.4(1)	1.7(8)	2.6(7)	5.3(4)	0.9(10)	4.3(5)	3.7(6)	1.1(9)	10.6
1988-89	89.6	10.2(3)	35.2(1)	34.6(2)	1.6(7)	1.6(7)	4.0(5)	0.9(9)	4.1(4)	3.7(6)	1.2(8)	10.4
<u>Western Region</u>												
1975-76	73.3	8.7(4)	30.6(1)	11.1(2)	8.7(4)	4.1(7)	4.3(6)	1.6(8)	8.5(5)	10.6(3)	0.9(9)	26.7
1981-82	70.1	8.2(4)	32.0(1)	11.6(3)	8.0(5)	2.6(8)	3.4(7)	1.3(9)	6.5(6)	12.0(2)	1.6(9)	29.9
1988-89	68.3	6.0(5)	35.0(1)	11.7(3)	6.7(4)	2.1(6)	1.7(8)	0.9(9)	6.0(5)	12.2(2)	1.8(7)	31.7
<u>State</u>												
1975-76	82.2	13.7(3)	27.3(1)	20.0(2)	4.4(7)	5.3(6)	2.5(9)	3.1(8)	6.1(5)	6.2(4)	0.8(10)	17.8
1981-82	81.6	12.3(3)	31.4(1)	21.7(2)	4.0(7)	2.8(8)	6.4(5)	2.8(8)	4.5(6)	6.7(4)	1.2(9)	16.7
1988-89	80.7	11.5(3)	34.4(1)	21.2(2)	3.3(7)	2.0(9)	4.0(6)	2.2(8)	4.5(5)	7.0(4)	1.4(10)	19.2

Note: Figures in parenthesis is Rank in ascending order.

Source: Computed from Uttar Pradesh ke Krishi Ankre of Relevant years.

cent), Wheat (23.9 per cent), Pulses (12.7 per cent), Barley (6.9 per cent), Maize (5.7 per cent) and Gram (5.6 per cent). The importance of crops changed in favour of wheat (35.2 per cent), Rice (34.6 per cent), Pulses (10.2 per cent), Maize (4.1 per cent), Gram (4.0 per cent) and Sugarcane (3.7 per cent). The area under Barley has come down significantly by 5.3 per cent points. As is evident, the rise in area under wheat has been mainly at the cost of Barley and Rice. Sugarcane, a new crop has been introduced in the recent years.

The importance of crops also changed in the Western Region. The most important crops in 1975-76 were Wheat (30.6 per cent), Rice (11.1 per cent), Sugarcane (10.6 per cent), Bajra (8.7 per cent), Maize (8.5 per cent) and Pulses (6.0 per cent). The area under Wheat increased approximately by 4.6 per cent points. Sugarcane has become the next important crop with 12.2 per cent of the area while Rice has come down to the third position in 1988-89.

The shift towards Wheat, Sugarcane and Rice is likely due to the considerable increase in productivity levels gained after the 70s unlike the other crops. ⁷ Also as is brought out in Table

⁷ It is evident that productivity of Wheat in East UP increased from 12.23 in 1975-76 to 20.56 quintals per hectare in 1988-89. As against this in West UP, it rose from 15.8 in 1971 to 26.74 quintals per hectare in 1991. Similarly, productivity of Rice in East UP increased from 8.16 in 1975-76 to 15.2 quintals per hectare in 1988-89; while in West UP from 11.13 in 1975-76 to 22.82 quintals per hectare in 1988-89. The productivity of Sugarcane also registered an increase from 351 in 1975-76 to 443 quintals per hectare in 1988-89 in East UP and from 436 to 531 quintals per hectare in West UP in this time period. On the other hand, productivity of Maize, Gram, Pulses and Bajra has shown a

2.13 the diversification is towards more labour intensive crops.

TABLE 2.13: NORMS OF EMPLOYMENT IN CROP HUSBANDRY

Crop	Mandays per hectare
Rice	120
Jowar	60
Bajra	85
Maize	95
Wheat	110
Barley	86
Gram	60
Sugarcane	165
Arhar	95
Potato	255

Note : The norms of mandays per hectare are based on cost of cultivation surveys conducted by C.S. Azad University of Agriculture and Technology, Kanpur.

Source: Sethi, R M and B N Tyagi (undated) Employment in Agriculture - Some Questions, Occasional Paper 3, Centre of Advanced Development Research, Lucknow.

But it has been shown elsewhere (Bhalla 1988 in Tewari and Joshi edited 1988) that labour absorption per hectare has shown no tendency to rise either in wheat cultivation or in rice. This is somewhat surprising in the case of wheat as evidence elsewhere for periods in which wheat yields have risen rapidly suggests concurrent increases in labour use per hectare. Joshi et al (1981) have also arrived at similar results. They decomposed the total change in agricultural labour employment between 1966-67 and 1977-78 for wheat and rice separately for Eastern and Western UP and for UP as a whole. Their results show a net displacement of labour over the period, although Eastern UP showed a slight increase for wheat.

near constancy over this period of time.

2.3.4 LAND HOLDINGS

Among the institutional factors, size of land holdings, owned/ operated, is vitally important in determining agricultural productivity and labour absorption. If land holdings remain below a minimum critical level, it restricts the scope for labour absorption on the one hand, and may reduce productivity on the other, rendering them unviable units. The Special Rice Production Programme (SRPP) launched during the Seventh Five Year Plan documented that size of holdings is one of the constraints coming in the way of increasing rice production. The average operational size in Eastern UP was fairly low at 0.7 hectare as against 1.2 hectare in West UP in 1990-91. Besides, the per cent distribution of number of marginal holdings (defined as less than 1 hectare of land) is also substantially high, approximately 80 per cent in East UP as opposed to 65 per cent in West UP, in 1990-91. However an interesting dimension brought out by Subbarao (1981) needs to be noted. He shows that in Eastern UP, although cropping intensity of large farms increased between 1966-67 and 1975-76, labour input rose less than proportionately to the increase in cropping intensity. Where as, labour input rose more than proportionately to the increase in cropping intensity for small farms. He suggested that the availability of HYV - fertiliser technology was an important incentive for large farmers to expand annual crop output through concentrating on a few fertiliser responsive crops which require substantially lower labour per unit of output, rather than via multiple cropping.

2.4 URBANISATION

Urbanisation plays an important role in increasing non-farm employment activities in a number of ways and most studies point out to its growing importance.

In comparison to all India level, urbanisation has remained low in the state throughout the period 1971 to 1991 (see table 2.14). However we notice some striking differences at the regional level. In West UP, urbanisation level is considerably higher than that of the state and East UP.⁸ Also, the increase has been more rapid in Western region vis a vis the Eastern region and state level between 1971 to 1991. A closer analysis will suggest that the level of urbanisation and its increase is almost double in West UP compared to East UP. A striking feature to note is that in West UP in 1981 its proportion was almost the same as All India level, it exceeded marginally in 1991.

TABLE 2.14: LEVEL OF URBANISATION AT THE STATE AND REGIONAL LEVEL

Region	Years		
	1971	1981	1991
Eastern	8.3	10.7	11.6
Western	18.30	23.7	26.4
State	14.02	17.7	19.9
INDIA	19.09	23.3	25.7

Source: Relevant Census Reports

⁸ The urbanisation level ranges between 20 to 40 per cent in the districts of West UP in 1991 in comparison to 4 to 10 per cent in East UP. However, in East UP Varanasi seem to have an exception where the urbanisation level is considerably high, 27.2 per cent in 1991.

