

# Household Characteristics, Employment and Poverty in India<sup>×</sup>

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## Abstract

This paper assesses empirically the employment poverty nexus in India. For this purpose, we investigate macro and micro-economic relations between employment and poverty. The focus is on the household and employment determinants of poverty for households at three time points, 1983, 1993/94 and 1999/2000. We use probit models to investigate the influence of industry, employment status and education level on poverty. We do the analysis for rural and urban areas separately. The results confirm the important role of employment for poverty reduction. Nevertheless, having employment in certain industry groups does not help the poor to reduce their poverty risks. Low educational levels of the workforce are the major impediment for more substantial poverty reduction. We find that employment status of a worker is also an important determining factor in poverty reduction. The use of multiple rounds allows the comparison of poverty determinants over time. We find that certain industry groups have become less pro-poor over time.

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<sup>×</sup> This work was done during the first author's Visiting Fellow position at NADEL, ETH Zurich and we would like to thank NCCR North-South for the financial assistance and NADEL for the logistics.

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## **1. Introduction**

This paper analyses the interplay between household characteristics, the labour market and poverty. The focus is on the conditions that lead to pro-poor employment. The labour market is central in poverty reduction; because labour is the major asset the poor possess (World Bank: 1990). The importance of labour markets for poverty has long been recognised in the development theories, which were based on the assumption that industrialization would absorb the surplus labour from the traditional sectors and lead therefore to higher wages and positive effects on welfare (Lewis: 1954). However, it has become clear that development and employment generation is much less structured than the early theories predict. For instance, the service sector has expanded much stronger than manufacturing in many developing countries, including India. As a result, the expansion of the industrial sector did not necessarily lead to reduction in poverty in India (Ravallion and Datt 1996). The productivity and the welfare effects of the employment opportunities that are generated in the course of economic expansion are not always clear. A substantial share of these occupations is as self-employed, including many petty activities of extremely low productivity. Similarly, even where absorption of surplus labour has happened, the increase of wages from this structural change might be very slow due to unemployment and under-employment.

This paper explores empirically the employment-poverty nexus in India. For this purpose, we investigate macro and micro-economic relations between employment and poverty. We investigate in detail the conditions under which employment reduces the poverty risk and how these relationships evolved over time. The objective of this paper is therefore to analyze whether economic growth generates an increase in productive sectors that provide opportunities to poor workers, or whether growth is concentrated in sectors that are not accessible to the poor.

## **2. Review of Empirical Studies**

A recent focus of research in development economics at the macro-level is the relations and interactions between economic growth, poverty reduction and human development (Dollar and Kraay, 2002; Klasen, 2004; Kraay, 2006; Ravallion, 2001; Ravallion, 2004; Ravallion, 2005). These studies give extensive evidence for the fact that growth is a necessary but not sufficient condition for poverty reduction. It is not

sufficient because the impact of growth on poverty (the so-called elasticity of poverty with respect to growth) is influenced by the initial inequality and the development of the inequality over the growth process (Ravallion, 2005). Similar studies for India relate the differences in the impact of economic growth on poverty to initial inequalities in variables like literacy, health and infrastructure (Datt and Ravallion, 1998; Ravallion and Datt, 2002; Gupta and Mitra 2004). These studies show that the poor in states with more favourable initial conditions benefited more from the subsequent growth process. Similarly, Bertranou and Khamis (2005) use the poverty decomposition method to see whether growth in Argentina between 2001 and 2004 has been pro-poor across various employment status and industry groups. They find that certain labor intensive and low-skilled sectors helped in generating employment and reducing poverty. However, inter-sectoral movements had a decreasing effect on poverty. These studies provide important insights on macro-economic determinants of poverty, but do not help to understand the micro-economic determinants of poverty as it is difficult to model household characteristics at the macro level.

At the micro level the interplay between economic development, labour markets and poverty has been studied using household surveys, wherein poverty profiles are constructed for a variety of household characteristics. Poverty profiles have been used to understand the importance of a variety of factors and an extensive review is provided in Lipton and Ravallion (1995). Some of the micro studies focus on employment as the main determinant of poverty. Gaiha (1988) develops an analytical framework for rural India comprising of village-specific, technological, and household-specific variables, which includes employment variables. His analysis shows that the poverty reducing effects are largely from village specific variables of development, new technology and education. And, the impact on poor in different occupational group varied depending on the initial conditions. A study for Côte d'Ivoire (Grootaert, 1997) focuses on the influence of household endowments in determining poverty, showing that the most important asset of the poor is labour. Bertranou and Khamis (2005) also explore the link between poverty and labor market characteristics at the individual level in the context of the recent economic crisis in Argentina. Apart from the household specific and demographic variables they include the economic sector variables in their model and find that if the household head was employed in manufacturing, construction, retail trade or hotels and restaurants, the probability of being poor increased in most time

periods. Though these sectors are dynamic and growing, they are labor intensive with low wages, which does not help them to reduce poverty.

The International Labour Organisation (ILO) carried out a series of micro studies using household surveys on the nexus between growth, poverty and employment, and investigated empirically the link between poverty and employment in a number of developing countries<sup>1</sup>. Most of the studies use probit models to study the relationship between general household level characteristics, labour market characteristics and the probability of the household being poor (Sundaram and Tendulkar, 2002; Huong and Minh, 2003; Jemio and Choque, 2003; Kabananyuke, Krishnamurthy and Owomugasho, 2004). A major finding of these studies has been that if either the household head or a member of the household is engaged in non-farm sector then it helps the household to reduce the risk of poverty.

Lanjouw and Stern (1991) use different surveys between 1957/58 and 1983/84 to study the development of poverty in the village of Palanpur. They find that low caste households and households that depend on agricultural labour are especially vulnerable to poverty. In addition, landless and widow-headed households are more likely to experience poverty. Their panel study allows them to investigate whether mobility out of agricultural labour takes place and they find that mobility is very low.

Dubey et al (2001) analyse whether town size has an impact on the poor for two rounds of NSS surveys (1987/88 and 1993/94). They include labour market characteristics by analyzing separately the relationships for self-employed, regular wage earners and casual labourers. In addition they test whether the educational characteristics of the population living in towns of different sizes are the origins of the observed differences in poverty. The authors find that town size is negatively related to the risk of being poor and they attribute part of the difference to different education levels of the populations of towns of different sizes.

A much discussed question is whether bigger households have a higher poverty risk and studies have found a strong positive relation between household size and poverty<sup>2</sup> (Gaiha, 1988; White and Masset,

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<sup>1</sup> These countries include Indonesia (Islam: 2002), Vietnam (Huong, Tuan and Minh:2003), Bangladesh (Rahman and Islam:2003), Bolivia (Jemio and Choque:2003), Ethiopia (Demeka and Ferede: 2003), Comparative experience of East, South-East and South Asia (Islam, 2003). China (Khan: 2004), Uganda (Kabananyuke, Krishnamurthy and Owomugasho, 2004) Thailand (Krongkaew, Chamnivickorn and Nitithanprapas, 2006), Mozambique (Bruck and Broeck: 2006). (<http://www.ilo.org/public/english/employment/recon/poverty/publ.htm>)

<sup>2</sup> One of the reasons given is that poor live in larger households, composed of younger persons (Visaria:1980). This finding has been criticised with the argument that household consumption exhibits economies of scale, and that larger household

2003). A second question, which has gained attention, is whether or not women face a higher risk of poverty than men. It is difficult to answer this question for two reasons. First, it is possible that female poverty is due to intra-household discrimination, which is hard to measure. Second, female headed households and widows usually live in smaller households (Visaria, 1980; Dreze and Srinivasan, 1997). As household size is inversely related to per-capita consumption, it is possible that the smaller household size hides the effect of gender.

## **2.1. Differentiation from existing research**

Even though there are many studies on the determinants of poverty at the household level, none gives a complete picture of the relevant relationships and they focus on specific questions. We extend the literature on linkages between the labour market and poverty in several ways.

First, we give detailed evidence of poverty determinants of household and individual characteristics. Besides general characteristics, we focus on three dimensions of the labour market - employment status, industry and education. We show in detail the importance of these employment characteristics for poverty.

Second, we introduce a new methodological approach. The dependant variable, poverty, is measured at the household level, whereas the relevant independent variables like education and labour market status are individual variables, which are aggregated at the household level. An information loss due to the aggregation of individual variables at the household level is therefore inevitable. This method allows the inclusion of detailed individual characteristics.

Third, our analysis uses the Employment-Unemployment surveys spanning the period 1983-1999/2000, which provides data at the household level. This period represents on the one hand an era of high economic growth, structural change and substantial poverty reduction and on the other hand an era of rising disparities in dimensions like GDP, literacy, health and poverty. The inclusion of different time points allows us to analyse the consequences of these developments for the labour markets in a dynamic form. We use the same framework for both rural and urban areas.

