CONCLUSION
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The analysis presented in the previous four chapters looked at four important indicators of the rural economy at a disaggregated level. These are agricultural performance, workforce structure, wages and finally poverty and income distribution. Looking at agricultural performance in the last two decades, it emerged from the analysis that the last two decades have indeed been the best decades in the post-Independence period in terms of growth of agricultural crop output. However, unlike the decade immediately following Green Revolution, the relative contribution of area increase had declined with much of the growth of crop output contributed by increases in yields and changes in cropping patterns. Between these two decades, the decade of 80s had relatively larger contribution coming from yield growth rates and the dispersal of Green Revolution technology to new areas such as the eastern states. The decade of 1990s saw yield growth rates decelerate to one of their lowest in the last three decades with much of the increase in crop output growth being accounted for by cropping pattern change. Even in terms of growth rate of crop output, the decade of 1990s saw growth rates decelerate compared to 1980s. While both decades saw new regions contributing to overall growth rate of crop output, the eastern states in the 1980s and the rainfed and dry regions in the 1990s, the overall inequality in terms of land productivity across regions had increased by the end of 1990s.

Despite yield growth rate decelerating to 1.6% per annum during the period 1992-93 to 1999-00 compared to 2.5% per annum during 1982-83 to 1992-93, overall growth rate of output in the 1990s was at a respectable 3% per annum compared to 3.5% per annum for the 1980s. A major reason for this was the relatively significant contribution of cropping pattern change which saw many regions shift towards oilseeds, fibres and plantation crops away from coarse cereals and pulses. However, even though this cropping pattern shift was partly responsible for the 1990s managing a growth rate of output at 3% per annum, it also led to worsening of the food security situation in the country and per capita food grain availability declined to an all time low. This change in cropping pattern was in some sense a continuation of the trend observed during the first decade after the Green Revolution. But it was different on account of the fact that unlike the 1970s, this time the shift in cropping pattern was

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1 Bhalla and Singh (2001) report such cropping pattern shifts for the 1970s also, but it was on relatively lower scale with the share of food-grains remaining more or less constant during the decade.

2 Moreover even in those areas where such shifts took place, the effect on the farmers, particularly the small and marginal farmers was not necessarily beneficial with many of the rainfed regions such as Andhra Pradesh, Maharashtra and Karnataka reporting suicide by farmers.
towards those crops for which yield growths were decelerating, particularly for oilseeds and fibre crops. The natural incentive was the relatively higher prices fetched by these crops. This raises the vital question of sustainability of these cropping pattern changes in the WTO era when most of these crops will lose the domestic protection they enjoy vis-à-vis the world market and face the vicissitudes of the latter. In fact, this is precisely what happened in the period after that covered in the thesis. The NAS show growth of gross value of crop output (at 93-93 prices) decelerating from 3.0% per annum in the period TE 92-92 to TE 99-00 to only 0.4% per annum in the period TE 99-00 to TE 2003-03. Moreover, the terms of trade turned sharply against agriculture during the latter period.

Nonetheless, the high growth rate of output for the last two decades translated itself into high growth of labour productivity in agriculture in the two decades till 1999-2000. Labour productivity grew at a rate of growth higher than 2% for most parts of these two decades. But this high growth of labour productivity has also to be seen in the context of lower employment elasticity of agricultural growth in the last two decades. Employment elasticity in agriculture steadily came down since the 1970s and in the later half of 1990s it reached an all time low of almost negligible elasticity of employment in this sector. That is, the high labour productivity witnessed in the primary sector has not been on account of high growth of land productivity (which incidentally had come down sharply in the 1990s), but on account of lower labour absorption by the agricultural sector. While this low growth of employment absorption in agricultural crop economy meant low labour absorption per unit of land and thus higher labour productivity in the last two decades, it also opened up a host of other issues on the employment front and most important has been the rising unemployment rates in rural areas. Because of the fact that agriculture is still the dominant employer in rural areas accounting for two-thirds of total employment generated in rural areas, the overall growth rate of employment in rural areas in the 1990s has been a dismal 0.7% per annum, which happens to be much lower than the rate of growth of population in the 15-59 age group at around 2% per annum in the last decade. Much of this was accounted for by the primary sector where employment growth in the primary sector collapsed drastically from 1.38% per annum between 1983 and 1993-94 (Usual Status) to only 0.19% per annum between 1993-94 and 1999-00.

Therefore, to a certain extent the developments in the agricultural sector are responsible for the slow growth of employment in the rural areas. And this has
happened throughout the last two decades which saw high growth of output and productivity during the same period. It was also brought out in the discussion in the chapter on employment that the low rate of employment generation is even more worrisome if proper appreciation is made for the changes in methodology and concepts in identifying a person as employed. The impact of these underlying changes was that more people in the rural areas and particularly in agriculture were counted as employed in 1993-94 quinquennial rounds by the new definition than would have been using the old definitions. The relatively high growth of employment shown during 1987-88 and 1993-94 is then partly a statistical illusion. Discounting that, the entire period between 1983 and 1999-00 appears to be a period of low employment in the face of high growth of national income. In this context, describing the last two decades as a period of 'jobless growth' would not be an exaggeration. This would be particularly true if one looks at the daily status measures which are more sensitive in terms of capturing the availability of person days of employment.

However, not all of this low growth of employment generation is attributable to the developments in the agricultural sector. The low growth of employment in rural areas is also partly a result of the beneficial change that has been seen in the rural areas in the past two decades and that has been the increased attendance in educational institutions by the relatively younger population. However, despite the significant shift towards educational attendance by the relatively younger population, the inescapable conclusion remains that the last two decades have been witness to a trend of lower employment generation and rising unemployment rates. And this was the case across states, across regions and across sectors. The shift towards educational institutions by the younger population has been significant compared to previous decades but is simply not enough to explain the slow down in employment generation seen during the last decade.

The second factor has been the low growth of employment in the non-farm sector which after showing signs of increasing its share has slowed down its labour absorption capacity. The process of non-farm employment diversification which increased from the end 1970s to end 1980s showed signs of deceleration in the 1990s. Much of the literature which dealt with changes in the rural economy in the decade of 80s and had noted progress, had attributed this primarily to non-farm diversification. In this context, the slow down of the process of non-farm diversification is a matter for concern. However, there are two facts that need to be pointed out in this regard. The first is that the changes in methodology for identifying a person as employed
introduced in the 50th round have also affected the industrial distribution of the workforce to a certain extent. Taking into account for these changes, perhaps the process of non-farm diversification has been a slow but continuous process in the rural areas throughout the last two decades. The deceleration in this process between the 43rd round and the 50th round is partly a result of the methodological changes.

Secondly, one needs to introduce further disaggregation in the non-farm sector either in terms of one-digit level of industrial distribution or in terms of occupational classification or simply in terms of formal and informal sector. The implied homogeneity of the non-farm sector in most of the analytical studies is not justified. Heterogeneity in the non-farm sector is found not only by looking at the productivity of labour in various sub-components of non-farm sector but also by the way these sub-sectors respond to the internal dynamics of the rural economy or to external policy interventions. The need to avoid homogenising the non-farm sector with regard to the way it gets affected by various factors and in turn affects other indicators of rural economy is clearly brought out by most of the field studies on the nature of non-farm diversification.

Apart from these two changes, the 1990s also witnessed some other important structural changes being reversed or halted. While this was obvious in terms of low growth of employment and slow down of non-farm diversification, the effects of these changes were more pronounced in terms of their impact on the more vulnerable sections of rural population such as women and casual labourers. This was particularly the case for women in terms of their access to better paying non-farm jobs. This is also true for the asset-less and rural labour households with the better paying non-farm employment being particularly prone to be captured by the rural elite. The 1990s also witnessed the strengthening of the trend of casualisation of the labour force and this was also evident from the increase in rural labour households in the 1990s. It also came out from the econometric exercise that non-farm employment is positively related to higher order literacy measures and the lack of such skills are adding to the disadvantageous position of the already vulnerable sections of rural society.

This is further compounded by the slow growth of wage rates in the 1990s compared to the 1980s. Although different sources of wage rates in rural areas tend to give a divergent picture of what happened to rural wage rates in the 1990s; after looking at all the wage sources and their comparability, it does appear that the wage rate growth in the 1990s was around 2-3% per annum. While this was certainly lower
than the growth rate of wages observed in the 1980s, growth rate of real wages at 2-3% per annum is respectable. But what complicated matters for the rural labour households, whose main source of earning remains wage income, was the low employment availability of employment days in the 1990s. The effect of the low employment availability in terms of employment days also meant that despite wage rates growing at a respectable 2-3% per annum, income from wage labour for these households was growing at a rate of only 1-1.5% per annum. Further disaggregation of wage rates in terms of non-agricultural and agricultural wages also suggested that the divergence between farm and non-farm wages has been growing in the 1990s. This is also true for the divergence between male and female wage rates as well as the divergence between casual and regular wages. This divergence is particularly high for the southern states both in terms of farm and non-farm wage rates as well as between male and female wage rates.

