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**SUBJECT I**
**AGRICULTURAL DEVELOPMENT PERSPECTIVE AND STRATEGY PLANNING FOR THE TWELFTH FIVE YEAR PLAN**

# Rural Poverty and Agricultural Growth in India: Implications for the Twelfth Five Year Plan

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## I

## INTRODUCTION

Poverty alleviation has been an overarching goal of India's development efforts since its Independence. In pursuing this objective, the planning process in the country has devised several interventions, often successful but sometimes overlapping. The Government of India, deeply concerned with widespread poverty, has implemented several anti-poverty schemes. These schemes have given thrust on creating adequate livelihood opportunities for the marginalised segments of the population, provisioning of public services and goods for improving standard and quality of life, strengthening of institutions and delivery mechanisms to empower the poor, and targeted development of backward regions through resource transfers and supportive policy measures. To ensure inclusive growth, the emphasis on having a more desirable composition of gross domestic product (GDP) growth by targeting an average 4 per cent per annum growth in AgGDP has found favour with the policy makers in the country's Eleventh Five Year Plan (Government of India, 2007-12).

Though there has been a significant decline in the incidence of poverty at the national level in India, there are several concerns that take away the shine from this accomplishment. In spite of significant reduction in poverty, India is home to about 315 million poor people, 74 per cent of them residing in the rural areas. Further, the concentration of poverty is more rampant in landless agricultural labour households and marginal farm households which account for more than 50 per cent of the total poor in India. Therefore, the needs and aspirations of these vulnerable groups must be taken care of to ensure inclusive growth in agriculture. Most of the studies conducted so far are focused on the aggregate rural and urban poverty and the dynamics of poverty among farming households and agricultural labour households has not been studied much. In this backdrop, this paper examines the trends in poverty rates among farming and agricultural labour households; their linkages with agricultural growth, and possibilities of achieving targeted growth in agriculture.

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The paper is organised as follows. After introduction Section II examines the trends and inter-state variations in the magnitude of incidence of poverty for farming and agricultural labour households in India. In Section III, the analysis of empirical evidence on the linkage between agricultural development and rural poverty reduction in the country is presented. The concluding section identifies the conducive agricultural strategies for poverty alleviation and the conditions that make their impact most effective. For the sake of convenience and understanding, the trends before and after the launching of economic reforms, the period of analysis (1983 to 2003-04) has been divided into two sub-periods, viz., (i) pre-reform period (1983 to 1993), and (ii) post-reform period (1993 to 2004-05).

## II

## TRENDS IN POVERTY INCIDENCE

Poverty is a state of deprivation. In absolute terms, it reflects the ability of an individual to satisfy certain basic minimum needs for a sustained, healthy and reasonably productive living. There is no unique approach to estimate a poverty line for measuring the incidence of poverty in conformity with the absolute notion of poverty. In the Indian context, a consensus emerged in the early 1970s on the adoption of an energy adequacy norm to anchor the minimum consumption level, for defining the poverty line (Dandekar and Rath, 1971). Subsequently, the poverty line approach and measurement methodology was refined and a series of consistent estimates were made available at regular intervals of time. Following the accepted norms of poverty measurements, adopted by the Planning Commission (Government of India), the poverty rates (head count ratio) were estimated and are presented in Table 1.

TABLE 1. TRENDS IN POPULATION BELOW POVERTY LINE: ALL INDIA, 1983 TO 2004-05

(*per cent*)

| Years | Rural | Urban | Total |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| 1983 | 45.7 | 40.8 | 44.4 |
| 1993-94 | 37.3 | 32.4 | 36.0 |
| 2004-05 | 28.3 | 25.7 | 27.5 |
| | Decline in poverty | | |
| 1983 to 1993-94 | 8.4 | 8.4 | 8.4 |
| 1993-94 to 2004-05 | 9.0 | 6.7 | 8.5 |

*Source*: The authors' calculations based on NSSO unit level data (38th, 50th and 61st Rounds).