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can be better off with the same per capita consumption than a smaller household. Ignoring these effects leads to overestimated poverty for larger households (Lanjouw: 2006; Dreze and Srinivasan, 1997). An additional reason for overestimating the incidence of poverty in large households is that larger households tend to have more children. This could imply smaller consumption requirements, which is not reflected in per capita measures of household consumption used for poverty estimates (White and Masset, 2003).

## 2.2. Methodology

The possible channel in the relationship between poverty and GDP growth is through the labour market. GDP translates into demand for labour with different characteristics in terms of skills. At the same time, individuals supply labour with different skill intensities. The matching of supply and demand leads to generation of employment. The resulting wage, and thus wellbeing, for the employed depends on the relative abundance of supply and demand of different skill intensities. In general, supply with high skills is scarcer, leading to higher wages.

The state interacts with the labour market through different channels. First it can directly intervene in the labour market, e.g. through regulations. Second, the State is responsible for education and therefore influences the characteristics of labour supply. Third, the state can also affect demand for labour. This demand can be direct, e.g. through employment programmes or indirectly through policies that affect GDP. In addition, the state is also a major employer of regular labour in many countries. These relations can be formalised in the following way.

$$\text{Poverty}_t = f(\text{Employment (GDP (t), Skills), Skills}) \quad (1.1)$$

This equation defines poverty as a function of employment, which is a function of GDP. The exact relation of poverty with employment and of employment with GDP depends on the skills of the worker. Ignoring the skills and focusing on the changes over time we get

$$dP(t) = df(.) / dEmp * dEmp / dGDP * dGDP / dt * dt \quad (1.2)$$

Equation (1.2) states that the change in poverty over time depends on three elasticities: The elasticity of poverty with respect to employment, the elasticity of employment with respect to growth (usually called employment elasticity) and the growth rate of GDP (which is actually the elasticity of GDP with respect to time).

In what follows we will analyse each of these relations separately. Economic growth and the relation between employment and GDP can best be studied on a macro level. To study the interaction of poverty and the labour market, we use micro household survey data.

### **2.3. Data**

Our study is based on multiple rounds of the Employment-unemployment survey along with Consumer Expenditure Survey undertaken by National Sample Survey Organisation (NSSO) every five years, covering all the Indian states. We use the three rounds corresponding to the years 1983, 1993/94 and 1999/2000. The detailed characteristics of all household members, including sex, age, caste/religion, marital status and relation with the head of the household, educational level, employment status, occupation and industry category, whether the household has received remittances are provided in the Employment-Unemployment Survey. The monthly per capita consumption expenditure that is used to classify the households into below and above poverty line<sup>3</sup> is obtained for the same set of households from the Consumer Expenditure Survey. The data for net state domestic product (NSDP) is from the Economic and Political Weekly Research Foundation (EPWRF 2003).

To facilitate the analysis, we aggregate the 14 industries classified under NIC (National Industrial Classification) to five industry groups with similar qualitative characteristics: agriculture (comprising forestry and fishing); manufacturing (including mining and electricity, water and gas); construction; services I (including trade, hotels and restaurants, transport, and personal services) and services II (including banking and insurance, communication and storage, real estate, business services and public administration). The categorisation of the service sector into two groups is justified on the basis of skill and capital requirements. Services I are largely low productive services, whereas services II consist of more modern, skill and capital-intensive services.

In addition, we classify education into five categories, illiterate; literate to primary; middle; secondary and higher secondary; and graduation and above. Finally, the employment status categories that we consider are self-employed, salaried and casual labour. The self-employed includes own account worker, employer and unpaid family worker; salaried worker includes regular salaried and wage employee; and the casual worker includes those worked as casual labour in public works or other types of works.

### **3. Macro-economic Dynamics and Employment in India**

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We have taken the state level poverty line cut-offs for the years 1983, 1993-94, and 1999-2000 for both rural and urban area. For the state-wise poverty line details see Table A1 in Dev and Ravi (2007).

The main focus of this study is on microeconomic relationships between employment and poverty. For that purpose we will use household survey data. The analysis of the household survey will give the microeconomic relationships, conditional on the macroeconomic conditions. There have been major macroeconomic changes in the Indian economy during the last two decades, the period of our study. In order to understand the role of these changes for the employment-poverty nexus, this section investigates macroeconomic determinants of employment. We focus on major developments that are likely to affect the labour market.

During the 1980s, GDP grew at 5% per annum, much below the growth rate of other Asian economies. Per capita growth rates are more important for welfare than aggregate growth rates. Table (1) gives the state-wise per capita growth rate of GDP for the 1980s and 1990s. Per capita GDP growth in India was 3.1 and 4.1% in the 1980s and 1990s, respectively. This positive development masks the substantial inter-state variation. Some of the states like Kerala, Maharashtra, Tamil Nadu, Karnataka, Gujarat and West Bengal experienced high growth rates in the 1980s and their per capita growths accelerated in the nineties. Conversely, there are a group of states, which had higher growth rates in the 1980s, (Bihar, Haryana, Orissa, Punjab, Rajasthan and UP) and they experienced a slowdown in the 1990s. In Assam, the growth rates were low in both decades.

This rise in growth rates has also been accompanied by a decline in poverty in many parts of India, which have led many to argue that high or stable growth rates have led to such reductions. There is a huge debate about the extent of poverty reduction due to economic growth, especially for the 1990s<sup>4</sup>. There is ample discussion on this aspect in the literature. However, most of the research is without any explicit link to employment (Palmer-Jones and Sen, 2006; Gupta and Mitra, 2004; Ravallion and Datt, 2002), except for some who argue that high growth rates, in turn, generate sustainable productive employment

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<sup>4</sup> There have been certain changes in methodology in the official consumer expenditure surveys in 1999-2000 (the National Sample Surveys) which form the basis for poverty estimates in India. These have made the recent survey data not strictly comparable with earlier estimates especially with regard to trends. The basic change was in terms of the reference period for a range of consumption items, from 30-days to 7-days and for certain infrequently purchased items (clothing, footwear, durables, educational and health care) from 30-days to 365 days. These changes apparently have the effect of increasing estimates of consumption, as is clear from the data referring to 1993-94. While this may be a more accurate reflection of actual consumption, it does mean that the data so derived are not comparable to data from earlier surveys (Sundaram and Tendulkar, 2003; Deaton and Kozel, 2005; Dreze and Deaton, 2002). This has been taken care for this analysis.



opportunities, which provide the only enduring solution to poverty eradication (Sundaram and Tendulkar, 2000; Khan, 2001; Krongkaew, Chamnivickorn and Nitithanprapas, 2006 ).

The acceleration in growth was not equally shared by all sectors. Table (2) gives the sector wise growth rates for the 1980s and 1990s. To facilitate the comparison with the later analysis, we have aggregated the sectors into five industry groups as mentioned before. Growth rates were high in both decades, especially for services II and manufacturing. Except for manufacturing and Services II, growth accelerated in all the other sectors during the 1990s. The decline in the growth rate was stronger for manufacturing than for Services II. Services I observed a high growth rate in the nineties and there was a substantial growth in the construction sector. The growth rates of agriculture were lower but still substantial at around 3%. Growth rates of the modern sectors were much higher than in the agricultural sector, which shows a shift in the structure. Table (3) shows the shares of GDP and employment of the different sectors.

The sectoral composition of value added in India over the last two decades shows a strong shift away from agriculture to services sector. At the same time manufacturing experienced only a marginal rise in the nineties. Within services, the sectors comprising services II experienced higher growth. Nevertheless, the share of services I, which includes many of the low productivity sectors, also observed an increase. This growth pattern has led to an increase in opportunities in the services sector in both the high-end and low-end. There is clear shift away from the earlier development process where countries moved from agriculture to industry to services, and this debate is well-documented (Kumar and Mathur, 1996). The divergence from the Kuznet's historical pattern in the nineties is not peculiar to India and can be observed in many other developing countries (Dasgupta and Singh, 2005).

However, the declining importance of agriculture is not reflected in the labour market. In 1999/2000, the overwhelming majority of persons were still employed in agriculture, reflecting slow structural change in employment. In 1999/2000, the share of agriculture in GDP reduced by 6 percentage points than in 1993/94, while the share of workers reduced by 3 percentage points implying increasing differences in productivity between sectors. The sectoral shift in terms of employment is clearly from agriculture to services I. Besides services, construction has increased its share. In the case of manufacturing, the share fell marginally during the nineties.

The employment elasticity measures the extent by which changes in GDP cause employment changes. It is an important indicator for the pro-pooriness of economic growth. We compare the elasticities in the

periods 1983-1993/94 and 1993/94-1999/2000 (Table 4). The overall elasticity increased slightly between these two periods. This was the consequence of the increase in all the elasticities except manufacturing<sup>5</sup>. The already low elasticity of manufacturing in 1983-1993/94 decreased further and was only 0.15 in the period 1993/94-1999/2000. The elasticity in construction sector, increased from a high 0.97 to 1.69, which contributed to worsening income inequalities as this sector was already a poverty-stricken one. There is no optimal value for employment elasticities. The elasticity of employment with respect to growth is the inverse of the change in productivity. Therefore, high elasticities imply strong employment generation through growth but also indicate low productivity and therefore low wages, which can lead to increasing income inequalities.