All these developments in the farm as well as non-farm sector in terms of productivity, workforce structure and wages are also important determinants of the well-being of rural population. The evidence in this regard from the Consumption Expenditure Surveys, which are a direct measure of the well being of the rural population, also points to worsening of the situation in the 1990s after a decade of improvement in the 1980s. After the initial euphoria and confusion regarding poverty reduction in the 1990s, the final consensus on this count seems to be reconfirming the earlier consensus that the 1990s have been a lost decade in terms of poverty reduction or improvement in income distribution. The fact that this has happened in the last decade, with neo-liberal policies claiming that higher growth will also take care of the distributional aspect of the growth of national economy, has also put a question mark on the strategy of economic growth without any explicit redistributive content. The failure of the ‘trickle down’ mechanism cannot be more obvious than in the last decade which incidentally was the decade with the highest growth rate of national economy in the entire post-Independent history.

The primary reason was that even though the growth rate of the economy in these two decades was the highest in the post-independent era, it was heavily skewed in favour of certain sections of the population which appropriated the major part of such growth. The related outcome of this was increasing inequality which manifested itself in all its dimensions. Increasing inequality was visible both in terms of its

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3 The Indian economy grew at a rate of 6.7% per annum between the 50th and the 55th round, the highest growth rate between any two quinquennial rounds of NSS. For the decade, 1990-91 to 1999-00, the growth rate was on an average 6% per annum.
geographical spread with richer states and regions doing better than the poorer ones, urban areas doing better than the rural areas as well as in terms of distribution of income across household types within these regions. Part of the reason for this has to be sought in the nature of economic development that has been seen in the last two decades. The other part of it is obviously structural and historical which gets accentuated or subdued depending on the kind of economic policy pursued at the central level as well as state level within the framework of our polity.

The time frame of enquiry for this thesis has been the decade of 1980s and the 1990s. Both these decades stand out during the post-Independent period of the economy because of the high growth rate of national output. However, between these two decades there are elements of similarity as well as differences which are particularly crucial to the understanding of the way the rural economy functions. The similarities which are more at the aggregate level are all related to growth rate of income or output in the economy. The similarities in terms of growth rate of output are visible in terms of overall rate of growth of national income which was 5.5-6% for both the decades with mild acceleration in the 1990s, growth rate of agricultural output at 3-3.5% per annum for both decades with mild deceleration for the 1990s and growth rate of agricultural wage rates at 2.5-3% per annum for both decades with mild deceleration in the 1990s. On the other hand, the differences are more visible at the disaggregated level and these are related to the distribution of the income growth across various categories, both geographical as well as across class of households. These differences are visible in terms of divergence of growth rate of SDP across states in the 1990s compared to 1980s, increasing inter-personal as well as inter-regional inequality, low growth of employment coupled with high unemployment in the 1990s vis-à-vis 1980s, slowdown of the process of non-farm diversification in the 1990s compared to 1980s, increased divergence between formal and informal sector, increased divergence between rural and urban sectors, increased divergence between farm and non-farm wages as well as male and female wages, worsening of food security situation in the 1990s compared to 1980s and finally, high poverty reduction in the 1980s versus low poverty reduction in the 1990s.

Most of the economic commentators who look at the aggregate picture only have not only hailed the 1990s as the best decade for the economy but have also taken it as a convincing proof of the success of the post-reform growth strategy. However, those looking at the disaggregated picture with regard to income distribution have found the 1990s to be the worst decade after Independence. The roots of the
divergence of opinion regarding the comparative performance of these two decades have to be established in terms of economic policy formulations for these two decades. And even though there are elements of structural similarity between these two decades, these two decades offer a contrasting picture of two different economic models. The point of departure in terms of economic policy between these two decades is the initiation of economic reforms after the fiscal crisis of end eighties. This is also reflected in the nature and composition of growth between these two decades with almost similar rate of growth of output. The essential conclusion that emerges from the analysis presented in the previous four chapters is the fact that while growth is a necessary condition for poverty reduction and improvements in well being, what matters in the final outcome is the nature and composition of such growth in terms of the way the growth is distributed geographically, sectorally and interpersonally. That is, certain growth processes are more favourable in terms of their distribution outcomes than others. Whether or not a certain growth process will have favourable distributional outcomes is decided by various structural factors and the transmission mechanism of such growth of income.

Most of the early economic literature on development economics has focussed on formalising the channels through which economic growth may modify the distribution of income and welfare. This has been done both in the context of some notion of absolute poverty and in terms of relative poverty. In the process of development, distribution of income and welfare may get modified depending on the impact of the growth process on distribution of resources across sectors, relative prices, factor rewards and factor endowments. These changes are likely to directly impact on the distribution of income, regardless of whether factor and goods market are perfect or not (Bourguignon, 2004). Starting from Kuznets (1955) and Lewis (1954), almost fifty years ago, there have been various theoretical as well as empirical studies which have focussed on these basic transmission mechanisms to understand the effect of growth on income distribution4. Most of these studies have been cross-country studies with data for more countries and more recent data5.

One finding, claimed in many of these cross-country studies, is that the rate of growth of income of the poorest quintile is approximately equal to the rate of growth

4 Labour market imperfections and productivity differential across sectors with changing importance in the economy were the main theoretical explanations of Kuznets' celebrated inverted 'U' curve relating inequality and development. Since then a sizeable literature has emerged which has not only extended these to include more recent data but has also looked at the transmission mechanism more carefully.

of per capita incomes (Dollar and Kraay, 2000; Roemer and Gugerty, 1997). That is, the poor share equally in the growth process or alternatively growth in itself is not inequality inducing. Most of these studies which are based on national accounts GDP data have however been questioned the consistency and comparability of their data sources. Moreover, most of these studies which average out the diversity of country experiences have not been found to be robust with alternative specifications such as allowing for country fixed effects. In other words, even though distribution of income on average is largely invariant to economic growth, it is characterised by large variations around the average. Nonetheless, even if one ignores the data problems for the time being, these studies also ignore the role played by initial inequality of income in these countries. That is even if the rate of growth of income for the poorest quintile is similar to the average incomes, given the fact that many of these countries are characterised by large initial inequalities, this pattern of distribution-neutral growth also implies that the rich will have a larger share of the growth than the poor. To what extent the rich gain compared to the poor will depend on the initial income distribution. However, a large body of literature based on specific country studies has also highlighted the fact that in most cases in the developing world, growth of the distribution-neutral variety is an exception rather than a rule (Bourguignon, 2004; Ravallion, 2001, Chen and Ravallion, 2000).

Similar work has also been done for India using state level data as well as using national data. A brief review of literature on this was presented in the previous chapter. Datt and Ravallion have been regular commentators on these issues with respect to India and their most recent paper on this issue sums up their views on this issue. "India’s economic growth in the 1990s has not been occurring in the states where it would have the most impact on poverty nationally. If not for the sectoral and geographic imbalance of growth, the national rate of growth would have generated a rate of poverty reduction that was double India’s historical trend rate. States with relatively low levels of initial rural development and human capital development were not well-suited to reduce poverty in response to economic growth...achieving higher aggregate economic growth is only one element of an effective strategy for poverty reduction in India. The sectoral and geographic composition of growth is also

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6 Dollar and Kraay (2000), Timmer (1997) and Roemer and Gugerty (1997) report that the income of the poorest 40% increase one-for-one with average incomes.
7 See Barro (2000), Eastwood and Lipton (2001), and Bourguignon (2004)
important, as is the need to redress existing inequalities in human resource
development and between rural and urban areas" Datt and Ravallion (2002, pp.1),
(emphasis added). This conclusion which is in broad agreement with the conclusions
of this thesis also raises some important issues in the context of last two decades
which were characterised by similar aggregate growth for the country in terms of
national output as well as agricultural output.