2.5 SUMMARY OF THE CHAPTER

In sum, we note that in terms of both economic and social performance, the state is far below the national average. However a positive improvement is evident in agriculture in the post Green Revolution era. At the regional level, the widening economic (in particular agriculture) disparities between the Eastern and Western region in the seventies seem to be narrowing down in the eighties particularly due to the increase in irrigated area through tubewells. But there still exists considerable scope for increasing irrigation in East UP. However even after this change in East UP, area under foodcrops has remained virtually stable but a change has occurred within foodgrains, towards the high productivity crops like wheat, rice and sugarcane. On the other hand in West UP, there was a noticeable increase in the proportion of non-food crops as also a similar shift within foodgrains. The urbanisation level and change in its level is considerably higher in West than East UP and the state level. With this background, we examine in the next chapter the pattern of non-agricultural employment at the state and regional level.

CHAPTER 3

RURAL NON-FARM EMPLOYMENT: LEVEL AND TRENDS

3.1 INTRODUCTION

In this chapter we examine the level, trend and industrial composition of non-agricultural employment in rural Uttar Pradesh as well as at the level of Eastern and Western regions of UP. The analysis is further carried out at the district level within the two regions of Uttar Pradesh.

The chapter is organised in four broad sections. Section 3.2 examines the level and trend of employment in non-agricultural activities in the state and compares it with the all India level. Also a comparison of the level and trend in the state of Uttar Pradesh between the decennial Census and NSS is presented. An analysis at the regional and district level is given in sections 3.3 and 3.4 respectively.

3.2 AN OVERVIEW OF TRENDS: STATE LEVEL

Change in the structure of employment in the Indian economy is a recent phenomenon observed during the last decade and a half. The broad trends at the all India level and Uttar Pradesh is presented in Table 3.1.

The Table 3.1 shows that at the all India level, there has been a continuous and higher increase in the proportion of non-

agricultural employment. However, in Uttar Pradesh it was more or less stable with a marginal rise of 0.7 per cent between 1977-78 and 1983 and a fall of 0.3 per cent by 1987-88.

TABLE 3.1: PERCENTAGE OF NON-AGRICULTURAL WORKERS IN THE RURAL WORK FORCE - UP & ALL INDIA

1972-73			1977-78			1983			1987-88		
M	F	T	M	F	T	M	F	T	M	F	T
UP											
UPSS	18.1	15.0	19.8	10.9	17.3	22.1	11.3	18.0	21.0	8.7	17.7
UPS			20.2	11.6	18.3	22.2	12.2	20.1	21.6	11.5	18.5
INDIA											
UPSS	16.8	10.3	19.4	12.0	16.7	22.4	12.5	18.6	25.5	15.3	20.4
UPS			19.6	13.2	17.6	22.8	13.8	19.1	26.1	17.5	21.8

Notes: UPS- Usual Principal Status
UPSS-Usual Principal and Subsidiary Status

Source: NSS data for Various Rounds

But a comparison between the Census and NSS data in the state shows some differences. The NSS estimated a higher proportion of non-agricultural employment than the Census estimates (see table 3.2). In 1987-88 according to the NSS estimates, the percentage of male non-agricultural workers in the State was 21.6 per cent (UPS). As against this, the Census estimate is 16 per cent for the nearest comparable year 1991. However for female non-agricultural workers the differences are relatively small, approximately 1 per cent. These differences discussed in Appendix A2 could arise due to different concepts and criteria employed in these two sources.

TABLE 3.2: PERCENTAGE OF NON-AGRICULTURAL WORKERS IN THE RURAL WORKFORCE IN UTAR PRADESH: COMPARING CENSUS AND NSS

	1971a		1972-73b		1977-78b		1981a		1983b		1987-88b		1991a	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
NSS														
UPSS			18.1	15.0					22.1	11.3	21.0	8.7		
UPS					20.2	11.5			22.8	12.7	21.6	9.3		
CENSUS														
Main+Marg.							14.1	8.6						
Main	12.9	7.4					13.7	9.6					16.0	8.1

Notes: UPS - Usual Principal Status; UPSS- Usual Principal and Subsidiary Status

Source: a) Relevant Census Reports; b) Relevant Quinquennial Rounds of NSSO.

The Census data exhibit a continuous increase in the proportion of male non-agricultural workers throughout the period 1971 to 1991. The proportion which stood at 12.9 in 1971, rose to 13.7 in 1981 and then finally to 16.0 per cent in 1991. On the other hand, the NSS, as noted earlier, does not show a consistent increase; infact male non-agricultural employment, declined from 22.1 per cent in 1983 to 21.0 per cent in 1987-88. The trends, however, are similar for female non-agricultural workers according to both these sources; the proportion has marginally declined according to the latest estimate.

Besides, the NSS also provides information on the structure of employment according to the status of employment in agriculture and non-agricultural sectors (see Table 3.3). It can be noticed from the table that in both the sectors, agriculture and non-agriculture, a high proportion of workers are under 'self employed' category. Next to it are those who are 'regularly' employed in the non-agricultural sector and 'casually' employed

in the agricultural sector. Between 1977-78 and 1987-88, 'casual' employment also has gained significance in the non-agricultural sector with a decline in 'regular' status of employment. But the trends are somewhat dissimilar to the all India trends (Papola 1992). At the all India level, self employment in non-agriculture has registered an increase whereas it declined in Uttar Pradesh; regular employment in non-agriculture increased for all India but declined in Uttar Pradesh. However, the trend towards casualisation is evident both for Uttar Pradesh and all India.

TABLE 3.3: STRUCTURE OF EMPLOYMENT IN RURAL UTTAR PRADESH

	1977-78			1987-88		
	Male	Female	Total	Male	Female	Total
UPS						
Agriculture						
Self employed	79.6	76.6	78.8	76.2	77.4	76.5
Regular	2.9	0.8	2.4	1.6	2.1	1.7
Casual	17.5	22.6	18.8	22.2	20.5	21.8
Non-Agriculture						
Self employed	61.2	79.9	63.8	57.8	76.6	59.8
Regular	25.1	12.6	23.3	22.5	10.7	21.5
Casual	13.7	7.5	12.9	19.7	12.7	18.7
UPSS						
Agriculture						
Self employed	80.2	77.7	79.4	77.1	79.3	77.8
Regular	2.8	0.6	2.2	1.5	1.4	1.6
Casual	17.0	21.7	18.4	21.4	18.3	20.6
Non-Agriculture						
Self employed	61.4	82.1	64.9	58.1	77.7	60.7
Regular	25.0	10.2	22.5	22.2	8.7	20.4
Casual	13.6	7.7	12.6	19.7	13.6	18.9

Note: UPS = Usual Principal Status;
UPSS = Usual Principal and Subsidiary Status.

Source: Quinquennial Reports of the NSSO, 32nd and 43rd Round.

It has been argued that casualisation in agriculture is not necessarily a negative phenomenon "self employment in agriculture at least provides a safety net for survival as a part of strategy of the household, and at the same time in many cases,

the individual earnings from (or contribution to) family farming may be small. Thus one is not compelled to move away from self employment in agriculture and at the same time, for those who move, the income situation is likely to improve. In these circumstances, it would be quite safe to surmise that 'casualisation' that is taking place in rural India is a positive process induced by the higher earnings outside agriculture unless one believes that even with low incomes and productivity, self employment is preferable to the wage labour"(Papola 1993, pp 239-240).

To conclude on the broad trends in the state, we find the following:

- a) The proportion of employment in rural non-agricultural activities differs considerably between the Census and NSS;
- b) The NSS estimates do not show any consistent increase in its proportion for the state of Uttar Pradesh as opposed to the all India trend. On the other hand, according to the Census estimates there is an increasing trend in UP since the early seventies.
- c) The broad trend according to the status of employment is towards casual labour, similar to the all-India trends. However, there was a relative decline in regular employment in non-agriculture, unlike at the all-India level.

After a broad comparison between the state and all India, we now concentrate on the regional level trends in the state based on the Census Data, as NSS does not provide data at the district

level.