Dev (2002) considers elasticities around 0.5 to 0.6 to be sufficient under Indian conditions. Taking this into consideration, we find that manufacturing in 1993/94-1999/2000 created only few employment opportunities. The low elasticity indicates that the gains from growth accrued to the already employed. Conversely, growth in construction between 1993/94 and 1999/2000 created a large number of low-productivity employment. The exceptionally high elasticity of construction is the result of employment generation programmes in addition to a boom in public and private construction that India experienced in the 1990s<sup>6</sup>.

The problem with the comparison of employment elasticities is that we cannot assess which development was more pro-poor. On the one hand, it is possible that the productivity gains in manufacturing translated into higher wages for workers belonging to poor households. Under this condition, the development in manufacturing would have been pro-poor, even though only little employment was generated. On the other hand, if the expansion in construction would lead to an employment expansion of poor worker, the development in construction would clearly be pro-poor. These limitations points to the importance to use micro data to understand the nexus between employment and poverty.

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<sup>5</sup> Bhalla (1997) argues "that much of the spectacular collapse of employment elasticities in the manufacturing sector can be traced to the substantial restructuring of the industrial sector that took place in the eighties. Segments like capital goods and consumer durables, where production processes are characterized by low labour intensity, grew the fastest, while more highly labour intensive lines of production, such as cotton textiles, grew slowly or actually contracted. In addition both domestic and foreign demand shifted in favor of more sophisticated, higher quality goods. This tended to reduce labour absorption even within particular elements of the industrial structure." (p.218)

<sup>6</sup> Large governmental infrastructure projects like the National highway and also the boom in the housing sector due to easy availability of finance are responsible for the strong demand for private construction.

## 4. Household and Employment Determinants of Poverty

### 4.1. Probit model of Poverty

We are interested in the relationships of household characteristics, labour markets and poverty, which are difficult to model at the macro level. The standard approach with micro data consists in poverty profiles in the form of regressions of poverty measures against a variety of household characteristics. In India, poverty is measured using consumption expenditures from household survey data. We could therefore use per capita household expenditure directly as dependant variable in a regression with household characteristics as explanatory variable. Such a level regression would be in the form of

$$y_i = \beta x_i + \varepsilon_i, \quad (1.3)$$

where,  $y_i$  is the per capita household expenditure of individual  $i$ ,  $x_i$  are household characteristics and  $\varepsilon_i$  is the error term. We can estimate this equation by OLS under the condition that the error term and the regressors are not correlated.

An alternative approach is to define a binary variable  $p_i = 1$  if  $y_i/z < 1$  and  $h = 0$  otherwise.  $z$  is the poverty line, so the binary variable measures whether a household is poor or not. The probability that a household will be poor is  $P = \text{Prob}[y/z < 1 \mid x] = \text{Prob}[\varepsilon < 1 - \beta \mid x] = F(1 - \beta)$ , where  $F$  is the cumulative density function specified for the error term in the levels regression. This model can be estimated by probit or logit, depending on the assumption of the error term.

It is not clear which of the two approaches is preferable, as both have their respective advantages. The main advantage of the level regression is that it uses more information. The probit model pretends not to observe the  $y_s$ , but only the  $p_s$  and the vector of characteristics  $x_i$ . But in reality this is redundant as there is no latent variable that is measured in binary form. Ravallion (1996) point out that the reason for which level regression should be preferred is that it depends on weaker assumption about the error term than the binary model. Other authors who have used level regressions based on similar arguments include Datt and Joliffe (2005) and Appleton (1996).

In spite of the advantages of the level regression, the binary model has been widely used (Grootaert, 1997; Grootaert and Braithwhite, 1998; Jemio and Choque, 2003; Huong and Minh, 2003). An important disadvantage of the level regression is that it imposes constant parameters over the entire distribution.

The constant parameters bias the estimates if the poor face different constraints than the rich. In this case the effects of specific characteristics differ between poor and rich (Grootaert, 1997). Diamond et al. (1990) use a multinomial logit model to predict probabilities for income quintiles, conditional on personal and household characteristics. They show that for their US data the functional form restriction from level-estimates fits poorly<sup>7</sup>. The constant parameter restriction is not always a problem. Appleton (1995, 1996) finds that in the case of Uganda the poor are like the rich but without money, i.e. they have the same parameters in the regression. The conclusion is that the functional form depends on the specific case studied.

A second reason for using the binary model is that income and expenditure distribution data typically contains non-negligible errors (Gaiha, 1988). This problem is especially severe as income accrues individually but expenses and poverty is measured on the household level. The use of per capita expenditure as the dependant variable therefore infers a precision, which cannot be taken as granted. In such cases, it can be safer to analyze the probability of expenditures falling within a specified interval.

For these reasons we chose the probit models to investigate the importance of household and labour market characteristics for poverty. Other authors who have used binary dependant models for similar studies in India include, Dreze and Srinivasan, 1997<sup>8</sup>; Dubey et al, 2001; Gaiha, 1988; Lanjouw and Stern, 1991; Sundaram and Tendulkar, 2002.

#### 4.2. Definition of Variables

The poverty variable is a binary variable, and we are using monthly per capita household expenditure to define whether the household is above or below the poverty line for the various years. Our  $x_i$  consists of three types of variables, employment variables, variables of individual and household characteristics and additional control variables.

**Employment:** Employment differs in many dimensions. In our analysis we consider three dimensions: status, industry and skill intensity, i.e. the education of the worker. We distinguish three types of employment status: self-employed, salaried workers and casual labourer. In addition we also control for

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There are different ways to overcome this restriction of which the binary and the multinomial model are only two possibilities (for other approaches, see Grootaert and Braithwaite (1998)).

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They use both approaches.

unemployed household members who are seeking employment. We consider the industry of employment, aggregated to the five sectors as mentioned before.

**Individual and household characteristics:** The main individual variable is the educational level of workers. Characteristics, which are the same for all household members, include the social group (Forward Castes, Scheduled Castes, or Scheduled Tribes,<sup>9</sup> the religion (Hindu, Muslim and other), the amount of land owned per household member, and the household type. Household type gives the main source of income. In rural areas, NSS data distinguishes the following types: the main source of income could be from self-employed in agriculture, agricultural labourer, other labourer, self-employed in non-agriculture and others. In urban areas the household type are self-employed, casual work and salaried work. We also include a dummy variable, which measures whether the household receives remittances.

**Additional control variables:** We include a complete set of state dummies to control for unobservable heterogeneity between states.

**Aggregation of variables:** A major challenge of this type of analysis consists in relating individual variables like education and employment to welfare or poverty measures at the household level<sup>10</sup>. In one-way or another, information on individuals has to be aggregated to the household level. We have chosen the following approach. Although we aggregate to the household level, we take into consideration employment status, education level, and the industry in which the person is employed of all household members. For this reason, we use variables, which count the number of household members with specific characteristics in status, industry and education. In order to keep all the relevant information, we combine the five sectors with the three possible employment statuses, resulting in 15 sector-status combinations. In addition, we distinguish five education levels, leading to 75 possible combinations of education,

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<sup>9</sup> Scheduled Castes (SC) and Scheduled Tribes (ST) are communities that are accorded a special status by the Constitution of India. These communities were considered 'outcastes' and have traditionally been subject to extensive economic and social disadvantages and social exclusion. Forward Castes (FC) or upper castes are castes that are not classified as backward castes, scheduled castes or scheduled tribes by the Government of India.

<sup>10</sup> Studies often focus on the household head for variables like age, education and profession (Appleton, 1995, 1996; Sundaram and Tendulkar, 2002; Bertranou and Khamis, 2005). For education, another possibility is to take the highest education achieved by any household member (Gaiha, 1988), or to sum the years of education of all household members (Grootaert, 1997). To distinguish between different occupations, Grootaert (1997) takes the shares of income from different income sources. It is also possible to take the share of casual labourer on total workers as in Gaiha (1988). Sundaram and Tendulkar (2002) introduce a dummy that equals one if any household member is regularly employed. It is clear that all these approaches to aggregate individual characteristics rely on questionable assumptions and include a substantial loss of information.

industry and status. We also consider unemployed persons. For this purpose we introduce a variable for the unemployed who are seeking employment.

This approach allows using the information in terms of employment status, industry category and education of all working household members together with household welfare/ poverty measures. The relation of the individual occupation with the household welfare can be of three types: poverty reducing, poverty enhancing or neutral. In which category an occupation falls depends on whether the return of the occupation is high enough to increase expenditures for other household members as well.