To what extent a country or region gains from aggregate economic growth
during a particular period depends to a large extent on the pattern of growth in that
country. The pattern of growth is then characterised by the sectoral as well as
geographical composition of the growth. For majority of the developing countries,
most of the poor are concentrated in rural areas and within rural areas in agriculture. It
is quite natural in this case that rural growth, and in particular growth of agricultural
output, will have a large role to play in alleviating poverty and improving income
distribution. This was in fact the cornerstone of most of the early literature on growth,
poverty and income distribution and in fact the literature which explored the linkage
between poverty reduction and growth was based largely on agricultural growth as the
important variable. Some of these early theoretical arguments were also tested
empirically in the context of India (also for other developing countries) and were
found to be validating most of these theoretical assumptions.

Ravallion and Datt (1996) based on data for India for 1951 to 1991 also argue
that what matters for poverty reduction and income distribution is the geographical
and sectoral composition of growth. Looking at both rural and urban growth, they
conclude that rural growth has more effect on poverty reduction and income
distribution than urban growth. Rural growth reduces both urban and rural poverty
but urban growth does not reduce rural poverty. Urban consumption growth increases
inequality in urban areas, while rural consumption growth improves the urban
distribution. Moreover, the impact of rural growth on poverty reduction is nearly three
times larger than urban growth. They also find that the rural-urban shift (the Kuznets
effect) has little effect in reducing poverty. That is, poverty reduction is mainly a

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9 Early literature on this issue, (for example, Johnston and Mellor, 1961; Mellor and Johnston 1984;
Mellor, 1976 and Lewis, 1954), which focused on the link between agricultural growth and poverty
reduction has been replaced lately by linking aggregate growth and poverty reduction without explicitly
talking about agriculture. Early contribution to empirical studies of such nature such as those of
Ahlulwalia and Dharami Narain were explicitly focusing on agricultural growth only.
10 Rural and urban growth in their paper is the growth of consumption expenditure and not GDP in
rural and urban areas. Information on rural urban break up of GDP is not available in India except for
those years when national accounts base years change.

330
result of growth within sectors and not of the transfer of resources from low productivity to high productivity sectors as suggested by Lewis (1954)\(^\text{11}\). Ravallion and Datt (1996) also show that it is the agricultural growth which matters more for poverty reduction and improvements in income distribution compared to manufacturing sector growth which does not affect rural poverty\(^\text{12}\). Tertiary sector growth also has an impact on poverty reduction\(^\text{13}\). But manufacturing growth leads to a deterioration of the urban distribution of income. According to their analysis, 85% of the substantial poverty reduction in India in the first four decades after Independence was attributable to agricultural growth. Agricultural growth works not only through raising agricultural incomes but also through its effect on real wages and employment. Higher farm productivity is also associated with lowering of food prices. Moreover, it also works indirectly through stimulating non-farm growth through various forward and backward linkages.

Sen (1981), in his unpublished thesis, had argued, both empirically as well as theoretically, that the dominant constraint to the growth of Indian economy was the agricultural sector. And in some sense, the breaking away of the trend growth rate of the economy from the ‘Hindu rate of growth’ to a growth rate of 5-6% in the 1980s coincided with the growth rate of agriculture crossing the barrier of 3% rate of growth and the overall yield growth rate crossing the 2.5% rate of growth. It is also an established fact, that this was also the time when some of the important indicators of well being and dynamism of rural economy showed signs of favourable movement after decades of stagnation. Important among them were the trend of non-farm diversification, rise in real wages, and most important of all, poverty reduction. The 1990s, on the other hand, had similar rate of growth of agricultural output, but contribution of yield growth had come down significantly. More importantly, despite the respectable growth rate of crop output, rural areas were witness to low employment generation, deceleration in wage rate growth, deceleration in pace of non-farm diversification and worsening income inequality with lower poverty reduction than in the 1980s.

The importance of agricultural growth has been established by almost all studies on poverty and income distribution in rural India. However, it is also

\(^{11}\) Transfer of labour from a low earning sector to a high earning sector is also the basis for Kuznets’ celebrated ‘J’ curve.

\(^{12}\) In the later version of the article, Datt and Ravallion (1998), they also include rural wages and food prices. However, as they themselves report, higher wages are also associated with higher farm productivity. Similarly, food prices are also related to higher farm productivity which reduces food prices. That is, it is the direct and indirect impact of farm productivity which matters.

\(^{13}\) Within tertiary sector, it is the small scale tertiary sector which is significant while the large scale tertiary sector growth is largely insignificant.
important to remember that more than aggregate growth rate of crop output, it is the
growth in measure of productivity which is crucial to poverty alleviation and income
distribution. And that is why; despite the two decades of 1980s and 1990s having
similar rate of growth of output, they had a different impact on rural poverty and
income distribution. Initially, the discussion was mainly on agricultural output per
capita of population but Datt and Ravallion (1998) argued that agricultural land
productivity is a better variable than agricultural output per capita in explaining
variations in rural poverty. However, other studies also used agricultural labour
productivity as the relevant variable in explaining cross-sectional variation in rural
poverty (Dev, 1989). Even for this thesis, it is agricultural labour productivity that
appears more relevant than land productivity in explaining cross-sectional variation
across regions. Some intuitive explanation for why this should be so has already been
given in the previous chapter on agriculture.

The preference of labour productivity over land productivity also arises from
an explicit recognition of the role played by changes in workforce structure and
employment pattern in rural areas. In fact, as Mellor (1999, 2000) and Danielson
(2001) argue, the major channel through which agricultural growth reduces poverty
and improves income distribution is by generating more employment, in both farm as
well as non-farm sector. Datt and Ravallion admit that lack of a suitable variable on
employment was a major constraint in their model14. But as Sen and Ghosh (1993)
argue, the Datt and Ravallion model also suffers from the lack of recognition of the
important channel of poverty reduction, that is, non-farm employment diversification.
The fact that non-farm employment diversification was an important explanatory
factor explaining sharp decline in poverty in the 1980s is also confirmed by other
studies of such nature. Attempts by Datt and Ravallion (1998) to include non-
agricultural output per capita in their all India regression did confirm the role of non-
farm output in poverty reduction unless agricultural output per unit of land is
excluded as a variable. That is, non-farm output per capita stimulated by agriculture is
important but gets picked up by the agricultural yield variable when the latter is
included15. From this they concluded that the non-farm growth which reduces poverty

14 Apart from the fact that absence of suitable employment variables for most of the years after
independence is a major obstacle in these studies, it has also been shown in the second chapter that
these also suffer from comparability problems which further make it difficult to derive any explicit
linkages based on these estimates.

15 However, in their state level equations, non-farm output per capita appears as a significant variable
but with elasticities varying a great deal across states depending on the initial conditions in terms of
rural development. Non-farm output per capita was less effective in states with poor initial conditions.
is that part which is stimulated by agriculture. However, this was contested by those who argued that the real growth stimulus to these came from outside of agriculture and agriculture's ability to explain these had considerably weakened. Various explanations were offered and these ranged from the external intervention of the state to those being generated within the rural economy but outside agriculture.

The explanation of the key role of agriculture in poverty reduction and improvement in income distribution has three elements, each relating to the large size of agriculture in consumption, production and income. On the consumption side, the effect is primarily through cheaper food prices which help both rural and urban poor since food constitutes roughly three-fourth of their consumption basket. On the income side, the effect is immediately through increased agricultural income as well as through increased real wages in the long run. On the production side, it stimulates both farm and non-farm growth through various forward and backward linkages. The manner in which each of these is affected is also governed by the pattern and sources of agricultural growth. Major sources of agricultural growth are: (a) increase in land area, (b) increase in yields (land productivity) and (c) change in cropping pattern. The decomposition exercise in the first chapter looked at the relative contribution of each of these sources in the total growth rate of crop output.

Much of the growth of crop output after Independence and upto initial years of the Green Revolution was through area increase. Yield increases became significant in the later part of the Green Revolution and reached their peak in the 1980s. In the most recent decade, that is 1990s, the relative contribution of yield increases had come down with cropping pattern changes increasing their relative contribution towards growth of overall crop output. Area increase had become non-significant in contributing to growth rate of crop output in both these decades. This is obvious also given the fact that most of the area which needed to be brought under agriculture was already under cultivation. Moreover, the additional land that can be brought under cultivation is generally of inferior quality and does not add significantly to overall output or productivity in agriculture in the absence of investment to augment the productive capacity of land.