3.3 NON-AGRICULTURAL EMPLOYMENT AT THE REGIONAL LEVEL

We consider Eastern and Western UP - the two major regions in the state. A comparison between these regions shows a somewhat higher proportion of non-agricultural workers in the Western region than the Eastern region (see table 3.4). Of the total rural workers, the Western region had 16.6 per cent of non-agricultural workers as opposed to 15.2 per cent in the Eastern region in 1991. The trend in non-agricultural employment also seems to be dissimilar between these two regions. While in the Eastern Region there was a continuous increase in this proportion from 11.1 per cent in 1971 to 13.6 per cent in 1981 and again to 15.2 per cent in 1991, the proportion has remained almost stable in the Western region between 15 to 16 per cent. The marginal decline of non-agricultural workers in Western UP between 1971 and 1981 could be due to continuing ability of agriculture to absorb more labour (Singh 1989). Other studies have shown that the initial phase of the Green Revolution was associated with introduction of bio-chemical technology characterised by the extension of irrigation, the use of HYV seeds and fertilizers. This coupled with shift towards more labour intensive crops (see Table 2.13) resulted in an increase in labour use per hectare.

**TABLE 3.4: PROPORTION OF NON-AGRICULTURAL EMPLOYMENT
TO TOTAL EMPLOYMENT: 1971-1991**

	Eastern			Western			State		
	M	F	T	M	F	T	M	F	T
1971	11.8	6.9	11.1	15.3	34.8	15.7	12.9	7.4	12.3
1981	14.3	8.4	13.6	14.5	43.6	15.0	13.7	9.6	13.1
1991	16.9	7.2	15.2	16.3	24.7	16.6	16.0	8.1	15.0

Source: Relevant Census Reports.

A perusal of Table 3.4 reveals that the proportion of non-agricultural employment to total employment is close to that of males. This is due to the fact that the proportion of male non-agricultural employment in total non-agricultural employment is very high; 92 and 95 per cent in the Eastern and Western region respectively. This could be partly because female involvement in economic activity is underestimated by the Census. However, a striking feature of female non-agricultural employment must be noted. The proportion of female non-agricultural workers is substantially higher in Western region. This proportion has shown a relative stability, between 7 to 8 per cent in the Eastern region, while it has fluctuated in the Western region from 34.8 per cent in 1971 to 43.6 per cent in 1981 and to 24.7 per cent in 1991. However, the high proportion in West UP is based on extremely low female work participation rates compared to the Eastern region¹. In the subsequent analysis, we therefore shall be often dealing with male workers only.

¹ The estimates of female main worker participation rates for Eastern and Western UP for the years 1971, 1981 and 1991 are 9.9 per cent, 7.6 per cent and 10.7 per cent, and 1.1 per cent, 1.1 per cent and 2.4 per cent respectively.

3.3.1 INDUSTRIAL DISTRIBUTION OF RURAL EMPLOYMENT, MALES

The industrial distribution of rural male workers at the regional and state level is given in Table 3.5. It does not suggest any major differences in rural non-agricultural employment between the state and the two regions, and hence, the conclusions can be generalised unless otherwise stated.

The proportion of employment has consistently been higher in tertiary sector than the secondary sector. Employment in secondary sector has remained more or less stable between 5 to 6 per cent point during 1971 and 1991. However, a rise in tertiary sector employment seems to be sharper for the state and Eastern UP, from 7 to 10 per cent, but was relatively smaller in magnitude in Western UP, that is, from 9 to 10.5 per cent. In the literature, several theoretical explanations have been given to explain the expanding tertiary sector employment in the context of a developing economy (Kuznets 1959).

**TABLE 3.5: REGION WISE DISTRIBUTION OF RURAL MALE WORKERS
BY INDUSTRIAL CATEGORIES: 1971 TO 1991**

Industrial Category	Eastern			Western			State		
	1971	1981	1991	1971	1981	1991	1971	1981	1991
I. Cultivators	63.7	68.8	63.4	66.8	67.3	61.7	67.3	70.1	64.5
II. Agricultural Labourers	24.1	16.6	19.3	17.2	17.7	21.4	19.2	15.8	18.9
III. Agriculture & Allied Activities	0.4	0.3	0.4	0.7	0.5	0.6	0.6	0.4	0.6
IV. Mining & Quarrying	Neg.	0.1	0.1	Neg.	Neg.	Neg.	Neg.	0.1	0.1
V. Manufacturing, Processing, Servicing & Repairs	4.8	6.3	5.6	5.6	6.1	5.1	4.7	5.3	4.7
(a) Household Industry	3.2	3.6	2.5	3.5	2.5	1.2	3.1	2.6	1.7
(b) Other than Household Industry	1.6	2.7	3.1	2.1	3.6	3.9	1.6	2.7	3.0
VI. Construction	0.2	0.4	0.7	0.6	0.6	0.7	0.4	0.6	0.8
SECONDARY SECTOR	5.0	6.7	5.8	6.2	6.7	5.8	5.1	5.9	5.5
VII. Trade and Commerce	1.9	1.8	3.1	2.1	1.8	3.1	1.9	1.8	2.8
VIII. Transport, Storage and Communication	0.5	1.1	1.0	0.6	1.1	1.0	0.5	1.1	1.0
IX. Other Services	4.4	4.6	6.4	6.4	4.9	6.4	5.4	4.8	6.6
TERTIARY SECTOR	6.8	7.5	10.5	9.1	7.8	10.5	7.8	7.7	10.4
Total Workers	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(A) Total Agricultural Workers	88.2	85.7	83.1	84.7	85.5	83.7	87.1	86.3	84.0
(B) Total Non-Agr. Workers	11.8	14.3	16.9	15.3	14.5	16.3	12.9	13.7	16.0

Note : Neg. stands for Negligible.
Figures may not add upto total due to rounding off errors.

Source: Relevant Census Reports.

TABLE 3.6: REGION-WISE DISTRIBUTION OF RURAL FEMALE (MAIN) WORKERS BY INDUSTRIAL CATEGORIES: 1971-1991

Industrial Category	Eastern			Western			State		
	1971	1981	1991	1971	1981	1991	1971	1981	1991
I. Cultivators	28.0	39.6	44.3	37.6	29.8	38.9	45.2	57.4	52.8
II. Agricultural Labourers	64.8	51.9	48.3	25.2	24.0	34.4	46.9	32.6	38.6
III. Agriculture & Allied Activities	0.3	0.1	0.2	2.4	2.5	2.2	0.5	0.4	0.4
IV. Mining & Quarrying	0.1	0.1	0.1	Neg.	0.1	Neg.	0.1	0.1	0.1
V. Manufacturing, Processing, Servicing & Repairs	4.2	5.2	3.9	13.6	23.9	13.3	3.7	5.2	3.9
(a) Household Industry	3.6	3.9	2.5	9.8	15.9	6.3	3.0	3.6	2.3
(b) Other than Household Industry	0.6	1.3	1.4	3.8	8.0	7.0	0.7	1.6	1.6
VI. Construction	0.1	0.1	0.1	0.3	0.4	0.5	0.1	0.2	0.2
SECONDARY SECTOR	4.3	5.3	4.0	13.9	24.3	13.8	3.8	5.4	4.1
VII. Trade and Commerce	0.5	0.6	0.9	1.6	1.8	1.4	0.5	0.6	0.8
VIII. Transport, Storage and Communication	Neg	Neg	Neg	0.2	0.2	0.1	Neg	Neg	0.1
IX. Other Services	2.0	2.4	2.3	19.1	17.2	9.4	3.0	3.5	3.1
TERTIARY SECTOR	2.5	3.0	3.2	20.9	19.2	10.9	3.5	4.1	4.0
Total Workers	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
(A) Total Agricultural Workers	93.1	91.6	92.8	65.2	56.3	75.3	92.6	90.4	91.8
(B) Total Non-Agr. Workers	6.9	8.4	7.2	34.8	43.6	24.7	7.4	9.6	8.2

Note : Neg. stands for Negligible.
Figures may not add upto total due to rounding off errors.

Source: Relevant Census Reports.