Some occupations are of so low productivity that the participation of one household member increases the probability for the entire household being poor. In these cases, the occupation does not even pay the working member enough to lift their own consumption expenditures above the poverty line. Even though the individual is working, his presence reduces the probability that per capita household expenditures are above the poverty line. If an occupation just allows the working member to cover basic needs, the occupation will be neutral with respect to household poverty. In this situation, the coefficient in the empirical analysis will not be statistically different from zero. The ideal case is of course that an occupation is poverty reducing. In this case, the occupation earns more than what is needed to cover the basic needs of the working person and therefore increases the consumption of the other household members as well. Employment then reduces the probability of the household being poor.

### **4.3. Hypotheses**

Poverty profiles are to some extent explorative. Whether an individual or a household with a specific combination of characteristics ends up poor or not depends on the macro-economic situation and the kind of employment that the household members are engaged in.

The effect of education is the most straightforward. The education level and the poverty risk are inversely related. The more interesting questions with regard to education are therefore whether we find a difference in the effects of education between rural and urban areas and whether the relation between education, employment and poverty changed over time. A related question is which level of education is needed to be out of poverty with a high probability.

The expected effect of the employment status is not that clear. Compared to self-employed and salaried, the risk of being poor is highest for casual workers. The difference between self-employed and salaried is

not straightforward either. The self-employed include high-paid professions like doctors, IT professionals, but also petty activities like street vendors. Similarly, salaried workers constitute high-skill workers in Banking or IT and low-skill workers in trade or hotels and restaurants. However, this is not such a huge concern for the self-employed as only four % of them had higher education in 1999-2000. But for salaried, for 1999-2000 we find that 13 % of the salaried workers are illiterate and 22 % have higher education, The role of a specific industry is also not clear *a priori*. The general perception is that modern industries like manufacturing or services pay higher wages and therefore lower the risk of poverty. But we find that within these modern sectors also there are substantial differences in the occupational groups, the skill intensities and the wages. These differences are partly embodied in the respective status, but even occupations with the same status in the same industry can differ substantially depending on the education level of the employee.

#### **4.4. A Glance at the Data**

Table 5 gives the share of poor people in different sectors-status combination for the three rounds. As expected, casual labourers have the highest poverty incidence. Comparing salaried to self-employed, we find that the poverty incidence is lower for salaried. The only exception is salaried agriculture in rural areas.

The results for different sectors are quite mixed. Across industry, services II has clearly the lowest incidence of poverty, followed by services I in rural areas and manufacturing in urban areas. Agriculture and construction have the highest incidence in both rural and urban areas. When we compare the poverty incidence of sectors across status, these results change. Self-employed manufacturing for instance in both rural and urban areas, has a very high incidence of poverty, whereas salaried manufacturing is very low. Similarly, the incidence for agriculture in rural areas is not especially high for self-employed, but very high for salaried and casual labourers. Casual labourers in Construction and Services I sector in urban areas have the highest incidence of poverty. The tabulations show the sectors and status with a high unconditional risk of poverty. The econometric analysis will help to explore the importance of these factors, controlling for other influences.

## 4.5 Results from the Probit Analysis

Employment influences the likelihood of being poor through an interaction of educational level, status and industry. We will discuss the separate influence of each of these three factors in addition to the household variables in the sections below. Tables 6-13 present the probit model of poverty for rural and urban areas and for the three rounds, corresponding to the years 1983, 1993/94 and 1999/2000.<sup>11</sup> We estimate the model for all the years at once. This makes sure that we can compare the development over time. We control for factors other than household and employment characteristics by including dummies for the, 50<sup>th</sup> and 55th round.

An additional limitation of this data set as mentioned before is that the poverty levels of the 55<sup>th</sup> round, i.e., 1999-2000 are not strictly comparable to the earlier rounds due to the change in methodology. We would at the outset like to mention that we note this aspect in our research, and as we are mainly interested in a comparison of poverty risks across different industry groups we will be cautious while interpreting the results and comparing across the different NSS rounds.

### 4.5.1. Estimated Probit Model: Rural Areas

**Household Characteristics:** Table (6) gives the marginal effects and the standard errors for the control variables over time for rural areas for the years 1983, 1993-94 and 1999-2000. The household characteristics that we have taken into consideration are household size, household type, remittances, social group, sex of the head of the household, per capita land ownership and dependency ratios. The analysis shows that the two variables HHsize and HHsize<sup>2</sup> have coefficients with opposite signs and both are statistically significant. This suggests that the probability of household being poor increases with the size of the household. The squared term is negative and significant, indicating that the negative effect of household size decreases for bigger households. But the squared term is so low that the maximal impact of household size on poverty is for household size of 13, and the proportion of such households are low.

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<sup>11</sup> We have dropped the 1987-88 round from this analysis, as 1987 was an abnormal year, with many parts of the country suffering a severe drought. Though it is interesting to see how the labour market adjusted to the drought situation, the comparisons with the other three rounds are unclear. The results for the year 1987 can be obtained from the authors.



The results are almost similar across the different years and there is not much difference. These results are consistent with empirical studies undertaken for the earlier period (Gaiha, 1988).

The dummies for the 50<sup>th</sup> and 55<sup>th</sup> round show that the overall probability to be poor decreased over time. The dummies catch the change in poverty due to factors other than household and employment characteristics, for which we control in our study.

The reference household type is self-employed non-agriculture. Compared to this household type, the probability that a household is poor rises if the main source of income is from labour. The probability increases for all types of labour but is stronger for agricultural labour than for casual labour in non-agricultural activities. The poverty risks increase for casual labour households in non-agricultural activities by 11% compared to 16% for such labour in agricultural activities in 1999-2000. Cultivator households face the lowest risk of poverty. The advantage of self-employed agriculture decreased over the entire period from 1983 to 1999-2000. The probability of agricultural labour households being poor increased from 11% in 1983 to 16% in 1999-2000. We find that the relative position of other households improved in the period from 1993-94 to 1999-2000, but was not significant. The results for household types clearly show that households, depending on casual labour both agricultural and non-agricultural activities, have a substantially higher poverty risk and the effects increased during the 1990s.

It is widely believed that remittances<sup>12</sup> to rural areas play an important role in reducing poverty. Nevertheless, our results show that remittances played a role to tackle poverty in rural areas in the 1980s but not in the 1990s. The limitation of our data is that we can only capture whether a household is being remitted or not, but not the value or quantum of remittances from migrants. Kundu and Sarangi (2007) analysing the 1999-2000 data observe that the migration rate is high (23.3%) for the upper strata of society and (4.3 %) for the lowest class in rural areas. It seems therefore that poverty is not the key factor for migration and this is probably the reason why we do not find any statistically significant effect of remittances on poverty in the nineties.<sup>13</sup>

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<sup>12</sup> Data on remittance incomes are available only at a micro level from field surveys, which suggest that the utilization of remittance income is largely for consumption, repayment of loans and meeting other social obligations. Evidence on investments is mixed, whether it is used for housing, land and consumer durables and working capital requirements in agriculture. (Srivastava and Sasikumar, 2003).

<sup>13</sup> It needs to be further noted that remittances are only one form in which resource flows occur as a result of migration, the other being savings brought home by migrants in cash and kind.

Female-headed households face a higher probability of being poor. This is the case even though we control for labour market characteristics in addition to household size, household composition, education and land holding. These are channels usually used to explain differences in the poverty risk for men and women (Appleton, 1996). Our results indicate that women face an additional disadvantage, which cannot be attributed to any of the independent variables. Besides wage discrimination, the double burden that female heads of household face is probably responsible for differences in earning possibilities, which does not help them to reduce the risk of poverty.

The female-headed households are often relatively small with no other adult helper at home. In these households, the female heads have to fulfil household chores in addition to work, which reduces their flexibility in the labour market (Buvinic and Gupta, 1997). The fact that women bear a disproportionately greater burden of household survival in poor working class households actually exacerbates their burden (Kalpagam, 1994). The results very clearly indicate that the female headed households face a higher probability of being poor, though one observes a marginal decline (1%) in the effects over the nineties.

In rural areas, land ownership significantly lowers the likelihood of being poor. Sundaram and Tendulkar (2002) observe that the effect is significant but not very strong. Their finding is very similar to ours, where a doubling of landholdings reduces the probability of being poor by as little as 2 per cent. Dependant household members significantly increase the probability of being poor. We measure dependence in two ways - the child-woman ratio and the share of household members who are above the age of 65 years. The child-woman ratio measures the drain on the household income caused by children who are non-working members and also the adverse effect children can have on the employment opportunities of women. As women have to look after the children, they become more restricted in their employment. We find that the child-woman ratio causes a positive increase in the risk of being poor with the effects increasing by 1% in the nineties. This is despite the fact women often carry children to their places of work and the fact that the younger siblings and joint family system allows flexibility for women to undertake productive work (Gaiha, 1988).