The latest estimates on poverty based on NSS data show that poverty was around 28 per cent in India in 2004-05. In other words, more than 300 million people were below poverty line in India in 2004-05. However, the percentage of population below the poverty line declined consistently over time. The annual decline in percentage

points was higher for rural areas than urban areas. A similar declining trend of poverty rates was observed among both farming and agricultural labour households. In the two decades between 1983 and 2004-05, the poverty rate for farming as well as agricultural labour households has come down. In 2004-05, 19 per cent of the farming households and 42 per cent of the agricultural labourers are reported living below the poverty line, down from 39 per cent and 60 per cent in 1983, respectively (Table 2). Thus, reduction in the poverty rate is amply visible, but still the absolute numbers of poor have not reduced correspondingly.

TABLE 2. TRENDS IN INCIDENCE OF POVERTY AMONG FARMING AND AGRICULTURAL LABOUR HOUSEHOLDS, 1983 TO 2004-05

(*per cent*)

| (1) | Farming households (2) | Agricultural labour households (3) |
|---|---|---|
| | Prevalence of poverty | |
| 1983 | 38.6 | 59.6 |
| 1993-94 | 28.1 | 53.8 |
| 2004-05 | 18.6 | 41.9 |
| | Decline in poverty | |
| 1983 to 1993-94 | 10.5 | 5.8 |
| 1993-94 to 2004-05 | 9.5 | 11.9 |

*Source*: The authors' calculations based on NSSO unit level data (38th, 50th and 61st Rounds).

Across farm-size groups, the prevalence of poverty was highest among marginal households and it gradually declined with increasing farm size (Table 3). In 1983, about 45 per cent of the marginal, 39 per cent of the small, 31 per cent of the medium farming households, and 23 per cent of the large farming households were poor. Between 1983 and 2004-05, a significant reduction was registered in the incidence of poverty among all the categories of farming households. In 2004-05, about 23 per cent of the marginal, 16 per cent of the small, 12 per cent of the medium and 8 per cent of the large farming households were living below the poverty line. One of the debates on poverty trends is whether the extent of decline in poverty is higher or lower in the post-reform period as compared to the pre-reform period. The poverty ratios and rates of change given in Table 1, show that the extent of decline has been more or less the same in both the periods. However, differences do exist in the extent between farming and agricultural households. The reduction in poverty rate of the farming households slowed down (Table 2), whereas for agricultural labour households, it increased in the post-reform period. The trends in the decline of poverty among different categories of farming households are more revealing. In post-reform period, poverty among marginal households declined, while among other categories of farming households, it increased (Table 3). The increase in the incidence of poverty was maximum among medium farming households (5 per cent), followed by small (3.6 per cent) and large (1.1 per cent) farming households. During the initial years of economic reforms, agriculture seems to have received a setback

and the result of the neglect of agriculture was seen in the form of increase of poverty among farming households. The deceleration in agricultural growth during this period seems to have contributed to their plight.

TABLE 3. POPULATION BELOW POVERTY LINE ACROSS DIFFERENT FARM-SIZE: 1983 TO 2004-05

*(per cent)*

| Period | Marginal | Small | Medium | Large |
|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) |
| | | Prevalence of poverty | | |
| 1983 | 45.1 | 37.8 | 31.2 | 22.9 |
| 1993-94 | 28.8 | 12.2 | 6.6 | 6.7 |
| 2004-05 | 23.1 | 15.8 | 11.6 | 7.8 |
| | | Decline in poverty | | |
| 1983 to 1993-94 | 16.3 | 25.6 | 24.6 | 16.2 |
| 1993-94 to 2004-05 | 5.7 | -3.6 | -5.0 | -1.1 |

*Source*: The authors' calculations based on NSSO unit level data (38th, 50th and 61st Rounds).