Within the secondary sector, employment was maximum in 'Household Industry' in 1971. However, this proportion has continuously been on the decline while 'Non Household Industry employment' has gained significance during 1971 to 1991. Singh (1989) argued that changes in consumer tastes and competition from the factory sector leading to a decline of employment in traditional industries and services is the probable explanation for this trend. Employment in construction continued to be low and almost stable during this time period.

In tertiary sector employment, the proportion has been the maximum in 'Other Services', followed by Trade & Commerce, Transport, Storage & Communications. In terms of changes in their proportions, employment in Trade and Commerce registered an increase by 1 percentage point approximately both at the state and regional level but has shown a near constancy in Transport, Storage and Communication. However a difference is noticed in 'Other services' between Eastern/State and Western region. Whereas in the Eastern and State level, the sector's share shows an increase, the proportion remained the same at 6.4 per cent in Western region between 1971-91.

Therefore, an increase in non-agricultural workers seems to be explained primarily by an increase in Other Services in Eastern UP and Non-Household industry in the Western region. The industry groups Trade and Commerce shows some increase in both the regions.

3.3.2 INDUSTRIAL DISTRIBUTION OF NON-AGRICULTURAL EMPLOYMENT, FEMALES

For female workers, we noticed earlier a considerably high proportion of non-agricultural employment in the Western region compared to the Eastern and State level. A sectoral disaggregation reveals that the high proportion of non-agricultural employment in Western UP is explained both on account of secondary and tertiary sector employment. In secondary sector, the proportion is remarkably high in 'Household' and 'Non-Household industry' and 'Other Services' in the tertiary sector. Employment in Construction, Transport, Storage & Communications is relatively marginal at the regional and State level.

It is seen that the proportion of employment in manufacturing (and Secondary) sector has shown a near constancy between 1971 and 1991. A closer analysis reveals that in Western UP, employment in manufacturing (and secondary sector) shot up from 13.6 per cent in 1971 to 23.9 per cent in 1981 but declined to 13.3 per cent in 1991. A further disaggregation shows that employment rose sharply both in 'Household' and 'Other than Household' industry groups. However, the decline in 1991 was primarily on account of household industry. In the state and Eastern UP also employment in the secondary sector registered an increase during this period but of a smaller magnitude. In tertiary sector, employment has remained stable during 1971 and 1991 for Eastern UP and the State, whereas it declined sharply in Western UP from 20.9 per cent to 10.9 per cent. This is due to

decline in 'Other services' employment from 19.1 per cent in 1971 to 9.4 per cent in 1991.

In the next section we examine the trends at the district level for male workers.

3.4 RURAL MALE NON-AGRICULTURAL EMPLOYMENT AT THE DISTRICT LEVEL

For purposes of analysis we classified the districts into two groups with relation to non-agricultural employment in 1971 for those districts which are below the regional average and those which are above it. The former will be subsequently referred to as HND and the latter as LND category.

3.4.1 EASTERN REGION

In the Eastern region, the districts which had lower than the regional average of non-agricultural employment in 1971 remained so in 1991. This is despite the fact that non-agricultural employment rose in all the districts. Noticable is that between 1971 and 1991 the increase was higher in the HND category of districts. It is seen from table 3.7 that in Jaunpur, Mirzapur, Allahabad and Varanasi, the rise was substantial from 12.5 to 20.5 per cent, 13.2 to 24.5 per cent, 15.8 to 20.9 per cent and 25.9 to 37.2 per cent respectively during the period 1971 to 1991.

The sectoral composition suggests that secondary sector employment (the residual being percentage employed in the

tertiary sector) is lower in LND category and higher in HND category of districts. Mirzapur and Varanasi are found to have a substantial proportion of secondary sector employment.

Between 1971 and 1981, secondary sector employment has risen in almost all the districts but sharply in Mirzapur, Jaunpur, Varanasi and the first two being districts with an already high proportion of secondary sector employment. On the other hand, the districts where there was a decline in this proportion are Faizabad, Gorakhpur and Ballia.

TABLE 3.7: PROPORTION OF RURAL NON-AGRICULTURE AND SECONDARY SECTOR EMPLOYMENT IN THE DISTRICTS OF EASTERN UP

Districts	Rural Male Non-Agri. Employment			Employment in the Secondary Sector		
	1971	1981	1991	1971	1981	1991
LND						
Bahraich	5.1	5.3	7.2	25.2	31.2	27.8
Gonda	6.4	6.0	8.0	37.7	37.2	25.4
Basti	8.1	9.4	10.0	43.6	38.3	27.3
Deoria	9.2	13.2	14.7	34.3	38.8	28.5
Faizabad	10.4	11.0	13.6	43.1	40.7	25.0
Gorakhpur	10.8	12.5	15.3	41.3	32.6	17.4
Sultanpur	10.9	11.1	13.2	36.0	40.9	30.1
HND						
Pratapgarh	12.2	11.1	16.3	36.7	37.7	28.0
Jaunpur	12.5	16.6	20.5	39.8	51.0	35.8
Azamgarh	12.9	14.6	17.8	42.6	48.2	36.6
Mirzapur	13.2	22.5	24.5	45.1	61.6	57.5
Ballia	15.3	14.9	18.0	37.0	30.8	20.5
Ghazipur	15.4	17.6	18.3	38.0	38.9	24.8
Allahabad	15.8	18.8	20.9	43.0	49.8	36.9
Varanasi	25.9	33.3	37.2	53.8	65.6	63.5
Region avg (Weighted)	11.8	14.3	16.9			
Region avg (Simple)	12.3	14.6	17.3	39.8	42.9	32.3

Note: LND and HND refers to districts with low and high non-agricultural employment in 1971 respectively.

Between 1981 and 1991 there was a decline in the secondary sector, and hence an increase in tertiary sector employment, observed in all the districts. Now let us analyse the trends in the Western region.

3.4.2 WESTERN REGION

As noted earlier, in the Western region, the proportion of rural male non-agricultural workers remained more or less stable during 1971 and 1991. Similar trend is observed for most of the districts except Mainpuri among the LND and Bulandshahr and Muzaffarnagar in the HND category for which the increase was substantial (see table 3.8). Other districts which showed an increase though not so considerable were Moradabad, Mathura and Agra - all HND. It is interesting to note the broad stability in ranking; except for Mainpuri, all the LND have remained below the regional average while the HND have remained above it through out the period.

In terms of sectoral composition, Table 3.8 which gives the percentage of non-agricultural employment in the secondary sector, the residual being in the tertiary sector, suggests that districts in the HND category also have a higher proportion of secondary sector employment and the converse, a notable exception being Moradabad, which is known for industrial activity, but has a low proportion of male non-agricultural employment.

Between 1971 and 1981, the proportion of employment in the secondary sector increased in most of the districts both for LND

and HND; however on an average it was higher in the latter. It was pointed in section 3.3.1 that rise in secondary sector employment in this period in Western UP was due to increase in 'non-household industry'. Hence the trend at the district level is similar to the regional level.