Besides children, elders also depend on other family members for their expenses. In the absence of any social security benefits or pensions, the elder depend on their families once they stop working. The marginal effect shows that the presence of persons above 64 years significantly raises the risk of poverty

for the household with not much change in the nineties (5.4%). The effects have declined quite substantially from 1983 (7.9%).

**Influence of Social Groups:** The reference variable here is the forward castes (FC) and the analysis shows that compared to FC, belonging to Scheduled Castes (SC) and Scheduled Tribes (ST) significantly raises the risk of being poor. The marginal effects remain mostly constant over time for the SC (7.5%), but the effects have increased for ST households from 15% in 1993-94 to 22% in 1999-2000. The positive marginal effect of ST household is around double that of SC<sup>14</sup> and the effect is almost three times of SC in 1999-2000. These groups face a disadvantage even though we control for employment and individual characteristics. These results are similar to Thorat (2006) who observes from the NSSO data that the underemployment rate among SC workers is high and the daily wage earnings tend to be on the lower side, largely due to the occupations that they engage in. The high disadvantage of ST households would need further exploration. With regard to religion, the reference variable is the Hindu household. The Muslim households face a higher risk of poverty compared to Hindu households, though the effects are not significant for all rounds. It is interesting to observe that their marginal effects are much lower than that of SC and ST households. Households with other religions are able to reduce their risk of poverty by 2.7% in 1999-2000.

**Labour Market Variables:** Tables 7, 8 and 9 give the marginal effects for rural poverty. To understand the importance of structural changes, we also include the share of workers with the respective status-sector-education combination on the total workforce. In order to facilitate the comparison of the effects of employment across status and education and over time, we present the results by industry. As we will show, the important comparisons are across status and education. The rows represent the different employment status, self-employed, salaried and casual for each industry group. Inside each status, the different education levels are presented. This facilitates comparisons between employment status and education for a specific industry. The columns provide the results for the different rounds of NSS and

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<sup>14</sup> The 55<sup>th</sup> round distinguishes also between Other Backward Castes (OBC) and Forward Castes (FC). Including OBC in the analysis for 1999-2000, we find that the risk of being poor for OBC households is higher, although the increase in the poverty risk is only around half that of SC. Mohanty (2006) in his analysis on social inequality and labour market dynamics reaches a similar conclusion.

allow comparisons over time. All estimates include state dummies, which we will not present here. The results give the change in the probability of a household being poor for each household member with a certain education, within a certain industry and with a specific employment status.

**Agriculture:** Agriculture is an important sector in India, employing 75 % of the rural workforce, of which 55 % are self-employed, 43 % are casual labourers and the remaining are salaried. The poverty risk decreases for households with self-employed workers with above primary education. However, households with casual labourers do not lower the risk of poverty even if they have higher levels of education. For the households with salaried workers poverty risk reduces with above middle level education.

The marginal effects for the self-employed agricultural households decrease over time. In 1983, for all levels of education other than illiterates there was a stronger negative impact on poverty. However, the effect begins to decline in 1993-94 and the decrease is much more pronounced in 1999-2000. That is, to have the same reduction in the risk of poverty, the worker must have a higher education. For example, households with self-employed workers in agriculture with middle level education in 1993-94 had a stronger negative impact on poverty (5.8%) than self-employed in agriculture for education levels till secondary, which was only about 4.9% in 1999-2000.

Agriculture engages a large proportion of casual labourers and we observe a marginal increase in casual labourers in the nineties. The marginal effects for households with casual labourers increase in the nineties, especially at lower levels of education. The households with casual labour in agriculture are quite vulnerable in rural areas. Our finding contrasts the much discussed argument that the decline in the number of casual labourers below the poverty line has been due to the high growth in real wages in agriculture (Sundaram and Tendulkar, 2002).

The proportion of salaried workers in agriculture is on a decline over the period, largely due to legislations, which have abolished bonded and attached labour systems. About 2.3 % workers were salaried in 1983, and this has declined to 1.1 % in 1999-00. Attached labour in agriculture partly reduces the risk of poverty, although the effect is weakening in the nineties, especially for those with lower levels of education. In the eighties salaried workers irrespective of their level of education could reduce the risk of poverty from 2 to 16% and this changes tremendously in the nineties. Workers with above middle level

education are able to reduce their risk of poverty between 9 to 20%. It is probable that the nature of salaried workers in the sector has changed in the nineties.

**Manufacturing:** The manufacturing sector in the rural areas is very small. Only about 8 % of the rural workforce is engaged in it, most of them being self-employed (53 %). The impact on poverty for households with self-employed workers in manufacturing sector is quite mixed. In general, education helps in reducing the risk of poverty, but it is not essential to have higher levels of education. The eighties very clearly show that the risk of poverty is reduced at all levels of education except for illiterates. However, in the nineties we find that even at higher levels of education the effects are not significant.

Households that have salaried workers in the manufacturing sector are the most beneficial. Having a salaried manufacturing worker in the household significantly lowers the probability of being poor, even for illiterates by 12% in 1999-2000. The proportion of salaried workers is however, very low at 2 %. The reduction in poverty is true across the different years and the most recent years observe a reduction in effects. Being engaged in the manufacturing sector as a casual labour also lowers the probability of being poor for the household, though the effects are not always significant. There is a decline in the proportion of casual workers engaged in manufacturing sector who are illiterate or have primary education. However, the share of casual workers with higher education level is increasing. A comparison across employment status shows that in some cases the poverty risk is lower for households having casual labour rather than self-employed in manufacturing, especially in 1999-2000. It is possible that an important share of self-employed manufacturing is of low productivity in the rural areas.

**Construction:** This sector in the rural areas employs 4 % of the workers with a majority of them being engaged as casual labour (75 %). There has been a marginal increase in the number of workers in this sector over the years. The role of construction sector (rural public works) in reducing poverty is well known (Nayyar, 2002). However, the character of the sector has undergone a change from largely public works in the eighties to huge infrastructure projects in the nineties. The sector is labour intensive but not skill intensive. Our results show reduction in the risk of poverty but they are not significant for most of the employment status and education levels. In 1999-2000, households having self-employed workers in construction helped in reducing the risk of poverty only at primary (7%) and middle level education (12%). The proportion of salaried workers in construction by 1999-2000 was negligible and there is no significant impact in reducing poverty. However, for households with casual workers in this sector we find reduction

of poverty only for those who participate with middle level education. The results for casual labour shows an irregularity in 1999-2000, as it reduces the risk of poverty for workers with middle level education (4%) but is insignificant for those with secondary and above education. It is difficult to find an explanation for this counterintuitive result.

**Services I:** Services I sector absorbs about 10.2 % of the rural workforce in 1999-00 and there has been an increase of one percentage point in this sector since 1983. The majority of these workers are self-employed (67 %) and the remaining are engaged as salaried and casual workers. The services I sector largely include low productive tasks, requiring low levels of skills and capital. The sector has been able to absorb the surplus labour from agriculture and has also helped in reducing poverty. The effect on poverty clearly depends on the education level and over time, the effect on poverty declines. Households having self-employed workers in this sector were more effective in reducing poverty between 1983 and 1993-94, compared to 1999-2000. This could be due to over-crowding as the skills and capital that is required is low and there are no entry barriers (Banerjee and Duflo, 2007; Unni and Rani, 2004). The marginal effect of participation as self-employed worker in services I in 1993-94 was much higher than in 1999-2000. The effects have declined by 5 percentage points for middle and higher education levels, while at primary education level it is not poverty reducing. This clearly shows that the sector has acted as a sponge absorbing surplus labour from agriculture and also reducing poverty. The expansion of the service sector to reduce poverty has also been observed by others (Sundaram and Tendulkar, 2002; Bhalla, 2001).

For households having salaried workers, this sector has been pro-poor over time for all education levels. However, the impacts are much lower in 1999-2000 compared to the earlier rounds in reducing poverty. Households having casual workers in services I do not face a lower poverty risk in the 1990s, independent of education. This is despite the fact that real wages of rural manual and non-manual workers in non-agriculture have grown during the nineties. In the 1980s, households with casual labourers having middle and above education level were able to reduce their poverty risks.

**Services II:** About 3.4 % of the rural workforce are engaged in Services II, which is mainly a high productive sector not providing much entry for poor households. This industry group has not been able to absorb a substantial proportion of workers from agriculture. Most of the employment in services II is as salaried workers (94 %) with strong negative effects on poverty. The high negative impacts on poverty in rural areas for the salaried workers in the early nineties was actually due to the introduction of various

programmes like Integrated Child Development Scheme (ICDS) and Anganwadis (crèche cum school for little children) by the Government, which required minimum higher education for employment (Bhalla, 2001). This sector also has a negative impact on poverty for self-employed with high levels of education. For the self-employed, the negative impact on poverty in 1993-94 was much higher than in 1999-2000. The result for the casual workers in this industry group is very unclear.