## *State-level Poverty Trends*

A wide disparity in poverty is a key feature across the states in India. In the rural areas of seven economically poorer states – Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Orissa, Uttarakhand and Uttar Pradesh – the poverty rates among farming households varied from 28 per cent to 41 per cent in 2004-05. The incidence of

TABLE 4. POPULATION BELOW POVERTY LINE ACROSS DIFFERENT STATES, 1983 TO 2004-05

*(per cent)*

| | Farming households | | | Agricultural labour | | |
|---|---|---|---|---|---|---|
| State | 1983 | 1993-94 | 2004-05 | 1983 | 1993-94 | 2004-05 |
| (1) | (2) | (3) | (4) | (5) | (6) | (7) |
| Andhra Pradesh | 24.4 | 13.6 | 8.7 | 36.3 | 23.2 | 15.8 |
| Assam | 39.8 | 40.0 | 18.9 | 54.0 | 65.5 | 39.0 |
| Bihar | 61.9 | 51.4 | 33.8 | 83.7 | 75.7 | 67.7 |
| Gujarat | 27.3 | 19.0 | 14.6 | 40.8 | 32.4 | 28.7 |
| Haryana | 19.4 | 22.6 | 11.0 | 29.2 | 54.6 | 26.2 |
| Himachal Pradesh | 14.5 | 28.0 | 10.2 | 8.7 | 48.3 | 31.0 |
| Jammu and Kashmir | 23.4 | 13.9 | 3.7 | 40.6 | 14.7 | 14.4 |
| Karnataka | 31.5 | 24.8 | 16.0 | 47.7 | 45.3 | 33.4 |
| Kerala | 35.8 | 21.9 | 11.9 | 53.3 | 36.4 | 25.1 |
| Madhya Pradesh | 47.1 | 33.9 | 28.4 | 70.4 | 59.3 | 54.0 |
| Maharashtra | 43.5 | 32.4 | 24.0 | 63.0 | 57.5 | 47.0 |
| Orissa | 60.3 | 41.4 | 39.3 | 78.4 | 67.0 | 60.1 |
| Punjab | 12.1 | 10.0 | 7.1 | 27.3 | 29.9 | 23.3 |
| Rajasthan | 30.2 | 21.9 | 16.0 | 41.5 | 40.1 | 37.4 |
| Tamil Nadu | 51.4 | 28.2 | 17.8 | 66.3 | 48.8 | 32.9 |
| Uttar Pradesh | 45.1 | 36.8 | 28.7 | 63.8 | 62.5 | 53.9 |
| West Bengal | 55.9 | 33.7 | 23.3 | 80.6 | 59.5 | 44.6 |
| Jharkhand | 62.1 | 57.4 | 41.0 | 77.0 | 83.2 | 72.2 |
| Chhattisgarh | 43.2 | 38.8 | 32.1 | 56.9 | 60.6 | 56.2 |
| Uttarakhand | 20.8 | 23.1 | 38.2 | 60.0 | 36.2 | 62.2 |

*Source*: The authors' calculations based on NSSO unit level data (38th, 50th and 61st Rounds).

poverty among agricultural labour households varied between 56 per cent and 83 per cent in these states in 2004-05. In the high-growth states such as Punjab, Haryana, Kerala, Himachal Pradesh and Andhra Pradesh have incidence of poverty among farming households which is one-third or one-fourth of that in the slow-growth states. Difference in poverty rates across states is equally considerable for agricultural labour households; it ranged from 16 per cent in Andhra Pradesh to 26 per cent in Haryana among the high-growth states in the year 2004-05.

It seems that the location-specific features are important contributors to the overall incidence of poverty. The poverty ratios for farming and agricultural labour households declined significantly in major states since 1983, although the extent of poverty reduction has been uneven across these states.