In most of the developing countries in Asia, including India, output growth due to yield increase has dominated in the past few decades (Ruttan and Hayami, 1985). Yield increasing technological change in agriculture is both land productivity increasing as well as labour productivity increasing. While Datt and Ravallion have found yield increases operating largely through increasing land productivity (with a lag of three years), our analysis has found this variable to be largely insignificant for explaining...
cross-sectional variations as well as for growth equations. Instead, it is labour productivity which appears as a crucial variable. It was argued in the previous chapter that the potential of increases in land productivity to translate into increases in land productivity is conditional on the relative inequality in agriculture as well as the pace of non-farm employment diversification. In other words, increases in yield operate largely through their employment effect.

Hanumantha Rao (1975) had calculated employment elasticity of agriculture to be within a range of 0.6 to 0.3 (for recent years the employment elasticity in agriculture has further come down and is in fact negligible for the years in the 1990s\textsuperscript{16}). That is, for every ten percent increase in output, employment at best increases by six percent or three percent on the lower side. However, as Mellor (1999, 2000) shows, an increase of 10 percent from yield increasing technology alone is likely to take up to three years (the lag reported by Datt and Ravallion for land productivity increase to have its full multiplier effect), during which time population may have grown by six to nine percent. Therefore, such increases in employment cannot even take care of natural increase in farm population, let alone tighten labour market for wages to have an impact. With elasticities in the lower range, it is difficult to imagine if increases in land productivity alone will have any impact on poverty reduction or improvement in income distribution in the absence of a significant employment effect from outside. However, if the increases in yields also have an employment effect which tightens labour market through non-farm diversification, it will have a substantial impact. That is, if it is also associated with increasing labour productivity in agriculture, it will have a major impact. As Datt and Ravallion argue, a large part of the effect of agricultural productivity also operates through real wages (although with a lag). However, they also suggest that this effect through real wages is primarily through employment effect.

The third possibility of change in cropping pattern is generally believed to be more successful in generating employment. This is particularly true for horticulture crops and livestock which are more labour intensive. Although our analysis does not include horticulture crops and livestock, evidence from National Accounts suggests that it is happening at a rapid pace in rural areas, notwithstanding the problems of

\textsuperscript{16} See Bhattacharya and Sakthivel (2004a). They report the decline of employment elasticity in primary sector from 0.51 between 1983 and 1993-94 (in the same range suggested by Rao) to 0.01 between 1993-94 and 1999-00 by usual status. The corresponding figures by daily status suggest a steeper decline during the same periods from 0.85 to 0.00. However, as mentioned earlier, the elasticities for the period between 1983 and 1993-94 appear to be much higher also because of the changes in methodology and concepts in the 50\textsuperscript{th} round. But between 1993-94 and 1999-00, the figures are comparable and employment elasticities by both measures are negligible.
Diversification towards livestock and horticulture which are labour intensive activities is an important channel through which agricultural growth can stimulate more employment. On the other hand, cropping pattern changes within the field crop category has limited scope of expanding employment.

Looking at the past two decades of agricultural performance (field crop only), one obvious reason for agricultural growth in the 80s having significant impact on poverty and income distribution, but the 1990s failing to do so despite similar rate of growth of output appears to be the inability to generate employment within agriculture in the 90s. Assuming a growth rate of crop output at 3-4 % per annum, the elasticity of employment within agriculture should be roughly 0.675-0.50 to take care of the natural growth of labour force in that sector. Compared to this, the employment elasticity in agriculture has been much lower in the 1990s (0.01% by usual status and 0.00% by daily status). But with relative contribution of yield increase declining in the 1990s, employment generation within agriculture has limited scope. However, as one important mechanism for poverty alleviation through increased employment in agriculture runs through a tightening of the labour market and thus rising wages, the figures suggest that the elasticities are not sufficient to have an impact of such nature. It is in this context that non-farm employment diversification has a significant role to play.

Ravallion and Datt (1995) have also calculated the minimum rate of growth of yield (land productivity) required to ensure that head count ratios did not increase\(^\text{18}\). This was 1.19% rate of growth of yield per year for no increase in head count ratio\(^\text{19}\). Against this required rate of growth of yields, the actual rate of growth of yields for 1983 to 1992-93 was in excess at 2.5% percent. However, for the period between 1992-93 and 1999-00, even though aggregate output growth rate was 3% per annum, yield growth rate was only 1.6% per annum; only marginally higher than the minimum required to ensure that poverty did not increase. Higher agricultural productivity contributes towards poverty reduction both directly and indirectly. Directly, the impact is through increased income and through supply of wage goods and cheapening of food prices. On the other hand, the shift towards livestock and horticulture generates additional employment needs to be revised or it may be the fact that actual growth in horticulture and livestock may not be happening at a pace reported by the national account. If we go by the analysis presented in chapter, it is probably the second factor which is true. Doubts were raised on the growth of horticulture in the national accounts since most of it is on account of change in weight of these crops.

\(17\) Although horticulture and livestock are not included in our analysis of crop economy agriculture, our employment estimates relate to entire agricultural economy and the evidence there is certainly not of increasing employment generation through agriculture. In this context, either the understanding that a shift towards livestock and horticulture generates additional employment needs to be revised or it may be the fact that actual growth in horticulture and livestock may not be happening at a pace reported by the national account. If we go by the analysis presented in chapter, it is probably the second factor which is true. Doubts were raised on the growth of horticulture in the national accounts since most of it is on account of change in weight of these crops.

\(18\) That is, controlling for other variables, given the elasticity of land productivity to poverty, what is the minimum required rate of growth of land productivity to ensure that there was no increase in the headcount ratio.

\(19\) The corresponding numbers for poverty gap and squared poverty gap were 1.30 and 1.27% per year.
hand, indirectly, it contributes by generation of economic opportunity in the form of employment in agriculture as well as the non-farm sector. The indirect long term effect also operates through increasing real wages.

However, as Timmer shows, agricultural growth has little effect on poverty reduction when incomes and assets are highly skewed (largely due to skewed ownership)\textsuperscript{20}. Timmer shows that if agriculture grows at 3% per year and non-agriculture grows at a rate to give overall growth rate of 5% (incidentally, this example fits perfectly for the Indian case in the last two decades), then for countries with small gaps between the top and bottom quintiles, the bottom fifth experiences a 241% increase in income after 25 years while the top fifth experiences a 211% increase. However, if the income gap between these quintiles is large (more than twice the average per capita income), the incomes of the poorest quintile increase by only 75% compared to an increase of 273% for the top quintile. That is, when income distribution is highly skewed in favour of the rich, agricultural growth has limited potential of improving income distribution or poverty reduction. Datt and Ravallion also confirm this through their state level analysis and attribute much of the differential pace of poverty reduction to the initial level of inequality. As has been shown in the previous chapter, not only do the top quintiles have average per capita incomes in rural areas two to three times higher than the bottom quintile (similar to the second example of Timmer), there are no signs of inequality being reduced in the 1990s. In fact, inequalities have increased marginally in the rural areas with MRP comparison. With this level of inequality, the fact that even 3% rate of growth of agricultural output not having any significant impact on poverty reduction is not very surprising. On the other hand, success of land reform measures in West Bengal are sufficient proof that efforts towards reducing asset inequality (land) not only contribute positively to higher land productivity but are also crucial to this being translated into poverty reduction. West Bengal is the state with highest rate of growth of agricultural output among major fifteen states and is also the state with highest reduction in head count ratio for the period of our analysis, that is, 1983 to 1999-00.

Moreover, both Ravallion and Timmer show significant lag in the impact of agricultural growth on poverty. According to Datt and Ravallion, the effect on rural wages is eight times as large in the long run than the short run and the overall effect on poverty reduction is five times larger in the long run compared to the short run. The overall lag is importantly influenced by the lag in the adjustment of wage rates. The wage rate adjustment presumably lags because of the lag in increased employment,

\textsuperscript{20} Also see Mellor (1985)
which is in turn due to the expenditure patterns for increased farm incomes. About half of the long run effect of increased agricultural output on the welfare of the poor occurred within three years of an initial gain in farm yield. But the substantial lags between accelerated agricultural growth and reduction in poverty are also strong evidence that agricultural growth reduces poverty more through indirect processes than direct ones. If all that was at work was lower food prices and more agricultural employment there would not be a lag in the effect. However, if the process works through higher farm incomes being expended on locally produced non-farm goods and services and subsequent increased real wages then lags of a few years would be expected\(^{21}\).