#### **4.4.2. Estimated Probit Model: Urban Areas**

**Household Characteristics:** Table (10) gives the marginal effects and standard errors for the control variables over time, 1983 to 1999-2000 for urban areas. The results for urban areas are comparable to that of rural areas. We find again a decrease in the poverty risk taken up by the round dummies. The size of the household has a stronger adverse affect on poverty in urban areas than in rural areas in the nineties. A reason could be the high cost of living in the urban areas even for minimum consumption needs, which makes them vulnerable. The rural households are not adversely affected as they have some home production. This apart, the rural agricultural base allows the possibility to integrate a number of activities thus reducing the risks, which is not the case in urban areas. In urban areas even if work is available where family members can contribute the payments to such work are too low to reduce the risk of poverty (Rani and Unni, 2004).

The definitions of household types for urban areas differ from rural areas. The reference household type becomes households whose main source of income accrues from self-employment. Compared to these, households that have their main income source from salaried employment are less likely to be poor. The risk of being poor increases substantially for households depending on casual labour, and the effect is quite high at 19% in 1999-2000.

Remittances in urban areas show that it helps the poor households to reduce poverty and the effect increases by 4.9% in 1999-2000. The 1999-2000 migration data reveals that 'short-term migration opportunities in urban areas are being cornered by the well-off sections' and that the mobility is not that high among the poor as middle class households (Kundu and Sarangi, 2007: 302). The author also suggests that poor households in urban areas (towns) are likely to send out one or more of their adult members to other locations (cities), to improve their earnings, which in some sense corroborates with our

results for 1999-2000. As observed in rural areas, female-headed households in urban areas also face a higher probability (8%) of being poor. There is some probability for female-headed households in rural areas to possess some land or get gainful employment. The same is not true in urban areas, increasing their risk of poverty. It is often difficult to find employment with better remuneration making them vulnerable. The high cost of living in urban areas further exacerbates their situation

The dependency ratios increase the risk of poverty substantially more in urban areas than in rural areas. Sundaram and Tendulkar (2006) show that the work force participation rates for females in poor households are higher despite higher child woman ratio and dependency burden in the urban areas. Most often, in the absence of support systems in urban areas, women are restricted to undertake economic activities within their home, which reduces their employment alternative (Unni and Rani, 2005). The marginal effect of elderly dependence also increases the risk of poverty substantially in urban areas (9%) than in rural areas (5%) in 1999-2000. These differences indicate that the welfare cost of dependant household members is higher in urban areas. It is probably easier in rural, agricultural settings to productively integrate additional household members, including elder and children, into household production.

**Influence of Social Groups:** The reference groups are again forward castes (FC) and the results are very similar to that observed in rural areas. Compared to FC, belonging to Scheduled Castes (SC) and Scheduled Tribes (ST) significantly raises the risk of being poor in urban areas. The disadvantage for ST is comparatively stronger in urban areas<sup>15</sup> but the effects are lower than in rural areas. The disadvantage of scheduled castes and tribes households in urban areas is not surprising as most of them migrating from rural areas end up in low end jobs, which are low paid, irregular and their contracts are very insecure due to their low educational levels (Unni and Rani, 2001) The last decade has seen a rise in communal violence in the urban areas, which again has had an adverse effect on the SC and ST households as they become easy targets<sup>16</sup> (Varshney, 2002), and they often loose their employment and assets making their

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<sup>15</sup> The same is true if we distinguish also for OBC in 1999-2000.

<sup>16</sup> Communal riots are essentially a urban phenomenon as only 4 percent of the deaths since 1946 has actually been in the rural areas. Varshney (2002) observes that 'most political parties have become cadre-based, while some work towards integration of society, the civic activity of others are much more disruptive. Their aim is Hindu unity, across various castes not Hindu-Muslim unity' (p.245). The lower caste communities are already struggling for economic space dominated by



conditions pathetic. This is not restricted just to these groups but is also true for Muslim households where we find a substantially stronger risk of households facing poverty in urban areas compared to rural areas. The Muslim household being vulnerable is brought out by a number of other studies also<sup>17</sup> (Hariss-White, 2003; Breman, 2003; Unni, 2006). It is interesting to observe that the other religions in urban areas are able to reduce their risk of poverty, which to a large extent could be attributed to their rise in education levels, which strengthens their economic base.

**Labour Market Variables:** Tables 11-13 present the marginal effects for urban areas. We present the results again by industry with the rows representing the employment status and education levels for each industry.

**Agriculture:** Even in urban areas 7.5% of the urban workforce is in agriculture. Half of them are self-employed the other half casual. Whereas self-employed with high education decrease the probability of poverty for the household by 24% in 1999-2000, the presence of casual agricultural labourers in urban areas has a very strong adverse effect.

**Manufacturing:** Manufacturing is the second largest sector in the urban areas employing 24 % of the workforce in 1999-2000. This proportion has declined by five percentage points since 1983. About 50 % of the workers are engaged as salaried, 35 % as self-employed and the remaining as casual workers. The difference in the effects of participation in manufacturing on poverty between rural and urban areas is striking. In rural areas, households with workers in manufacturing sector reduced the risk of poverty much stronger for a given level of education. In urban areas, the marginal effects are substantially lower for the salaried and the risk of poverty for households is not reduced for workers with education below secondary. The importance of education is clearly visible, especially for the self-employed and salaried workers. Relatively high education levels are needed to be productive enough to escape poverty.

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upper castes, and at times of depression they come under severe stress. "Due to the manipulations of the Hindu fundamentalist elements, the minority community becomes a convenient target on whom society's ire can be turned" (Unni, 2006: 255.). This could be one of the reasons why often these communities despite their attempts at improving their asset-base become easy targets and are unable to come out of poverty.

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Hariss-White (2003) argues that the process of fomenting communal riots is "most likely in urban areas where Muslims have visibly accumulated or benefited from remittances, where Hindu social and physical spaces are being asserted or reclaimed..." (p.151-2). Breman (2003) argues that the rise of intermediate castes and classes has proved a menace for the society and polity; and it is the ambitions, frustrations and fears of the rising castes that is used effectively by fundamentalist parties like BJP successfully. In this whole process the worst sufferers are minority Muslim community and the disadvantaged groups.

Across status groups households having self-employed or salaried workers with secondary or higher levels of education face a reduced risk of poverty. There is no change in this trend since the eighties. In the eighties households with salaried workers were able to reduce their risk of poverty even at low levels of education, while the same was not true for self-employed workers. However, households with casual labour in the manufacturing sector were unable to reduce the risk of poverty at any level of education, which speaks of the low quality of employment that they are involved in. In the nineties, the low effect of manufacturing is disturbing from a poverty perspective. The marginal effects decrease substantially, especially from 1993-94 to 1999-2000 across all status groups. Manufacturing was certainly less pro-poor in 1999-2000 than in 1993-94.

**Construction:** The construction sector in the urban areas employs 8.3 % of the workforce and the proportions have increased by 3 percentage points since 1983. Interestingly, the entire increase in the proportions was in the casual labour category. Construction plays an important role in urban areas, with a high proportion employed as casual labourers (70 %). There has been a policy focus on urban infrastructure in the 1990s, which included large funds from international donors. In addition, the national policies towards urban housing, especially cheap housing loans and tax incentives have given a boost to this sector resulting in a large proportion of middle class investing in the sector. This led to creation of gainful employment for a substantial number of low skilled workers. The growth of the construction sector in the 1990s also revived the manufacturing sector and gave a boost to the economy. We observed earlier in Table 1.4 that employment in construction increased by 6.1 % and 8.7 % in the period 1983 to 1993-94 and 1993-94 to 1999-2000, respectively. We also mentioned that the high elasticity of employment with respect to GDP probably implied the generation of very low productive employment. The issue remains whether the sector has been poverty enhancing or poverty reducing.

Across status groups we find that the proportion of salaried labourers in this sector is small (8 %) so the distinction is actually between casual and self-employed workers, with the latter being clearly superior. For the self-employed, construction is the second sector with strong negative effects on poverty ranging from 9% for those with middle level education to 36% for those with higher education levels in 1999-2000. The effect is neutral up to primary and then becomes negative and statistically significant. Compared to the 1980s, the effects for self-employed on poverty are weaker in the 1990s. For the households with casual labour in this sector, there is no reduction in poverty at any level of education. The total effect of

construction on poverty is only minimal, the reason being that construction is the smallest non-agricultural sector. In addition, 70 % of the workers in this sector are casual labourers, for which we do not find negative effect on poverty in any year.