## III

## AGRICULTURAL GROWTH AND ITS IMPACT ON RURAL POVERTY

### *Agricultural Growth*

The linkage between agricultural growth and rural poverty can be gauged from the fact that 74 per cent of the households and 76 per cent of population live in the rural areas in India. Among rural households, 34 per cent are self-employed in agriculture and 25 per cent are agricultural labour households. The income of the former from farming (crop cultivation plus animal husbandry) is about 50 per cent of the total household income. Table 5 presents data on the performance of different

TABLE 5 COMPOUND ANNUAL GROWTH RATE OF AgNSDP IN VARIOUS STATES

(*per cent per annum*)

| State | 1981-82 to 1990-91 | 1991-92 to 2006-07 |
|---|---|---|
| (1) | (2) | (3) |
| Andhra Pradesh | 1.59 | 3.38 |
| Assam | 2.86 | 0.76 |
| Bihar | 2.99 | 2.87 |
| Gujarat | -0.92 | 3.34 |
| Haryana | 4.90 | 1.95 |
| Himachal Pradesh | 3.81 | 4.09 |
| Jammu and Kashmir | 1.04 | 3.79 |
| Karnataka | 2.16 | 1.74 |
| Kerala | 3.08 | 1.99 |
| Madhya Pradesh | 3.57 | 1.16 |
| Maharashtra | 4.41 | 3.68 |
| Orissa | 1.61 | 0.70 |
| Punjab | 5.00 | 2.09 |
| Rajasthan | 3.91 | 2.59 |
| Tamil Nadu | 2.77 | 0.56 |
| Uttar Pradesh | 3.02 | 1.97 |
| West Bengal | 6.31 | 3.11 |
| All India | 3.25 | 2.71 |
| Coefficient of variation (per cent) | 55.44 | 48.45 |

*Source*: The authors' calculations based on data from National Accounts Statistics, CSO, Government of India.

states in agricultural growth during the pre-and post-reform periods. The growth rate in agriculture national state domestic product (AgNSDP) has declined significantly in all the major states except Andhra Pradesh and Gujarat, Jammu and Kashmir in the post-reform period. At the national level, the growth rate in AgNSDP has declined from 3.25 per cent in the pre-reform period to 2.71 per cent in the post-reform period. The coefficient of variation in the growth of AgNSDP has also declined during the post-reform period as compared to the pre-reform period.

*Rural Employment and Wages*

In India, rural employment has undergone significant changes during this two-decade period. The total rural employment grew at the rate of 1.23 per cent per annum during 1983 to 1993-94. However, non-agricultural employment grew faster than agricultural employment during this period. The growth in non-agricultural sector has accelerated more in recent years. Between 1993 and 2004, non-agricultural employment grew at the rate of 3.33 per cent per year compared with 1.7 per cent per year during the pre-reform period. As a percentage of total rural employment, non-agricultural employment increased from 22 per cent in 1993 to 28 per cent in 2004-05 (Table 6).

TABLE 6. RURAL EMPLOYMENT AND WAGES, 1983-2004

| Year | Total rural employment ('000) | Agricultural employment ('000) | Non-agricultural employment ('000) | Real rural wage index (1970-71=100) | Non-agricultural employment as a share of total employment (per cent) |
|---|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) | (6) |
| 1983 | 235094 | 182433 | 52661 | 100 | 22.4 |
| 1993 | 286200 | 224085 | 62115 | 140 | 21.7 |
| 2004 | 332393 | 240960 | 91433 | 197 | 27.5 |
| | | | Annual growth rate (per cent) | | |
| 1983-1993 | 1.23 | 1.06 | 1.71 | 2.05 | 0.48 |
| 1993-2004 | 1.27 | 0.61 | 3.33 | 3.37 | 2.03 |

*Source*: The authors' calculations based on NSSO unit level data (38th, 50th and 61st Rounds) and National Accounts Statistics, CSO, Government of India.