The crucial issue then is to look at ways in which agriculture affects the employment pattern and in turn real wages. As noted earlier, the biggest failure of agricultural growth in the 1990s has been its inability to generate employment in agriculture. Moreover, its effect on generating employment in the non-farm sector was also found to be weak, particularly so in the 1990s. The fact that non-farm employment was not significantly influenced by increases in agricultural productivity even in the 1980s was confirmed by most of the economists who looked at the growth of non-farm employment in rural areas in the 1980s. At the same time, it also encouraged them to look for other sources of non-farm employment growth. Public expenditure led non-farm employment generation was argued to be the key factor explaining non-farm employment growth in the 1980s along with the internal dynamism of the rural economy and nearby urban areas also accounting for the increase in non-farm employment.

The reason for failure of agricultural growth to translate into poverty reduction or improvement in income distribution in the 90s then is principally due to the high inequalities (income as well as asset) in the rural sector and the inability of agriculture to generate employment in rural areas both in agriculture as well as non-agriculture. High inequalities meant that a larger part of the growth was cornered by the richer sections of the rural economy. On the other hand, the failure to generate employment in rural areas, particularly in the 90s, meant that the poor were less able to gain out of the increased agricultural output. Moreover, even though the growth rate of aggregate output was more or less similar for both decades, it was characteristically different for both decades. While for the decade of 80s, the high growth rate of output was mainly on account of a high growth rate of yield in excess of 2.5% per annum, for the 90s yield growth rate was only 1.6% per annum which was only marginally higher than the minimum required to ensure that poverty did not increase.

The literature mentioned earlier is clearly in favour of the argument that more than the direct effects of agriculture in terms of increasing income and providing cheaper food, it is the indirect effect through increased employment and non-farm diversification which are crucial to improvements in income distribution and poverty reduction. The indirect effects were clearly less visible in the 1990s in terms of them being influenced by agriculture, but even for the direct effect the evidence is not entirely clear. While diversification of crop output towards commercial crops away from food grains did work through increasing revenues from crop agriculture, its effect on the farm business incomes of farmers were not so clear. With rising costs of cultivation and increasing indebtedness, it is doubtful if the farmer actually benefited from it. However, it did result in worsening of the food security situation with adverse effects on nutritional poverty. Coupled with the weakening of public distribution system in the 1990s, this meant that even this important channel was less effective for the bulk of rural poor.

However, despite the link between agricultural productivity growth and improvements in income distribution and poverty reduction weakening throughout the last two decades, the decade of 80s was the best decade in so far as improvements in income distribution and poverty reduction is concerned. The fact that this happened despite the weakening of the transmission mechanism through increased agricultural productivity implies the presence of factors external to the agricultural sector in doing so. And these were mainly increased non-farm diversification, sustained rise in real wages and easy and cheap availability of cereals to the bulk of rural poor\(^{22}\). The external factor in the case of 1980s was the agency of State which worked through all these channels directly and indirectly.

Despite the weakening of the link with agriculture, rural areas were the beneficiaries of both increased agricultural prices as well as cheaper food prices. The price of agricultural goods in the 1980s were rising faster than the general price level, reversing the earlier trend of movement of terms of trade against agriculture. But the fact that this increase in agricultural prices did not have unbearable inflationary implications was partly because of the weakening of the link between agriculture and non-agriculture and partly because of the intervention of the State through the public distribution system. As a result, even though agricultural prices as a whole increased faster than the general price levels, cereals prices increased slower so that it was possible for real wages to rise

\(^{22}\) Incidentally, all these three were also the channels through which agricultural growth is supposed to work. Even though the evidence in this regard is not in favour of these being entirely driven by agricultural growth; higher agricultural growth with sustained and high increase in land productivity in the eighties also played its role in facilitating these.
without increasing product wages correspondingly (Sen, 1996; Sen and Ghosh, 1993). As Tendulkar and Jain (1996) note, this government intervention through the public distribution system was partly responsible for the fact that poverty did not increase even in those states which suffered from the 1987-88 drought and saw large decline in food grain production 23. Coupled with increased income from increased agricultural prices, it also meant that the farming community remained insulated from the instability of agricultural production even during years of monsoon failure.

Apart from the intervention through the public distribution system and the procurement policy, government’s intervention was crucial in generating non-farm employment in rural areas. Significant increase in non-farm employment was crucial in generating additional employment in rural areas, the role hitherto assigned to agricultural growth, as well as providing income opportunities directly to the rural poor. Diversification towards non-farm sector in employment terms was also cited as crucial to the trend of rising real wages in agriculture even in those states and regions which did not witness substantial gains in agricultural productivity (Bhalla, 1993, 1997). However, opinion amongst economists is divided as to what caused this non-farm diversification.

The analysis presented in chapter two suggested the presence of both push and pull factors in stimulating non-farm employment. As mentioned earlier, one reason for failure to identify the determinants of non-farm employment convincingly arises due to the heterogeneity of the non-farm sector in rural areas both in terms of income accruing from it as well as the status of employment in the various industrial categories of non-farm employment. While the evidence in the previous chapter suggested the dominance of distress factors as far as employment in construction and other low paying casual employment is concerned, the role of higher farm productivity in the 1980s also suggests that it was also stimulated by the forward and backward linkages of agricultural growth.

Perhaps, it is easier to understand the determinants of non-farm employment by disaggregating by either employment status, formal or informal sector or by industrial categories. The tabular analysis also presented evidence that the non-farm sector consists of both high paying and productivity industrial categories and also low paying and low productivity categories. Another way of disaggregating non-farm sector is suggested by Mellor in terms of tradable and non-tradable.

23 “The effect of income generation in the hands of the poor households was reinforced by a significant step up in the share of off-take from PDS in total reported consumption of cereals mentioned above. Interestingly, Gujarat and Rajasthan feature prominently among the Indian states with a strong rural bias in PDS, measured in terms of per capita quantities consumed (Howes and Jha, 1992).” Tendulkar and Jain (1996) pp125
This distinction between the various constituents of non-farm sector is also crucial to the understanding of the way non-farm sector influences poverty and income distribution in rural areas. Disregarding the two low productivity industrial categories of construction and mining, it was observed that the non-farm sector shows a stable trend of growth throughout the last two decades. Growth in these sectors, which also includes agro-based manufacturing, can be considered as being determined largely by the developments in the rural economy including those from agricultural productivity. Higher farm productivity, by increasing incomes, stimulates demand for goods and services and thus stimulates non-farm development. To what extent agricultural productivity raises the demand for these goods and services will depend on the nature of agricultural growth and also the distribution of income from such growth among the cultivators. The multiplier effect of such growth in agricultural productivity and the income from it will also depend on the distribution of income in the rural areas. Distribution of income skewed in favour of the rich may increase demand for such goods and services. In this case, majority of the rural poor may not gain in the short run but eventually with the growth of non-farm sector and increased employment the rural poor may gain. Whatever the mechanism and the duration of the full multiplier effect of such agricultural growth, it will stimulate the non-farm sector growth in the short run as well as the long run. The magnitude of such growth will however depend on the nature and pattern of agricultural growth as well as the distribution of income in the rural areas. The evidence in this regard also suggests that this process may have been occurring in rural areas albeit gradually and the stable nature of growth of non-farm sector in industrial categories except construction is suggestive of that.

The second set of workers in the non-farm sector is those who are essentially driven by distress. They are found mostly in construction, personal services (such as artisans and other village service providers) and also agro-based manufacturing. These are mostly casual workers. Within this set of workers, construction is the biggest employer and almost three fourth of all workers in this sector are casual workers with very low productivity. But these are also the most important set of workers from the point of poverty and income distribution. As Dev (1994) suggests, in many states construction is the sector with highest poverty and in fact in 1987-88 this was the case at all India level with the poverty prevalence in this sector being higher than in agriculture. During both periods considered in this thesis (1983 to 1987-88 and 1993-94 to 1999-00), when non-farm employment grew substantially, it was largely on account of the growth of construction workers.
These workers account for bulk of those who are in non-farm sector due to distress or unemployment and also constitute a significant section of the poor in rural areas. These workers also lack the asset base or the required skills and educational level to get employed in other more remunerative work. Most of these would be workers pushed out of agriculture due to failure of agricultural production due to weather. In this sense, they are also transitory workers who might move back to agriculture in years of good productivity. In the absence of employment opportunity in the farm and non-farm sector, some of them may join the rank of unemployed while some may remain as underemployed in agriculture. If the distress has been caused by the failure of agricultural production to generate adequate employment for them, an increase in open unemployment will be visible. The high correlation with unemployment and non-farm employment in general is evidence of the size of the non-farm employment of this category which is essentially distress in nature. Because of their vulnerable position and their significance in terms of rural poverty, state intervention directed towards these groups in terms of employment generation through public works programme has immediate impact on poverty levels in rural areas.