TABLE 3.8: PROPORTION OF RURAL NON-AGRICULTURE AND SECONDARY SECTOR EMPLOYMENT IN THE DISTRICTS OF WESTERN UP

Districts	Rural Male Non-Agri. Employment			Employment in the Secondary Sector		
	1971	1981	1991	1971	1981	1991
LND						
Badaun	6.3	5.7	6.4	35.4	41.2	18.3
Shahjahanpur	7.1	6.4	7.1	32.9	41.1	26.2
Rampur	7.7	6.8	9.5	37.2	44.4	39.5
Pilibhit	8.4	8.0	8.5	37.5	42.2	34.3
Moradabad	10.0	11.3	13.4	47.1	48.4	39.0
Bareilly	10.4	9.2	11.1	34.8	41.2	28.3
Etah	10.5	8.4	10.5	33.8	39.8	26.9
Farukhabad	10.7	9.1	10.3	37.0	43.0	28.5
Etawah	10.7	10.8	13.1	33.7	30.1	22.7
Mainpuri	11.9	10.8	16.8	34.5	39.5	41.9
HND						
Mathura	18.2	18.3	21.1	34.7	42.9	32.7
Bulandshahr	18.9	17.6	24.5	35.2	42.5	35.2
Saharanpur	19.6	17.0	18.0	36.6	42.4	37.6
Bijnor	19.6	19.3	18.3	55.2	57.9	48.7
Aligarh	19.9	16.8	20.9	36.3	43.2	35.9
Muzaffarnagar	20.1	18.2	37.2	44.3	49.3	44.7
Agra	20.9	23.9	24.1	39.2	50.5	41.0
Meerut	29.7	27.5	28.3	46.5	49.2	42.5
Region avg (Weighted)	15.3	14.5	16.3			
District avg (Simple)	14.4	13.6	15.3	38.5	43.8	34.7

Note: As in Table 3.7

In contrast in the subsequent decade from 1981 to 1991, employment in secondary sector declined considerably in all the districts. The decline was sharper in LND category particularly in Badaun, Shahjanpur and Farukabad. Most of the increase in

non-agricultural employment was in the tertiary sector which was sharper in the LND category and in line with the regional trend.

The important point to note is a near stability in overall non-agricultural employment and a visible decline in secondary sector employment in all the districts.

3.4 SUMMARY OF THE CHAPTER

To sum up, it is seen that most of the districts follow the pattern of their respective regions. In the recent decade most of the increase in non-agricultural employment was taken up by the tertiary sector both in Eastern and Western UP that is evident from the lower proportion on average employed in the secondary sector in 1991.

CHAPTER 4

DETERMINANTS OF RURAL NON-AGRICULTURAL EMPLOYMENT

4.1 INTRODUCTION

The rise in non-farm activities discussed in the last chapter could be due to factors internal and/or external to the rural economy. In section 4.2 we shall discuss the factors and processes which might lead to generation of rural non-farm employment, as discussed in the literature. The analysis at the regional and district level are taken up in section 4.3 and 4.4 respectively.

4.2 CORRELATES OF RURAL NON-FARM EMPLOYMENT

The process that leads to non-farm activities is 'prosperity induced' if development factors brings about the employment diversification. On the other hand, it is a 'distress induced process' if factors like poverty, unemployment cause rise in non-agricultural activities. Growth in agricultural output, degree of commercialisation, the amount of land available to the rural population, the extent of landlessness, poverty and the unemployment rate among the rural population are some of the factors which may promote rural non-farm employment. The factors exogenous to the agricultural sector which can promote non-farm employment are literacy, degree of urbanisation and the infrastructural facilities in the rural areas.

The agriculture led growth model suggests that a sustained rise in farm output and incomes can act as a prime mover in initiating the development of non-agricultural activities in the rural areas (Bhalla 1990). It is likely that in the initial phases of agricultural development, a better absorption of labour in the farm sector would take place and therefore, there would be less spill off of excess labour into non-agricultural activities. This takes place as a result of using 'labour absorptive technology' in the initial phases of agricultural development (Bhalla 1987, 1990).

The increase in agricultural output, and hence the higher income level of the agricultural population, usually leads not only to a higher level of consumption, but also alters their demand in favour of manufactured goods and services, of consumption goods and inputs. Given that these are (highly) income elastic demands, it is expected that the demand for manufactured goods (for consumption and inputs) and services relative to population will be higher in areas where the per capita income of agriculturists is high and/or the distribution of income and/or assets is skewed. However, it is possible that a thin crust of the peasantry which has a cash nexus with non-agricultural sector may alone not be able to generate enough employment opportunities which are 'non-farm' in nature. Also, the increased demand for goods and services may not necessarily result in local production and thus, the relative size of the demand for local vs outside products, is in part a function of consumer preferences. This in turn is systematically related to the per capita incomes- richer people want newer and exotic

products and products of superior quality which are urban based. The increased purchase of durable goods in rural areas may also create a whole range of maintenance and repair facilities. This increase in demand for manufactures- of consumption goods and inputs- facilitates employment in favour of trade and commerce, transport and communication and other services since most of these products are produced by industries located outside, often far away from the villages where they are used. Thus the growth of agricultural production generally leads to a more than proportionate increase in demand for inputs from non-agricultural sector, though not necessarily to an increase in demand for locally made inputs taken as a whole (Vaidyanathan 1986, p A139).

The rural demand for personal and community services in a given area, which are mostly locally produced, may be a function of general rural prosperity. However, there are certain categories of community services eg., public administration, education and modern health services, whose level and location may be determined exogenously by the state policy. But a high level of rural income may also inhibit the supply of labour for non-agricultural activities for certain section of the population, particularly among females. The female workers in the rural areas tend to withdraw from non-farm activities as income from the agricultural sector rises.

The level of agricultural development and therefore its impact on rural non-farm activities, may be captured either by using value of agricultural output per capita or agricultural productivity per unit of land (land productivity) as a proxy

variable. The lack of correspondence between these two indices may arise out of the fact that more fertile regions may also be densely populated. Besides, migration into more agriculturally productive areas (the 'suction process') may neutralise the per capita productivity of these areas. However it has been shown elsewhere that the 'suction process' is not verified by systematic empirical investigation (Basant 1987, p 1357).

Commercialisation is another dimension of agricultural development which positively influences rural non-farm activities. Its impact is felt in several stages. First, as agriculture becomes more commercialised, more of the agricultural output is sent out of the rural /village areas to nearby urban centres in order to satisfy the consumption and input needs of urban population and agro-based industries which favourably increases the extent of trading, and trade related activities. Secondly, increased exposure to and contact with nearby towns may shift the preferences of the rural population in favour of consumer goods and inputs purchased by the urban population. Thirdly, the commercialisation of agriculture also extends the territorial network for non-agricultural goods and services. This creates greater opportunities for specialisation, technical change, and spatial concentration of non-agricultural production. This tendency is further strengthened by improvement in transport and communication network.

Most of the studies have tried to capture the impact of commercialisation on non-farm employment by 'area under non-food crops' (Vaidyanathan, 1986; Jayaraj, 1989; Papola, 1989; Basant

and Partharasathy, 1991). The same variable is employed by us in this study to capture the impact of commercialisation.¹

Land is an important asset in the rural areas. It is also an important source of employment to the rural population. Availability of land and its use determine crucially the extent of labour absorption in agriculture i.e., if more land is available, labour absorption will be higher in the agricultural sector and vice versa. In the following analysis, we have considered 'Gross Cropped Area per Agricultural Population' as a measure of land availability (referred to subsequently as 'Land Man ratio'. If land man ratio is high, higher the proportion of workers in the agricultural sector and consequently lower in the non-agricultural sector.

Recently the literature has remarked upon a reverse leasing of land in several parts of the country. This is characterised by small and marginal farmers leasing their land to the big and marginal farmers instead of taking the latter's land on lease. The main reason for this is that small fragments of land are uneconomical due to cost of inputs and indivisibilities associated with modern agriculture. On the other hand, medium and big farmers continue to enjoy economies of scale as ploughing an extra piece of land involves only a marginal rise in cost and

¹ It has been argued elsewhere that area under 'non-food crops' does not adequately capture the impact of commercialisation which encompass all the markets (Basant and Parthasarthy 1991). Besides, significant proportion of output of foodgrains is also marketed in many regions which is left untouched using this variable.

therefore, a lower financial burden. With little or no access to agricultural land for the majority, non-farm employment, whether rural or industrial, is a major source of employment (Chadha, 1990). Against this background, we can expect that if the number of the marginal holdings are high, people will shift towards non-farm activities. This diversification is a manifestation of 'distress'. We have considered percentage of marginal holdings of the total holdings to examine this relationship.