A healthy growth of real agricultural wages is considered to be a sufficient condition for significant reduction in rural poverty (Deaton and Dreze, 2002). Rural wages in real terms have increased considerably during the period 1983 to 2003-04. The growth in real rural wages increased from 2.0 per cent during 1983-1993 to about 3.4 per cent per year during 1993-2004. The significant increase in real wages in the rural areas particularly in recent years may be attributed to the several initiatives undertaken under the government schemes like Mahatma Gandhi Rural Employment Guarantee Scheme (MNREGS), National Food Security Mission (NFSM), Rashtriya Krishi Vikash Yojna (RKVY) and other developmental agencies. The tightening of rural labour market and a significant increase in real wages of agricultural labourers

have been observed in recent years. The government investment in rural infrastructure and rural development might have also contributed to this growth in wages.

*Determinants of Reduction in Poverty*

While literature on the measurement of poverty is relatively abundant, studies on the determinants or causes of poverty are scarce and inconclusive. Agricultural growth has long been recognised as an important instrument for poverty reduction. However, the reliable measurements of this relationship are still scarce (de Janvry and Sadoulet, 2009). Loayza and Raddatz (2010) on the basis of a study on relationship between growth and poverty in more than 50 countries have found that agriculture is the most powerful poverty-reducing sector, followed by construction and manufacturing sectors, while mining, utilities and services by themselves do not seem to provide much help to poverty reduction.

The debate on the linkage between agricultural growth and poverty reduction has been going on fiercely in India since the beginning of planned era of development. Some scholars have argued that the agricultural growth process stimulated by the green revolution brought little or no gain to the rural poor, while others have pointed the farm output growth to be the key to rural poverty reduction (Ahluwalia, 1978, 1985; Saith, 1981; van de Walle, 1985; Gaiha, 1989; Bhattacharya *et al.*, 1991; Bell and Rich, 1994; and Datt and Ravallion, 1998). Ahluwalia (1978) was perhaps the first to examine the Indian evidence on growth and poverty in a fairly comprehensive manner both at the all India level and at the state level. This study has shown a strong inverse relationship between per capita value-added in agriculture and incidence of poverty at the all-India level. The results at the state level were somewhat mixed. On the basis of this analysis, Ahluwalia indicated that 'trickle down mechanism' operated in the rural India. However, Bardhan (1985) did not find any evidence of the existence of strong linkages between agricultural productivity and poverty reduction. Srinivasan (1985) had cautioned that the results should be interpreted with caution since there was very little evidence of trickle down mechanism at the all-India level. Dev (1988) had shown that labour productivity in agriculture explained a large part of the variations in poverty. Roy and Pal (2002) have concluded that improvement in agricultural productivity has a significant role in reducing rural poverty in India. Further, rural literacy was also observed to be highly significant in reducing rural poverty in India. Sen (1997) has also found that agricultural growth, relative prices of food, developmental public expenditure and non-agricultural employment were the crucial variables influencing temporal variations in poverty. Tendulkar *et al.* (1996) had shown that per capita income and relative prices were significant determinants for inter- temporal and inter–regional variations in poverty. Sen (1996) had also analysed pooled time series and cross-section regression for explaining inter-state variations in rural poverty. He exhibited that the relative food price variable was the

most important in terms of its impact on poverty, followed by state development expenditure and agricultural output per capita. In one of the recent studies, Panda (2006) had found that the poverty-reducing effects of agricultural income growth were not robust. Aggregate growth in terms of overall GDP per capita has a more significant effect on poverty reduction in the rural areas. The above discussion shows that there are several dimensions which influence the rural poverty. In fact, different sets of determinants have emerged during different periods to influence poverty in India. Numerous factors could influence rural poverty, directly or indirectly. The role of AgNSDP per capita of rural person, rural literacy, and real rural wages have been examined to understand their impact on poverty reduction of farming and agricultural labour households. The regression results are given in Table 7.