The effect of public expenditure on rural poverty operating via creation of non-farm employment through public works programme is particularly acknowledged in the context of the 1987-88 drought. In fact, both Sen and Ghosh (1993) and Tendulkar and Jain (1995) argue that this was a crucial factor in explaining the fast decline in headcount ratios in rural areas and improvements in income distribution between 1983 and 1987-88. Most of these public work programmes were casual in nature and were accepted by the relatively poorer households or potentially poor households driven out of distress. As such, this was also crucial in improving the distribution of income in rural areas. Both, Datt and Ravallion (1995) and Tendulkar and Jain (1995) admit in their decomposition exercise that the poverty reduction seen between these two rounds was both a result of favourable distributional change as well as growth of average incomes. Both of these studies also accept that the distributional outcomes outweighed the growth component for poverty gap and squared poverty gap measures in rural areas.

Not discounting the poverty reduction effect of such public expenditure driven non-farm employment, the issue that needs further resolution is in what ways this non-farm diversification affected the rural economy. In other words, is this evidence sufficient to conclude that non-farm diversification got significantly accelerated in the

24 While accepting the role of public works employment in the form of drought relief, Tendulkar and Jain also mention that this was confined to only a few states, particularly Gujarat and Rajasthan which were badly hit by the drought. They do not find any substantial evidence for this for other states.
80s? Much of this discussion hovered around the significant increase in non-farm employment, particularly with respect to the more sensitive and reliable measure of daily status employment. The evidence from the Census on the other hand, did not show any substantial increase in non-farm employment with non-farm employment share increasing marginally from 16.6% in 1981 to 17.7% in 1991. Even ignoring the Census estimates for the time being, the increase in non-farm employment in terms of person-days seems exaggerated in light of the discrepancies observed between the published daily status employment estimates and those obtained from the unit records. As was argued in the second chapter, perhaps the published figures are doubtful in this case and the unit record estimates appear to be closer to truth. If that be the case, the non-farm employment created by public expenditure induced casual works programme, even though significant appears exaggerated. In fact, proper correction of the daily status estimates on the basis of unit records also alters some of the conclusions arrived by earlier scholars using daily status estimates regarding growth rates of employment and unemployment as well as elasticities of employment in both agriculture as well as non-agriculture. Nonetheless, since industrial distribution of the workforce was not affected greatly, the shift into non-farm diversification in terms of percentage of total workers remains valid.

Proper correction of the daily status estimates is also in line with the other three measures (principal, usual and weekly) for unemployment. That is, the drought of 1987-88 did increase unemployment rates in rural areas. By all measures, unemployment rate was the highest in 1987-88 among all the quinquennial rounds between the 32nd round and the 55th round. This was particularly so for rural females where unemployment rates were second highest to only the second worst drought of the last three decades, that is 1972-73. But since, public expenditure induced employment generation during 1987-88 is also substantial, it also implies that in the absence of even this cushion, the unemployment rates would have been even higher than what was observed during 1987-88. Public works employment was atleast crucial in suppressing the unemployment rates to a certain extent. But more importantly, because of the self-selection mechanism inherent in such public works employment, they were far more effective in improving incomes for the rural poor and the unemployed in the face of failure of agricultural

25 As Sen and Ghosh (1993) argue, since census figures are for main workers and do not capture subsidiary employment they do not capture the shift into non-farm casual employment on person day basis adequately. Secondly, they also point out the possibility of some of the casual non-farm workers being classified as agricultural workers in census.

26 See table 4 and 5 of chapter 2
production. And this was certainly visible in the poverty numbers. But despite this increased employment generation by public sector the total share of public sector employment (including regular workers) was less than 5% of total employment in rural areas. However, in terms of incremental contribution to non-farm employment in rural areas, calculation by Sen and Ghosh (1993) suggests that roughly 30% of it was generated by the government (Table 16 in Sen and Ghosh, 1993).

With the onset of the economic reforms and the accompanying fiscal restraint model of economic model, the biggest casualty was this form of employment generation and by 1999-00 the percentage contribution of public sector in total employment was less than 2% from a high of 5% in 1987-88. While the share of casual labourers in public works had come down to negligible, there was decline in employment in public sector employment in the utilities category which employs the bulk of regular workers in public sector. This decline is secularly observed from 1989 onwards, the last year before the economic reforms. The decline in public employment is also visible in terms of industrial distribution of workers in rural areas and the period after 1989 saw the share of non-farm employment come down sharply and by 1997, the share of non-farm employment was down by 4% for males and 7% for females compared to 1989. Even though the 55th round shows non-farm employment rising again, it was still below the previous high attained in 1989.

Moreover, even though 30% of all incremental non-agricultural employment was generated by government, remaining 70% was generated by the internal dynamism of the rural sector. The increased agricultural productivity and the output growth of close to 4% per annum did play a role. The role of public sector induced non-farm employment was complimentary to it. The subsequent withdrawal of this channel of creating non-farm employment was also visible in the early years of 1990s with non-farm employment declining in share. This raises the issue of sustainability of this form of non-farm diversification especially in the long run. On the other hand, the kind of non-farm employment diversification seen in the 1990s (between 1993-94 and 1999-00, although the sudden spurt in non-farm employment in the last two years of this period is doubtful given the changes in sampling methods) is not driven by government spending in rural areas. Most of it is attributable to the economic changes in rural areas. A part of it being driven by distress is not entirely ruled out.

However, the worrying aspect of the withdrawal of the public spending led non-farm growth is also the increased unemployment rates by 1999-00. Unemployment rates in 1999-00 were as high as those observed in the 1987-88 drought period by the daily
status measure of unemployment. And here it is important to remind that both 1986-87 and 1987-88 were severe drought years but all three years 1997-98, 1998-99 and 1999-00 were perfectly normal years in terms of rainfall (annual rainfall in these years was 102%, 106% and 96% of normal rainfall). Unemployment rate in 1999-00, coming after a sustained growth rate of agricultural output at more than 3% per year for the last two decades, was as high as that of the 1987-88 drought. Moreover, it was accompanied by a period of low employment growth in rural areas unlike the previous period when employment was growing faster than labour force growth rate.

It is safe to conclude then that the high growth rate of agricultural output in the entire two decades has not translated itself into significant non-farm diversification being generated by the internal dynamism of the rural economy. And since this was one of the important channels argued by the early scholars on this issue to be the leading force behind the transformation of the rural economy, it has serious implications for the sustained growth for the rural economy in the future. While government intervention in the form of employment generation is a necessity in these conditions to provide income as well as employment to the rural poor, the failure of sustained agricultural growth, of two decades at more than 3% per annum, in creating employment opportunities cannot be ignored. Although a final resolution of this is still to be arrived at, an obvious candidate is the role of public investment and government support in rural areas in both agriculture as well as non-agriculture.

Looking at the non-farm sector first, it was argued earlier that apart from the heterogeneous nature of non-farm sector, the failure to arrive at determinants of non-farm employment in rural areas is also due to the fact that it is not driven by any explicit policy initiative. The growth of non-farm employment is assumed to be generated through the dynamism in the agricultural sector primarily or through public expenditure in generating casual employment. While the second channel is obviously useful, it should be viewed more as poverty alleviation and unemployment allowance programme than non-farm diversification. An obvious implication of this form of non-farm employment generation is that it is essentially tied to the government’s fiscal policy at the centre as well as state level. Therefore, as long as the public expenditure was effective in creating employment of such nature, non-farm employment showed signs of increasing but went back to the previous levels once this form of support was withdrawn. This was the case with the 1980s; non-farm employment share, which increased sharply between 1983 and 1989-90 (by almost 6% for both males and females), declined to its
earlier levels by 1993-94 after the introduction of the fiscal discipline based economic reforms\textsuperscript{27}. As Sen (1997) argues, most of the increase in the non-farm employment share in the 1980s was a result of increased public expenditure in rural areas. And their subsequent decline in the early years of 1990s following the economic reforms was also largely due to withdrawal of this form of public expenditure in rural areas. The self-selection mechanism inherent in these public expenditure driven employment generation programmes also meant that the poor benefited largely due to this and the movement of poverty trends at all India level mirrored this phenomenon. That is, poverty declined sharply so long as non-farm employment was being created by public expenditure. But then increased marginally and stayed at that level after the initiation of economic reforms when most of these expenditures saw cut down especially in rural areas.