Irrigation is another important determining factor in promoting employment both in the farm sector and in the non-farm sectors. Das Gupta (1977) pointed out that the extension of irrigation opens the scope of employment in operations such as 'bundling' and 'water control' in the farm sector. Further, the extent of irrigation also facilitates a shift in the cropping pattern from relatively low labour intensive and low productive crops such as jowar and bajra to relatively high labour intensive and high productive crops as paddy and sugarcane. Hence expansion of irrigation is expected to be associated with the higher absorption of labour in the farm sector.

It may also happen that the impact of irrigation may influence non-farm employment positively. The agricultural surplus, which is an outcome of increased output resulting from better irrigation has to be disposed of. It is but natural that employment is likely to increase in activities such as trade and commerce, transport and communication and other services. Besides, irrigation increases the use of pesticides, chemical fertilisers and HYV's which promote employment in the above

mentioned industrial categories. The measure employed to understand the impact of irrigation is the 'percentage of total area irrigated in total gross cropped area. It should be noted from the above discussion that expansion may affect non-farm employment positively as well as negatively.

The above mentioned factors are related to the agricultural sector. The factors external to this sector viz literacy, urbanisation and demographic pressures having a bearing on non-farm activities are detailed below.

Literacy is likely to promote non-farm employment favourably. The workers, who are more literate are better informed about the job market than their illiterate counterparts which enhanced job mobility towards urban and/or activities other than the agriculture. 'The percent of literate population in total population' (Jayaraj,1989) is used in our analysis to capture its impact on the rural non-farm employment.

Similarly, urbanization has also a positive bearing on the rural non-farm employment, Urbanisation and the growth of infrastructure may expand the market for rural enterprises and encourage non-agricultural activities both in the secondary and tertiary sectors in the neighbouring rural areas to satisfy the non-local demands. The rural enterprises might thereby be able to create some economies of scale. Decrease in the cost of information and transport may improve the efficiency with which rural labour and financial markets channel inputs into various remunerative activities. Moreover, decreased transport costs open

up rural resources and markets to viable exploitation, and facilitate movement to a more specialised productive rural economy. Policies encouraging the location of industries in rural/backward areas further contribute to this process.

(b) Better and relatively inexpensive transport facilities make it possible for many members of rural households to shift to non-agricultural occupations without changing their residence through commutation. The impact of urbanization is captured by the 'proportion of the urban population in the total population' (Jayaraj, 1989; Singh, 1989).

However, urbanisation also affects the proportion of rural non-agricultural employment adversely (a) During the process of urbanisation, the boundaries of cities and/ or urban areas are periodically extended to include the surrounding "rural areas". Such expansion is likely to lead to an apparent decline in the magnitude of rural non-agricultural activities. This is so because the share of the non-agricultural sector in those rural areas which get classified as urban is more than in other areas. (b) Urbanisation and the associated improvements in infrastructure render some rural manufacturing activities non-viable through the competition of more attractive and less expensive substitutes.

To sum up: the agricultural prosperity induced process in our analysis is captured by the variables, value of agricultural output per agricultural worker, commercialisation as also gross irrigated area. However, the role of the latter is ambiguous and at present we are not making any presumption about it. On the

other hand, to capture the distress induced process, we use per cent distribution of marginal holdings and land man ratio. To assess the role of outside factors, the variables literacy and urbanisation are used. In the next section, we will try to test these hypotheses at the regional level.

4.3 ANALYSIS AT THE REGIONAL LEVEL

We noted in the last chapter that the proportion of (male) non-agricultural employment was higher in the Western region than the Eastern region in 1971. However, by 1991 this proportion was marginally higher in the Eastern region due to a consistent increase in non-agricultural employment. What follows is an analysis of the factors that could have influenced non-agricultural employment in these two regions.

The regional averages of the factors discussed above (section 4.2) at the three time points are shown in Table 4.1. The table suggests that the indicators of agricultural development such as extent of irrigation, value of agricultural output per agricultural worker and the level of commercialization were substantially higher (approximately double) in the Western region. The level of urbanization, was also considerably higher in this region while literacy level was not very dissimilar. On the other hand, the distress indicators such as percentage distribution of marginal holdings was higher and land man ratio was worse in the Eastern region.

TABLE 4.1: LEVEL AND TRENDS OF DETERMINANTS EXPLAINING RURAL NON-FARM EMPLOYMENT IN THE EASTERN AND WESTERN REGIONS OF THE STATE

Determinants	Eastern Region	Western Region
Value of agricultural output per agricultural worker		
1970s	766	1585
1980s	1021	2084
*1990s	975	1936
Commercialisation		
1975-76	11.0	26.7
1980-81	10.6	29.9
1988-89	10.4	31.3
Gross irrigated area		
1975-76	35.1	53.7
1980-81	40.4	61.7
1988-89	46.9	74.6
Per cent distribution of marginal holdings		
1971	75.3	59.7
1981	79.6	62.6
1991	81.3	65.0
Land man ratio		
1970s	0.89	1.34
1980s	0.88	1.27
1990s	0.70	1.08
Urbanisation		
1971	8.3	18.3
1981	10.7	23.7
1991	11.6	31.3
Literacy		
1971	27.7	27.4
1981	34.6	35.4
1991	40.7	39.9

Note: It is noticed that in East UP, despite substantial increase in productivity and hence value of agricultural output during eighties, labour productivity in agriculture has declined. This seems to be mainly due to a proportionally high growth of agriculture labour than agricultural output.

In comparison, therefore, what emerges from Table 4.1 is that all the development related factors considered here, are far more advanced in Western UP than Eastern UP. This, at least in part, explains why Western UP had a higher proportion of non-agricultural workers even in 1971.

The rise of the same in Eastern UP from 1971 to 1981 could

be very well due to increase in agricultural productivity, gross irrigated area and distress induced factors; the per cent number of marginal holdings rose from 75.3 to 79.6 per cent in 1981.

However, between 1981 and 1991, the increase in non-agricultural employment in Eastern region from 14.3 per cent to 16.9 per cent seems to be primarily on account of the distress induced factors: the per cent number of marginal holdings and land man ratio, which was more adverse in Eastern region, has worsened to 81.3 per cent and 0.70 hectares respectively. On the other hand, in Western UP, increase in non-agricultural employment could be due to urbanisation and distress induced factors such as increase in marginal holdings and decline in land-man ratio. Now we turn to these correlates of non-agricultural employment at the district level.

4.4 ANALYSIS AT THE DISTRICT LEVEL

The analysis of district level variation in non-agricultural employment is based on district averages, coefficient of variation of district averages, and linear coefficient² of correlation between non-agricultural employment and the selected factors discussed so far, high degree of multicollinearity between the explanatory variables prevented any meaningful regression analysis.

The correlation coefficients are presented in Table 4.2. In

² Scatter diagrams did not indicate any non-linearity.

East UP, agricultural income is not found to be correlated with rural non-agricultural employment. This may be due to low agricultural productivity as well as low inter-district disparities³ in the region (see table 4.3). In the Western region, on the other hand, agricultural income was found to be correlated with rural non-agricultural employment in 1971 and thereafter it disappeared though the level of agricultural income has increased. This does not necessarily mean that labour productivity has little to do with non-agricultural employment in West UP. Given this rise in labour productivity in all the districts in the region (as indicated by rising average and falling coefficient of variation) the variation in non-agricultural employment across districts is no more found to be associated with the variation in labour productivity.

TABLE 4.2: CORRELATION COEFFICIENTS OF THE NON-AGRICULTURAL EMPLOYMENT AND ITS DETERMINANTS IN THE EASTERN AND WESTERN REGIONS OF THE STATE

Determinants	Eastern Region			Western Region		
	70s	80s	90s	70s	80s	90s
Agr output/worker	0.29	0.42	0.19	0.68*	0.53	0.18
Commercialisation	0.19	0.54	0.09	0.38	0.69*	0.74*
Marginal holdings	0.25	0.06	0.13	-0.64*	-0.62*	-0.62*
Land man ratio	-0.03	-0.02	-0.19	0.63*	0.43	0.53
Irrigated area	0.39	0.58	0.63*	0.71*	0.58*	0.36
Urbanisation	0.72*	0.80*	0.77*	0.47	0.61*	0.66*
Literacy	0.10	0.76*	0.64*	0.60*	0.58*	0.63*

Note: * indicates 1 per cent level of significance

³ Given low agricultural income, if inter-district disparity is low, it implies that majority of the districts have low agricultural income.