TABLE 7. DETERMINANTS FOR REDUCTION IN POVERTY OF FARMING AND AGRICULTURAL LABOURS HOUSEHOLDS

(*per cent*)

| Dependent variable : Farmers' poverty | | |
|---|---|---|
| Exploratory variable<br>(1) | Coefficient<br>(2) | Standard error<br>(3) |
| Agriculture NSDP per person (Rs.) | -0.97634* | 0.147938 |
| Rural literacy (per cent) | -0.31561** | 0.157547 |
| Rural wages (Rs.) | -0.19775* | 0.068741 |
| Constant | 12.90185 | 1.285675 |
| $R^2$ | 0.7152 | |

*Source*: The authors' estimates based on data from NSSO and CSO, Government of India. * and ** Significant at 1 and 5 per cent level respectively.

The log-linear regression model was chosen based on the significance of the regression coefficients and goodness of fit. All the explanatory variables have been found significant and have the expected plausible signs. The significant negative coefficient of AgNSDP per capita has suggested that the improvement in agricultural performance is associated with substantial reduction in rural poverty, indicating that the benefits of growth in agriculture have trickled down to the rural poor and the growth has been inclusive. The agricultural productivity, an indicator of real agricultural growth, has played an important role in poverty reduction in rural areas as indicated by its higher elasticity for poverty reduction. With one per cent growth in per capita agricultural output, the poverty would be reduced by 0.97 per cent. The agricultural growth can be achieved through strategic and accelerated public investment in infrastructure and education (Kumar *et al.*, 2004). However, agricultural growth alone will not be sufficient to substantially reduce the incidence of rural poverty. Wages are the major source of rural households and improvement in wages would significantly reduce the poverty of rural households. Therefore, the rural development programmes that have direct or indirect influence on the living conditions of farming and landless labour households should be accorded a considerable importance in the Twelfth Five-Year Plan to ensure inclusive growth.

Literacy helps people in many ways. Appropriate education and capacity development enable the individuals to take advantage of the labour market opportunities and income generating prospects. It also enhances the level of awareness and skills to explore opportunities in the more lucrative sectors and thus help reduce the rural poverty. A significant negative association between poverty and literacy suggests that the education plays an instrumental role in rural poverty reduction, asserting for greater investment on human resource development in the rural areas for inclusive growth.

## IV

## CONCLUSION AND POLICY IMPLICATIONS

In spite of several efforts and interventions by the government departments, national and international development agencies and civil societies, the rural poverty continues to persist in India. The study has clearly brought out the importance of agricultural productivity, farm wages, and rural literacy. The continuing primacy of agriculture as the primary source of employment, particularly in the Indian rural economy calls for considerable improvement in agricultural productivity. For increasing agricultural production and accelerating productivity, especially the total factor productivity (TFP), the need for raising public investment is well documented. There is an urgent need for substantial increase in public investments in irrigation, rural infrastructure (roads and power), research and development, etc. Further, the spread of agricultural growth to less-developed regions would lead to an increase in the overall agricultural growth as well as a reduction in the rural poverty in the country. Policy measures like land reforms, enhanced rural credit, and greater public investment are the important instruments to promote agricultural growth in less-developed regions. The level of literacy has turned out to be one of the most significant determinants of rural poverty. The higher level of illiteracy and lack of skills among the majority of rural people are serious constraints to their socio-economic development and are acting as barriers for accelerated reduction in poverty. There has been serious attempts in recent years, through a series of flagship programmes to address these issues and encouraging progress has been achieved, in some parts of the country. These efforts have to be continued, broadened and enhanced to achieve the desired outcome. An adequate provision for public expenditure on poverty reduction programmes must be made. Besides, emphasis on increasing the efficiency of public expenditure and strengthening of the social safety net programmes (like MNREGS, ICDS, NFSM, etc.) must be accorded high priority in the Twelfth Five Year Plan. Policies that can sustain and enhance social expenditure levels and be effective for the poverty reduction in the rural areas should be vigorously pursued.

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