However, whether this can be taken as concrete evidence for significant non-farm diversification is still debatable. Looking at the long term trend of non-farm diversification, the evidence is simply not enough to suggest that non-farm diversification significantly increased in the decade and half after 1983. Moreover, if one excludes public expenditure driven non-farm employment and employment in those industries which are mainly distress driven (mainly construction), the evidence suggests that non-farm diversification in the entire two decade period has been a very slow and gradual process. While the non-farm diversification driven by public expenditure has an immediate and large impact on poverty reduction and improvements in income distribution in the short run, it does not represent the kind of non-farm diversification induced by agricultural performance nor can it be taken as representing the process of rural industrialisation. Apart from the transient characteristics of this form of non-farm employment, its role in stimulating further non-farm growth through its multiplier effect is also limited. This arises essentially from the fact that most of the employment generated in this category is cornered by the poor or distressed households who spend a major part of their income on food items. Therefore, the transmission mechanism in terms of the increased income being expended on locally produced non-farm goods and thus increasing demand for such goods and in the long run stimulating non-farm sector in rural areas is considerably weak in this case. Precisely, because of which, this kind of non-farm employment creation is not able to stimulate non-farm sector in rural areas to a great extent.

\textsuperscript{27} Non-farm employment share for rural males increased from 22.2\% in 1983 to 28.3\% by 1989-90 and then declined to around 24\% for 51\textsuperscript{st} to 54\textsuperscript{th} round (1994-95 to 1998). For rural females, it was 12.2\% in 1983, 18.5\% in 1989-90 and around 12\% for 51\textsuperscript{st} to 54\textsuperscript{th} round (1994-95 to 1998).
While acknowledging the poverty alleviation role of such non-farm employment generation, it also confirms the failure of agricultural growth in providing dynamism to the rural economy. Along with the low employment generation ability of agricultural growth, this essentially points towards the weakening of the transmission mechanism through employment generation as well as diversification in improving income distribution in rural areas. At the same time, as Bhalla (1997) points out, rural areas also bore the brunt of creeping liberalisation since the mid-1980s which resulted in weakening of the state support towards encouraging rural industrialisation. The Industrial Policy of 1991 was a step further in this direction. In terms of industrial policy, rural areas were particularly disadvantaged in terms of credit allocation for rural industrialisation. Withdrawal of protection to small scale industries through de-reservation of certain industries along with increased competition meant further misery to the rural industrial climate. As Bhalla (1997) points out, even though manufacturing growth reached its peak at close to 10% rate of growth, rural areas was witness to de-industrialisation of the economy in the early years of 1990s. She partly blames this for the decline in non-farm sector employment share in the early years of economic reforms.

The evidence presented so far does not suggest that non-farm employment diversification was stimulated by the internal dynamism of the rural economy in the past two decades. Therefore, its role in transforming the rural economy and in particular in improving income distribution and poverty reduction was rather limited. On the other hand, there was a significant increase in revenue expenditure in rural areas which went into generation of additional employment in rural areas. This employment generation was non-farm in nature and it was this non-farm diversification which was crucial for poverty reduction and improvement in income distribution. This intervention by the State was crucial not only in the form of additional employment generation but since most of it was in non-farm sector it also meant that it was crucial in taking care of the surplus labour in agriculture, a role hitherto assigned to agriculture.

However, even though the State was taking up the role of prime mover in the rural economy in place of agriculture by increasing revenue expenditure, it was also instrumental in weakening the role of agriculture as prime mover in the rural economy. While revenue expenditure in rural areas was increasing in the 1980s, the 1980s were also the worst decade in terms of capital expenditure in agriculture. Public investment in agriculture declined from Rs.17213 crore in 1980-81 to Rs. 13577 crore by 1990-91 and then increased marginally to Rs.14539 crore in 1999-00 (1993-94 prices). In terms of percentage of GDP the decline was from 4.3% of GDP in 1980-81 to 2.0% of GDP in
1990-91 and 1.3% of GDP in 1999-00\textsuperscript{28}. This withdrawal of capital expenditure in agriculture also meant that while agricultural output was growing at more than 3% per annum throughout the last two decades, incomes of the cultivators (average real consumption expenditure) was growing at less than one percent per annum throughout the last two decades. With the economic reforms, this was also accompanied by withdrawal of subsidy on fertilisers, electricity and diesel. All these together meant that the farmer was able to gain less and less despite increased agricultural output. That is, agriculture's ability to provide stimulus to rural economy had considerably weakened.

In this context, the role of urbanisation and urban growth, electricity and literacy deserve special mention. While there is very little evidence to suggest that the nature of sustained growth in non-farm sector has anything to do with developments in the rural economy, the presence of urbanisation in all the regression estimates as significant variable testifies to the impact of demand generated by the growth of urban centres and towns. Since urban growth has generally been higher than rural growth in the entire two decades, it has also had its impact on the growth of demand for rural non-farm sector which have flourished in the urban peripheries. However, as Kundu, Sarangi and Das (2003), point out, even this channel is seen to be weakening in the later half of the 90s. Apart from the demand for non-farm goods and services generated in the urban economy, urban areas also benefit from better spread and access to infrastructure which is crucial for non-farm growth. The presence of access and spread of electricity as an important variable in this context, as a determinant of variations for the non-agricultural households signifies the importance of rural infrastructure creation in rural areas. Finally, growth of non-farm in rural areas is also crucially linked to the development of skill and educational attainment of the rural population. Such skills are not only crucial for the rural non-farm sector to capitalise on the growth potential of non-farm sector, but are also crucial to improve productivity in this sector.

Regression estimates in this thesis broadly confirm these conclusions. The first point of departure from the earlier studies is regarding the choice of agricultural productivity variable. In this thesis, the results unambiguously favour labour productivity as the more relevant variable than land productivity which is the variable used by most of Datt and Ravallion regression estimates. Secondly, absence of employment and workforce related variables in their regression estimates also means ignoring the most important channel through which poverty and income distribution is affected. Subsequent refinements of Datt and Ravallion equations by Sen (1996) found non-farm

\textsuperscript{28} See, Report of the Committee on Capital Formation in Agriculture, 2003
employment to be significant in explaining rural poverty. While our estimates do not report non-farm employment at the cross-sectional regression estimates presented in this thesis to be significant, the effects of non-farm employment are partially captured in our regression estimates through labour productivity\(^{29}\). However, the significance of unemployment is confirmed in most of our regression estimates. The variable appears negatively related to average MPCE for agricultural labour households, cultivator households as well as all rural households. Since unemployment is significantly related to non-farm employment across regions, the presence of this variable also captures the non-farm employment which is distress induced. Since the dominant route of non-farm diversification in rural areas was through increased public expenditure taking care of unemployed and distressed households, unemployment rates would most likely pick up the non-farm employment effect. Moreover, our regression estimates also confirm the significant and positive relationship with agricultural wages for the same set of households. The presence of real wages as a significant explanatory variable also captures the role of non-farm employment in rural areas. Our cross-section regression estimates also found real wages as positive and significant determinants of non-farm employment along with unemployment rates.

However, none of the agriculture productivity related variables were found significant in explaining either non-farm employment or Workforce Participation Rates\(^{30}\). The insignificant relationship of agricultural productivity with the employment variables confirms the breaking down of the transmission mechanism of agricultural productivity in explaining employment pattern in rural areas. As has been argued earlier, there is very little evidence to suggest that non-farm diversification has got accelerated in the last two decades in a major way. Secondly, the only period for which non-farm employment should have appeared significant is for 1987-88. However, since most of the non-farm employment during this period was distress in nature, probably its effects are being captured by unemployment rate and real wages both of which appear as significant variables in explaining variations in consumption expenditure for all rural households.

\(^{29}\)Labour productivity in agriculture in this thesis has been defined as value of agricultural output per agricultural workers. The denominator in this case is a function of workforce participation rate as well as percentage of workers employed in agriculture, which is 100 minus percentage of workers employed in non-farm sector.

\(^{30}\)Agricultural productivity variables were also tested as explanatory variables for determinants of cross-sectional variation in non-farm employment broken down by status of employment. For three rounds, agricultural productivity was found significant in affecting self-employed in non-farm employment positively. On the other hand, land productivity appeared as negatively related to casual non-farm employment. However, agricultural productivity did not appear as significant variable when it was regressed on total non-farm employment.
households. Non-farm employment did appear as a significant variable when unemployment rate was dropped from the equation for 1983 and 1987-88. However, it was insignificant even in the absence of unemployment for other years. The significant relationship for the years in the 1980s for non-farm employment essentially reconfirms the conclusion that the non-farm employment which did matter was that component of non-farm employment, which was distress induced and benefited largely due to government intervention in the form of public expenditure generated non-farm employment. However, controlling for unemployment, absence of non-farm employment as significant variable suggests that the contribution of non-farm employment has mainly been through its indirect effects via real wages and labour productivity and not through the direct contribution of increasing incomes in rural areas.