TABLE 4.3: AVERAGE PER DISTRICT AND COEFFICIENT OF VARIATION OF NON-AGRICULTURAL EMPLOYMENT AND ITS DETERMINANTS

	Eastern Region			Western Region		
	71	81	91	71	81	91
Non-Agricultural Employment	12.3 (40.2)	14.6 (47.8)	17.2 (43.4)	14.4 (44.6)	13.6 (47.0)	15.3 (42.2)
Agricultural output/agr worker	761 (7.8)	1021 (11.5)	975 (14.7)	1529 (30.0)	1999 (29.0)	1946 (21.6)
Commercialisation	6.7 (29.7)	10.3 (23.3)	19.6 (37.7)	14.1 (45.3)	25.8 (50.0)	34.7 (59.0)
Marginal Holdings	74.5 (8.4)	78.8 (7.9)	80.0 (10.3)	57.4 (15.8)	61.6 (13.0)	64.3 (11.2)
Land man ratio	0.89 (12.5)	0.88 (9.0)	0.71 (8.4)	1.3 (12.7)	1.3 (11.9)	1.1 (13.0)
Irrigation	33.1 (29.9)	42.1 (25.8)	48.9 (28.6)	49.1 (29.9)	61.9 (20.0)	75.8 (14.1)
Urbanisation	7.6 (85.5)	9.9 (62.6)	10.7 (57.9)	17.0 (42.1)	22.1 (31.2)	24.5 (29.7)
Literacy	17.0 (18.2)	21.6 (17.5)	27.9 (16.4)	17.8 (29.2)	23.6 (28.8)	28.5 (27.0)

Note: * Arithmetic mean
 Figures in parenthesis represent coefficient of variation

The level of commercialisation and inter-district disparity has continuously increased in the Eastern region, however the correlation does not appear significant, possibly because commercialisation level is still at a low level to make its impact on non-agricultural activities. In the Western region where commercialisation has reached a level higher than East UP, the correlation has become stronger over time with increase in level and inter-district variations.

The story of association with proportion of marginal holding, which is intended to measure inequality in land distribution, is very similar. At the regional level, Western UP has a lower proportion of marginal holding compared to Eastern

UP. However, district level variation of the same is considerably higher in West UP than East UP. As a result, the correlation is significant in West UP while no association is found in East UP. But we were unable to explain negative and significant association between non-agricultural employment and proportion of marginal holdings.

Similarly, demographic pressure on land does not seem to be correlated in the Eastern region but, it was significant in Western region in 1971. Inter district disparity is low in both the regions.

Irrigation appears to be an interesting case. Whereas the level of irrigated area is considerably lower in Eastern region than the Western region, the correlation appeared stronger over time in East UP but declined in West UP. As noticed in the previous chapter, the relative importance of pumpsets has increased sharply in gross irrigated area suggesting an improvement in the quality of irrigation as also an increase in non-farm activities in Eastern region. In Western region, a sharp decline in inter-district variations has resulted in a weak correlation.

Urbanisation is significantly correlated with non-agricultural employment in East UP. However in Western region, it becomes significant since the seventies presumably because of the sharp increase in the level of urbanisation level.

Similarly, the literacy rate becomes significant in East and West UP because of increase in its level despite the fact that inter-district variations declined in both the regions.

4.4 SUMMARY OF THE CHAPTER

At the regional level, comparison of East and West UP shows that all the factors considered in this study and discussed in the literature are associated with non-agricultural employment. At the district level within the two regions, the associations depended on the levels of the variables and inter-district disparities thereof.

On the whole, what emerges is that while in West UP non-agricultural employment is largely generated out of progress in development of agriculture and more recently urbanisation. The case of East UP seems to be a mixed one- distress factors such as land man ratio, and development factors such as irrigation, urbanisation are associated with non-agricultural employment.

CHAPTER 5

SUMMARY AND CONCLUSION

In recent literature, the rural non-farm sector has drawn considerable attention in view of a discernible shift in the structure of employment away from the agricultural sector since the early seventies. This, in the context of (a) the failure of the path of industrialization to absorb surplus labour from rural areas into the urban industrial sector resulting in the continued dependence of a stable majority on agriculture and (b) the failure of subsequent policy measures to diversify the rural sector, stimulated considerable research into the significance of rural non-agricultural employment, its pattern and determinants. Studies have shown that the processes involved in this diversification are mixed (prosperity induced and/or distress induced as also factors external to the rural economy) and region specific and therefore are not subject to generalization. In our survey of literature, it was noted that only a few studies are available to characterize employment in non-farm activities in U P (infact, none for the period between 1981 and 1991). This study attempted to analyze the trends in non-agricultural employment and its correlates in Uttar Pradesh focusing on two regions, East and West. These two regions are considerably important in terms of both area as well as population.

In our review of literature, we noted that agricultural development and urbanization emerged as important factors in promoting rural non-agricultural employment. In Chapter 2, we

looked into the socio-economic situation in the state , emphasizing various aspects of agriculture and urbanization. In our analysis we observed that the Eastern region which lagged behind the Western region in terms of agricultural growth with the introduction of the Green Revolution started picking up in the eighties due to increase in area under irrigation with an emphasis on tubewells. On the other hand, the level and growth of urbanization was noted to be fairly high in the Western region as opposed to the Eastern region.

With this brief background of the two regions, we analyzed the level and broad trends in non-agricultural employment at the regional and district level in Chapter 3. It was noted that the proportion of rural male non-agricultural workers was lower in East UP in 1971 but due to consistent rise in its proportion, it exceeded the level in Western UP by 1991: 16.9 per cent of male rural workers in Eastern UP were engaged in non-agricultural activities in 1991. On the other hand, in the Western region the proportion has remained more or less stable between 1971 and 1991, at 15.3 per cent in 1971 and 16.3 per cent in 1991. In terms of the sectoral composition, the proportion of employment has declined in the secondary sector (however within this sector non-household industry has gained importance) with a corresponding increase in tertiary sector employment, specifically in trade and commerce and other services. Most of the districts were found to follow the regional pattern both in East and West UP.

In the analysis on determinants of the shift, all the

variables employed by us that characterized "prosperity", "distress" and "urbanization" explained diversification at the regional level. Interestingly, these variables did not appear always significant at the district level despite an increase in their level. This could have happened because of narrowing of inter-district variations. For instance in Western UP agricultural income was high and correlated with non-agricultural employment in 1971 and thereafter it disappeared though the level of agricultural income had increased. This, because of the decline in the inter-district variations. On the other hand, in Eastern UP despite a low level of irrigated area in 1991 (although its level had increased since the seventies), the association with non-agricultural employment was significant since the coefficient of variation between districts had increased. What we concluded was that at the district level, the association depended both on level and inter-district disparities of the different variables.

On the whole it was observed that while in West UP non-agricultural employment was largely generated out of progress in development of agriculture and more recently urbanization, the case of East UP seemed to be a mixed one - distress factors such as land man ratio, and development factors such as irrigation, urbanization were significantly associated with non-agricultural employment.

APPENDIX A1

A NOTE ON FORMATION OF DISTRICTS

This note explains the methodology adopted by us to adjust the districts formed over a period of time. In the recent past, a number of districts were formed in the state, thanks to the physical enormity of the state/districts. The state had 54 districts in 1971, 56 in 1981 and finally 63 in 1991. A perusal of the following table suggests that the newly formed districts are concentrated in two regions: Eastern and Western. The Eastern region had the same number of districts, 15 in 1971 and 1981 but this rose to 19 in 1991. Similarly, the number of districts in the western region rose from 18 in 1971 to 19 in 1981 and 21 in 1991.