**Service I:** Service I is the most important sector in the urban areas employing 42% of the workforce in 1999-2000, and the proportions have increased by six percentage points since 1983. A large proportion of the workers (55%) in this sector are self-employed and over the years the increase in this sector has actually been in this category. For households having self-employed or salaried workers in this sector, their participation reduced the risk of poverty only if they had secondary (10%) or higher levels of education (21%) in the nineties. Though in the early eighties even middle level education helped them to reduce the risk of poverty by 4%, this was not so in the nineties. The marginal effect decreased slightly over time. For households with casual labour in this sector there was no significant negative effect on poverty reduction at any level of education. Services I was more pro-poor in the 1980s than in the 1990s. The poverty risk of households with casual workers in this sector does not change much across the years and the effect is not poverty reducing except for high education levels in 1999-2000 for households with self-employed and salaried workers.

**Services II:** Services II employed 18 % of the urban workforce in 1999-2000, most of them being salaried (84 %). There was a decline in the proportion of workers in the Services II sector over the years by 2 percentage points, which was largely in the salaried category, probably due to restructuring of the workforce in the public and private sector. The decline started after 1983 but continues also between 1993-94 and 1999-2000 for all education levels, except higher education. Services II is the only sector that became more pro-poor in the 1990s, largely for households that had salaried workers in this sector. The marginal effects were high from middle education levels for the salaried category, which makes the sector important for employment. The developments for households with casual labour in this sector are not satisfying at all. Most casual labourers have rather low education levels, for which the marginal effects are usually positive. As these effects even increased between rounds, casual labourers are worse-off in 1999-2000 than in 1993-94.

## 5. Conclusion and Discussion

The macro scenario shows that growth rates accelerated in all the sectors during the nineties except for services II and manufacturing. Services I and the construction sector had high growth rates during the nineties with agricultural at a moderate 3 %. The manufacturing sector had a marginal increase in value added, but there was a decline in employment. In services II the increase in value added was not commensurate with the increase in employment. This could indicate that the increase in good quality employment was only marginal. Most of the increase in employment was observed in the construction sector with hardly any increase in value added. Services I showed an increase in both value added and employment, while there was a decline in the agricultural sector in both the value added and employment with the former being much faster.

At the micro level, the relationship between employment and poverty reveals the importance of employment status and education for poverty reduction in both rural and urban areas. The methodology adopted in this analysis tries to isolate the effects of labour market characteristics, employment status, industry and education of the worker to reduce poverty risks for the households. However, we do not always find clear effects for all status-industry combinations due to the concentration of workers in particular groups that is, certain sector-status combinations.

There are important factors that affect poverty, which we cannot explain with our model. The state fixed-effects and the round dummies make sure that they do not bias our results. The round dummies show that poverty declined over time due to factors not related to our employment measures. Direct redistributive government policies, other than employment programmes are a possible cause for this decline. With regard to employment, a factor, which is likely to be important and vary over time and across states, is the intensity of employment. We did not take into account these factors, as the main argument of this paper is that being employed alone does not guarantee protection from being poor.

Despite these limitations, we find that our results confirm the important role of labour market for poverty reduction. However, to be employed is no guarantee to escape poverty. We find that working household members with rather high education level are needed to substantially reduce the risk of poverty for households. The need for education is especially high in urban areas.

Across the status category households with salaried workers were better off than self-employed in most industries, except for agriculture and construction, in both rural and urban areas. The households with

casual labour were the worse off irrespective of the industry they were employed in. The findings show that in both rural and urban areas, the industries that are poverty reducing are the manufacturing and service II industries, but access to both sectors are restricted to few workers with high levels of education or better skills. In both these sectors, only if they are self-employed or salaried worker then they might be able to reduce poverty. The same is not true being a casual labourer even at a higher level of education. This means that education alone is not enough to reduce poverty risks but the status or structure of employment is as important. As many of these jobs get rationed the opportunities for workers to enter despite having the capabilities or the educational levels in some of these sectors become difficult. Service I industry, which observed high growth in employment has not been poverty reducing except at higher levels of education for the salaried and self-employed.

An interesting difference between rural and urban areas is that the effect of education is smaller in urban areas than in rural areas. With the same level of education, the probability of being poor is higher in urban areas. The lower coefficients are a reflection of the higher importance that education has in urban settings. The importance of education clearly comes out in the analysis as a major determinant of poverty in both the rural and urban areas. There are clear pay-offs from education in terms of job quality and improvements in the consumption levels.

The use of multiple rounds allows us to investigate the development of the effects on poverty of the different sectors over time. With very few exceptions, we find that the effect of a given employment status on poverty decreases over time. To have the same reduction in the probability of being poor, a higher level of education is needed in the 1990s than in the 1980s. The difference is especially strong between 1993/94 and 1999/2000. As the general education level is increasing, the payoff of a certain education level decreases. The problem of this development is that the situation of workers with low education further deteriorates.

The multiple rounds also allow us to investigate whether structural changes in employment lead to more employment in sectors, which have a high poverty impact. A type of structural change that has received attention in the literature is the shift from agriculture to other sectors. We find that the shift of workers is towards the low productivity service I and the construction sector. This structural change has unfortunately not brought about a substantial improvement in the welfare of the population or helped to reduce poverty. This is largely because the bulk of the total population (40 %) is illiterate and only about

6 % of the population has higher levels of education. This apart, the new jobs that are being created in the labour market are largely that of casual employment and self-employed in low productivity sectors, with a decline in regular or salaried jobs in high productivity sectors, thus increasing the polarisation between the high end and low end jobs.

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**Table 1: Per capita GDP Growth rates, 1980s, 1990s**

<b>State</b>	<b>1980s</b>	<b>1990s</b>
Andhra Pradesh	3.09	3.56
Assam	1.34	1.28
Bihar	2.38	0.64
Gujarat	2.97	6.05
Haryana	3.66	2.76
Karnataka	3.27	5.12
Kerala	1.71	4.52
Maharashtra	3.27	4.92
Madhya Pradesh	1.60	3.33
Orissa	3.14	1.99
Punjab	3.49	2.90
Rajasthan	4.04	3.20
Tamil Nadu	3.64	4.88
Uttar Pradesh	2.41	1.14
West Bengal	2.44	5.10
India	3.15	4.11

Source: Computed from CSO data, VariousYears

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**Table 2: Sector-wise GDP growth rates, 1980s and 1990s**

<b>Sector</b>	<b>1980s</b>	<b>1990s</b>
Agriculture, Forestry and Fishing	2.96	3.23
Manufacturing including mining, electricity, water and gas	7.53	6.78
Construction	3.73	4.87
Service I. Trade, Hotel and Restaurants, Transport, Personal Services	5.77	7.68
Service II: Communications, Storage, Finance, Real Estate, Computer, Research and Development and Public Administration	8.69	8.48

Source: Computed from CSO data, Various Years

**Table 3: Sector-wise share of GDP and Labour force**

<b>Industry</b>	<b>GDP</b>			<b>Labour Force</b>		
	1983	1993- 94	1999- 2000	1983	1993- 94	1999- 2000
Agriculture	38.7	31.0	25.0	67.3	64.1	61.0
Manufacturing	19.0	21.1	21.6	12.0	12.5	11.6
Construction	5.3	5.2	5.1	2.4	3.3	4.4
Service I	23.4	24.5	27.3	12.9	14.4	16.7
Service II	13.5	18.3	21.1	5.4	5.8	6.3

Source: Computed from CSO data, Various Years and Raw data, Various NSSO Rounds

**Table 4: Sectoral GDP growth, Employment Growth and Employment Elasticity, 1983 to 1999-2000**

	1983 to 1993-94			1993-94 to 1999-2000		
	$g_y$	$g_i$	$g_i/g_y$	$g_y$	$g_i$	$g_i/g_y$
Agriculture	3.26	1.18	0.36	2.61	1.29	0.49
Manufacturing	8.33	2.21	0.27	5.59	0.84	0.15
Construction	6.10	5.94	0.97	5.15	8.69	1.69
Service I	7.28	3.01	0.41	6.49	5.30	0.82
Service II	12.49	2.57	0.21	6.81	3.90	0.57
All	6.56	1.73	0.26	5.33	2.20	0.41

Source: Computed from CSO data, Various Years and Raw data, Various NSSO Rounds

**Table 5: Poverty Incidence Sector by Employment Status, Various Rounds**

	Sectors	Rural				Urban			
		SE	Sal	Casual	Total	SE	Sal	Casual	Total
<b>1983</b>	Agriculture	37.5	47.1	62.0	46.4	43.7	52.4	74.2	54.4
	Manufacturing	41.5	24.6	43.3	39.0	49.1	27.3	59.2	41.1
	Construction	34.1	31.7	50.2	46.1	41.4	24.6	61.0	51.4
	Services I	39.7	30.7	50.4	39.5	42.5	32.4	60.9	41.1
	Services II	22.9	18.9	38.7	20.1	21.7	19.2	46.9	19.9
	Total	37.9	30.5	60.0	44.6	43.8	26.2	63.7	40.1
<b>1993-94</b>	Agriculture	27.9	36.2	51.8	37.5	40.2	33.9	72.6	52.6
	Manufacturing	30.2	16.5	35.4	29.1	36.4	17.9	48.4	29.6
	Construction	23.7	17.7	38.1	35.2	25.1	21.2	53.9	44.4
	Services I	25.4	15.8	32.6	24.7	31.9	25.7	54.0	32.6
	Services II	14.0	9.4	23.2	10.2	14.0	10.7	43.5	11.6
	Total	27.8	16.5	49.4	34.9	33.5	17.8	57.3	31.5
<b>1999-2000</b>	Agriculture	24.5	33.5	47.1	34.0	41.1	30.4	72.3	53.1
	Manufacturing	31.6	11.3	28.2	26.6	38.1	17.1	45.9	29.0
	Construction	24.5	13.9	33.5	31.4	24.4	16.7	53.1	43.9
	Services I	24.6	15.2	32.4	24.3	31.0	23.1	52.5	31.0
	Services II	11.4	9.5	23.9	10.1	10.2	8.7	40.8	9.4
	Total	25.0	14.7	44.5	31.6	32.1	16.3	55.0	29.7

Source: Computed from the raw data of various NSSO rounds.