Even though open unemployment rates appear as an important variable in explaining variations in consumption expenditure across regions, it is difficult to capture the real effects of employment and workforce structure changes as long as there is widespread underemployment in rural areas. The effect of employment has been more visible in terms of its operation via real wages. Real wages have appeared not only as significant variables in all our regression estimates but have also been the variable with the highest coefficient in all of them. The importance of real wages is also confirmed in all of Datt and Ravallion equations. Apart from being influenced by agricultural productivity, non-farm employment diversification also worked through tightening the labour market to increase wages in the 1980s. As Bhalla (1993) points out, the increase in real wages was observed even in those states and regions where agricultural productivity was not increasing rapidly. Although our regression estimates do not suggest any breakdown of the transmission mechanism between agricultural productivity and wages, the role of public expenditure created non-farm employment was also important in tightening the labour market. This was another channel through which public expenditure in rural areas was crucial to the large poverty reduction seen in the 1980s.

For non-agricultural households, our regression estimates were constrained by lack of suitable data for the rural areas at region level. Nonetheless, the exercise attempted with limited set of variables did bring out the role of urban consumption (income) growth on the consumption expenditure of rural non-agricultural households. Consumption expenditure of these households was also positively influenced by the access to infrastructure such as electricity and literacy. In fact, most of our regression estimates found some measure of literacy and access to electricity as significant
variables. Access to electricity, which represents access to infrastructure in our case, was found crucial not only for non-agricultural sector but was also found significant in explaining agricultural productivity. Similarly, literacy, particularly higher order measures of literacy are significant for both farm as well as non-farm sector. However, there was no significant relationship between agricultural productivity and consumption expenditure of non-agricultural households.

The developments in rural areas, with our limited analysis, do not present any significant evidence of rural areas sharing the overall dynamism of the economy. This is particularly important in the context of unprecedented high growth rate of national output as well as agricultural output seen in the last two decades. A major reason for this was the geographical as well as regional imbalances in the growth process of the economy. These imbalances have become even more prominent in the wake of the economic reforms since the early 1990s. The economic policy framework in the last two decades have not only alienated the rural areas from the growth process, but have also contributed to the growing imbalances in the economy at all levels, sectoral, as well as geographical.

The adverse role of economic policy in the last two decades, particularly in the 1990s, has affected all channels through which rural economy is transformed. The biggest set back to rural economy has been the withdrawal of state support to both agriculture as well as non-agriculture. Within these, the withdrawal of public investment in agriculture has been particularly worrying. Previous studies have repeatedly argued for the significant role of public investment in agriculture to sustain agricultural growth. Moreover, early literature had also established that public investment in agriculture was complimentary to private investment in agriculture. The effects of withdrawal of public investment in rural areas have had adverse impact on the income of farmers, even though agricultural output was growing. This was accompanied by withdrawal of state subsidy on many of the essential inputs in agriculture such as fertilisers, seeds, diesel and electricity. The 1990s have also seen cutback in public spending in agricultural research and extension which had played a crucial role in the early Green Revolution. On the other hand, the adverse effects of the changes in credit policy added to the misery of the farmers. Public investment is not only crucial for

31 Datt and Ravallion (1998) have shown that the elasticity of yield with respect to public expenditure was 0.29- a high figure given the large size of agriculture relative to public spending. Similar results have been reported by Fan, Hazell and Thorat (2003). The elasticity of public spending in their equations is second highest in the case of agricultural research and extension, second only to roads.
transforming agriculture, its effect is also witnessed in the long run through its subsequent effect on other sectors of the rural economy.

The cutback in public investment in agriculture was sought to be replaced by public revenue expenditure, at least in the 1980s. While it did have an impact on poverty and income distribution in the short run, its effects vanished as soon as the spending was withdrawn in the early years of 1990s. Such expenditure on revenue account are necessary and particularly in the case of severe drought such as that of 1987-88, but cannot substitute for public spending on capital account which suffered almost similar cutbacks. On the other hand, sustained public investment in rural areas is crucial to growth of non-farm sector also. Non-farm sector also suffered from the changing priority of the government on the industrial front. This process was visible in the 1980s itself, but got accelerated in the 1990s. At least, there was no effort on the part of the government to promote rural industrialisation.

All these had their impact on the developments in rural areas. The weakening of the transmission linkage between agricultural growth and transformation of rural economy through generation of employment, non-farm sector growth as well as diversification of employment were also linked to these developments. One of the primary reasons for this was the existing inequalities at geographical as well as interpersonal level in rural areas. High rural inequality also meant that even though agriculture was growing at one of its fastest rates, its effects were less visible in terms of income distribution or growth of non-farm sector. Successful transformation of the rural economy as a result of high growth of agriculture is clearly seen in the case of West Bengal and Kerala, where land reforms were successful.

Proponents of economic reforms had argued that trade liberalisation is one of the routes through which growth in general will trickle down to the rural areas and in particular the rural poor. Such an assertion seems too far fetched in the context of the present rural economy. This is simply because of the fact that there is too little tradables in the rural economy. Moreover, successful transformation of the rural economy from a predominantly agrarian economy requires that demand be generated for the locally produced non-tradable sector first. It will be too early and premature to imagine demand for tradable goods to generate successful transformation of the rural economy by stimulating the non-farm sector in rural areas. These assumptions are also far fetched in the context of the present arrangements in the WTO with adverse terms of trade for the

32 See Chadha and Sahu, 2005 who provide a critical assessment of rural industrialisation policy perspective since Independence.
developing countries. On the other hand, cheaper imports from the developed countries being dumped will only add to the misery of the rural non-farm sector without State support. Perhaps, what is required at this stage is state support in both agriculture as well as non-agriculture, through greater investment in rural areas to augment income of the rural households. At the same time, the priority should be towards restoring the broken linkages in the rural economy particularly in the context of low employment generation. This also needs to be supplemented through additional employment generation through increased public revenue expenditure in rural areas. The Employment Guarantee Act then is a step in the right direction. This is not only crucial for employment generation but is also crucial through its multiplier effect in the long run. At the same time, since most of these programmes also entail some rural infrastructure creation such as roads and other public works, these also work through strengthening the rural infrastructure network. The inescapable conclusion then remains, that State support and public expenditure are the first pre-requisites for successful and sustained transformation of the rural economy. State support in the form of public expenditure is required on all fronts, capital and revenue expenditure as well as agriculture and non-agriculture. None of these are substitutes of each other; rather public expenditure in all these forms and sectors is complimentary to each other and crucial to overall rural transformation.

Finally, it must be admitted that despite our efforts to include as many variables as possible relating to the rural economy at the disaggregated level of regions, the analysis presented in this thesis was constrained by lack of suitable data on some important variables which could have enlightened our analysis on the actual mechanism through which these operate within the rural economy. The analysis presented in this thesis has covered a wide range of issues related to the rural economy. However, it must be admitted that the analysis is by far not all inclusive and further research on these issues is required. Such an exercise is also crucially dependent on the availability of suitable, reliable and long term data at a fairly disaggregated level. Apart from a suitable measure of non-farm economic output, the analysis was also constrained by lack of any variable on public expenditure at the level of regions. The analysis was also constrained by non-availability of data on credit, private investment, and asset position of the households as well as public investment in rural areas. Access to such disaggregated data could have shed more light on the way economic policies affect the developments in rural areas. Further, in the scheme of things discussed in the analysis, a suitable variable in the context of agriculture should have been income or surplus accruing to the farmers rather than aggregate agricultural output.
Another limitation of the analysis, which was partially a result of our choice of the level of disaggregation at the level of regions, was that the analysis was mainly carried out for only the four quinquennial rounds. The choice in this case was again guided by the availability of unit level data from the NSSO, the earliest of which is available for 1983. Although annual data from the NSSO is also available, these are not considered statistically reliable at the level of regions. Since only four rounds were available for analysis, the analysis was primarily cross-sectional in nature. However, pooled regression estimates for all the regression estimates were also presented. An attempt was also made to understand the dynamic behaviour through regression on growth rate of variables for the final chapter. The inference on the dynamic nature of the variables and their interaction is therefore only indicative of any association between the variables. However, these are no substitutes for a fuller time series analysis at state level and further research at state level, which can accommodate more variables as well as a longer time period with annual rounds, would be particularly useful to understand the dynamic behaviour of the variables.