TABLE A1.1: NUMBER OF DISTRICTS IN THE STATE AT DIFFERENT POINTS OF TIME

Regions	Years		
	1971	1981	1991
Bundelkhand	4	5	5
Central	9	9	10
Eastern	15	15	19
Hill	8	8	8
Western	18	19	21
STATE	54	56	63

Source: Relevant Census Reports.

To compare the district level data over a period of time, if a new district is formed exclusively from an old one, absolute figures of these two districts could be added up as this would pose no methodological problem. However one has to be cautious if a new district district is formed from more than one old

district. Unless detailed information is provided, the validity of the findings may be questioned. In our analysis, in such cases a rule of thumb is followed: If more than three fourth of the geographical area of a new district is taken from an older district, then the figures of these two districts may be clubbed together in order to compare with the erstwhile district.

In the Eastern region, four new districts were formed between 1981 and 1991. These districts are Sidharth Nagar, Maharaj Ganj, Sonbhadra and Mau. The first three districts were formed out of the districts Basti, Gorakhpur and Mirzapur respectively. In these cases figures are simply aggregated to the older districts. However, Mau is formed out of the districts Azamgarh and Ballia. Since 85 per cent of geographical area of Mau district comes out of Azamgarh, it was clubbed with the latter.

In the Western region, Ghaziabad ditrict was formed partly from the districts Meerut and Bulandshahr in the first period from of our study. Ghaziabad derived 80 percent of its geographical area from Meerut and hence it was clubbed with Meerut and is reffered to as Meerut. Between 1981 and 1991, two new districts, Firozabad (from Agra and Mainpuri) and Haridwar (from Saharanpur, Muzaffarnagar and Bijnoor) were formed. Both the districts, Firozabad and Haridwar, had approximately 85 percent of their geographical area from the districts Mainpuri and Saharanpur respectively and thus figures of Firozabad and Haridwar are clubbed together with Mainpuri and Saharanpur respectively.

The methodology followed, however, provides less than accurate figure for the adjusted districts. However since most of our analysis is in terms of ratios it would not vitiate the findings of the study.

APPENDIX A-2

A NOTE ON CENSUS AND NSS DATA

The present note discusses the conceptual differences between the Census and NSS definition of workers.

THE CENSUS

From 1961 onwards, the Census defines work as participation in any economically productive activity, either physical or mental in nature. Work involved not only the actual work but effective supervision and direction of work.¹ Persons who were not engaged in any economic activity were treated as 'non-workers'.

The 1971 Census uses the concept 'main activity'. The main activity reported by the person entitled him to be categorized as a worker or a non-worker. However, the recording of secondary work of non-workers was not undertaken seriously, with the result that the overall undercount of workers was substantial... The 1971 Census by asking each person his principal activity first relegated many 'marginal' workers to the status of non-workers². Under-enumeration was much more severe in case of female workers. The reason was that if the first question asked was about the person's principal occupation, women would generally reply housework, an activity not to be categorized as work.

¹ Registrar General of India, 1983, General Note and Annex- 1.

² Unni 1989 quoted from K C Seal (1981), Women in the Labour Force in India: A Macro Level Statistical Profile in ILO-ARTEP, Women in the Indian Labour Force, Bangkok, pp 21-22.

The 1981 Census did try to net in all workers irrespective of the time that they spent on work as the focus shifted from 'main activity' to 'worked any time at all last year'. Having identified all workers, a distinction was drawn between main workers who worked for the major part of the year (183 days or more) and marginal workers. Even if a person had worked for a day, he was eligible to be counted as marginal worker. The 1991 Census follows the same criterion.

The 1971 Census used a dual reference period. The reference period was one week prior to the enumeration in case of regular work like trade, profession, service or business; and one year for activities which are not carried out throughout the year such as cultivation, livestock, plantation. The latest two Censuses had a reference period of one year for all the workers irrespective of regular or seasonal work (Sinha 1982).

A comparison of time series data on workers in 'Rural' and 'Urban' areas is not strictly possible. Urbanisation being process, there would be a tendency to under-estimate the increase in the share of rural non-agricultural employment in any geographical region over time (Visaria and Kothari, 1984). The other intractable problem was that non-agriculture included allied activities in 1971 but excluded such activities in 1981 and 1991.

Another reason could be because of the fact that Census confers wide powers of discretion to its officers at the state level to include some places that had urban characteristics or to

exclude some undeserving cases (Ramachandran 1989).

Though the Census data explicitly is subject to the above mentioned limitations, and one may question the comparison of 1971 with 1981 and 1991, yet broad comparisons has been made on the trends.

THE NATIONAL SAMPLE SURVEY DATA

The NSSO defines work or employment as participation in 'gainful activity' pursued for 'pay', 'profit', or 'family gain', or in other words the activity which adds to the value of national product (Jacob, 1986). The four quinquennial employment-unemployment surveys (27th round: 1972/73; 32nd round: 1977/78; 38th round: 1983; and 43rd round: 1987/88) provide employment unemployment statistics according to the (a) the usual status (b) the current status and (c) the current daily status. Each of these approaches qualify the population as working, not working but available for work (unemployed) and neither working nor available in the workforce.

The adoption of a relatively more restrictive definition of usual status worker in the 32nd and subsequent quinquennial rounds introduced a comparability problem with the 27th round. However since the 32nd and successive rounds, recorded the subsidiary activity of those classified as unemployed or outside the labour force the usual status figures of these rounds can be made comparable with the 27th round usual status estimates by adding the principal and subsidiary status workers. The criterion of 'current weekly status' and 'current daily status'

remain unchanged in all the rounds.

It may be noted that the NSS captures worker participation rates (particularly for females) better than the Census data. The 'usual principal' female workers shows a relative stability in comparison to the 'principal plus subsidiary' workers.

One may note that in a predominantly rural economy such as India's, figures on employment-unemployment in rural areas may be affected by the specific conditions obtaining during the year. It should be mentioned that in 1972 and in 1987, 139 and 155 million hectares of geographical area, 42 and 47 per cent, respectively of the total area, were affected by drought. The 1983 survey was also conducted during the calendar year following the 'near-severe' drought of 1982 when about 104 million hectares (32 per cent of the total) were affected (Visaria and Minhas, 1991). Thus it is expected that Worker Participation Rates (for males and females) would be under represented.

A COMPARISON

The work participation rates, as provided by the Census and NSS, cannot be compared straightaway. Following are the attributed reasons to explain this: Firstly, there is a conceptual difference between the two. The NSSO defines all activities in agriculture as work even if they result in non-marketing of output. On the other hand, the Census defines an activity a work if it results in a marketed output but for cultivation relating to the industry division 'O'. For example,

minding the livestock is not considered 'work' unless it is done for wages of probably the livestock products obtained are sold. The NSSO on the other hand, considered these activities gainful (Jacob 1986). Secondly, the Census defines the 'Crude Worker Participation Rates' irrespective of age, i.e., proportion of workers to the total population inclusive of all age groups. The NSSO takes into account aged 5 or above. However this can be adjusted.

Further, one cannot compare 1971 Census and 1972-73 NSS, on account of the recording of main activity only in the former. Also main plus marginal workers of the 1981 and 1991 Census is not equivalent to the usual status principal activity workers plus subsidiary workers of 32nd and 43rd Round approach. A person employed for 5 months, unemployed for 3 months and outside the labour force would qualify as worker by the NSS usual status criterion but not as main worker. However, the proportion of persons who fail to satisfy this criterion may not be large and the NSS rate should lie close to the main worker rate of the Census (Sinha 1981). In addition, in case of marginal or subsidiary workers, the NSS requires some degree of pursuit of secondary work but as per Census working any time last year is enough. However, in spite of this Census estimates of main plus marginal workers are found to be less than the NSS usual plus secondary estimates.

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