Note: SE- Self Employed; Sal: Regular salaried or wage worker; Casual: Casual worker

**Table 6: Probit Estimates for Rural Poverty for 1999-2000, 1993-94, 1983**

Household Variables	1999-2000		1993-94		1983	
	dy/dx	se	dy/dx	se	dy/dx	se
Household size	0,074**	0,0028	0,054**	0,0027	0,064**	0,0031
Household size <sup>2</sup>	-0,003**	0,0001	-0,002**	0,0001	-0,002**	0,0002
Reference Variable: HH Type Self Employed Non-Agriculture						
HH type: AL	0,161**	0,0124	0,130**	0,0136	0,114**	0,0139
HH type: CL	0,108**	0,015	0,119	0,017	0,057**	0,016
HH type: SE Agr	-0,025**	0,0099	-0,047**	0,0103	-0,053**	0,0108
HH type: Others	-0,012	0,0115	-0,009	0,0130	-0,037**	0,0128
Remittances	-0,009	0,0218	-0,031	0,0267	-0,065*	0,0336
Female head of HH	0,063**	0,0086	0,075**	0,0092	0,058**	0,0080
Reference Variable: Forward caste						
ST	0,220**	0,0084	0,151**	0,0088	0,184**	0,0086
SC	0,075**	0,0063	0,074**	0,0065	0,087**	0,0072
Reference Variable: Hindu Households						
Muslim	0,001	0,0070	0,013*	0,0077	-0,002	0,0084
Other Religions	-0,027**	0,0107	0,018**	0,0120	-0,016	0,0099
Per capita Land	-0,002**	0,0001	-0,002**	0,0001	0,000	0,0002
Child/women ratio	0,055**	0,0020	0,053**	0,0021	0,041**	0,0021
Old Age dependants	0,054*	0,0255	0,057*	0,0267	0,079**	0,0257
Round effect	-0,228**	0,0161	-0,090**	0,0181		
Sample size	372196		356340		61840	

Note: dy/dx – marginal effects; se- standard error

HH type- Household Type; AL-Agricultural labour; CL-Casual labour; SE Agr -Self-Employed in Agriculture; Others- Other Households

\*\* , \* indicates significance at 1% and 5% level.

**Table 7: Probit Estimates of Rural Poverty for 1999-2000, 1993-94, 1983 –Agriculture and Manufacturing**

Industry	Variables Employment Status	Education	1999-2000			1993-94			1983		
			dy/dx	se	%	dy/dx	se	%	dy/dx	se	%
Agriculture	Cultivator	Illiterate	0,048**	0,0037	18,9	0,068**	0,0034	22,1	0,021**	0,0034	25,3
		Primary	0,009*	0,0051	9,6	-0,014**	0,0050	11,1	-0,056**	0,0051	12,8
		Middle	-0,025**	0,0063	6,1	-0,058**	0,0069	5,3	-0,096**	0,0082	3,96
		Secondary	-0,049**	0,0072	4,7	-0,075**	0,0081	3,7	-0,142**	0,0132	1,67
		High Sec.	-0,084**	0,0156	0,8	-0,113**	0,0194	0,6	-0,139**	0,0369	0,26
	Salaried	Illiterate	0,043**	0,0162	0,6	-0,006	0,0178	0,7	-0,024*	0,0114	1,71
		Primary	0,073**	0,0223	0,3	-0,020	0,0316	0,2	-0,066**	0,0209	0,56
		Middle	-0,095*	0,0432	0,1	-0,025	0,0568	0,1	-0,072	0,0541	0,07
		Secondary	-0,159**	0,0536	0,1	-0,216*	0,1019	0,1	-0,165*	0,0534	0,05
		High Sec.	-0,209	0,1367	0,03	-0,142	0,1305	0,01			
	Casual Labour	Illiterate	0,037**	0,0040	22,2	0,053**	0,0042	23,2	0,043**	0,0041	21,81
		Primary	0,023**	0,0060	7,2	0,008	0,0067	6,7	-0,004	0,0065	6,2
		Middle	0,004	0,0094	2,6	-0,002	0,0116	1,9	-0,009	0,0137	0,96
		Secondary	0,000	0,0145	1,1	0,015	0,0191	0,7	-0,040	0,0327	0,2
		High Sec.	-0,079	0,0638	0,1	0,149*	0,0852	0	0,182	0,1328	0,02
Manufacturing	SE	Illiterate	0,057**	0,0086	1,9	0,031**	0,0107	1,9	0,008	0,0094	2,25
		Primary	0,002	0,0125	1,3	-0,046**	0,0138	1,5	-0,027*	0,0126	1,83
		Middle	-0,021	0,0177	0,6	-0,029	0,0188	0,6	-0,046	0,0240	0,42
		Secondary	-0,035	0,0220	0,4	-0,039	0,0257	0,4	-0,114**	0,0466	0,14
		High Sec.	-0,155*	0,0899	0,03	-0,116	0,0669	0,04	0,020	0,0889	0,02
	Salaried	Illiterate	-0,124**	0,0381	0,3	-0,047	0,0303	0,4	-0,056**	0,0211	0,46
		Primary	-0,084**	0,0312	0,5	-0,102**	0,0294	0,5	-0,077**	0,0205	0,69
		Middle	-0,167**	0,0346	0,4	-0,178**	0,0373	0,3	-0,191**	0,0364	0,28
		Secondary	-0,207**	0,0358	0,5	-0,275**	0,0439	0,4	-0,244**	0,0474	0,29
		High Sec.	-0,230**	0,0800	0,1	-0,292**	0,0890	0,1	-0,240*	0,0386	0,07
	Casual Labour	Illiterate	0,017	0,0140	0,8	0,011	0,0155	1,2	-0,010	0,0129	1,06
		Primary	-0,038*	0,0201	0,7	-0,025	0,0195	0,8	-0,011	0,0154	0,61
		Middle	-0,078**	0,0272	0,4	-0,054*	0,0308	0,3	-0,061*	0,0352	0,1
		Secondary	0,019	0,0375	0,2	-0,067	0,0485	0,2	-0,130*	0,0623	0,02
		High Sec.	-0,116	0,1058	0,02	0,0004	0,3670	0,001			

Note: dy/dx – marginal effects; se- standard error; % - Proportion of workers in that category;  
\*\*, \* indicates significance at 1% and 5% level.



**Table 8: Probit Estimates of Rural Poverty for 1999-2000, 1993-94, 1983 – Construction**

Industry	Variables		1999-2000			1993-94			1983		
	Employment Status	Education	dy/dx	se	%	dy/dx	se	%	dy/dx	se	%
Construction	SE	Illiterate	0,130**	0,0346	0,2	-0,037	0,0423	0,1	-0,075	0,0498	0,21
		Primary	-0,076*	0,0388	0,2	-0,068	0,0464	0,1	-0,018	0,0399	0,2
		Middle	-0,129**	0,0547	0,1	-0,047	0,0687	0,1	-0,065	0,0695	0,04
		Secondary	-0,083	0,0604	0,1	-0,177**	0,0743	0,1	-0,147	0,0735	0,03
		High Sec.	-0,128	0,1087	0,02	-0,364*	0,1722	0,01			
	Salaried	Illiterate	-0,108	0,0884	0,04	-0,057	0,0928	0,03	-0,049	0,0559	0,09
		Primary	0,010	0,0893	0,03	-0,019	0,1107	0,03	-0,109*	0,0633	0,09
		Middle	-0,147	0,1015	0,02	-0,247*	0,1144	0,03	-0,007	0,1053	0,03
		Secondary	0,009	0,1256	0,01	-0,057	0,1132	0,03			
	Casual Labour	Illiterate	0,036**	0,0126	1,4	0,047**	0,0145	1,1	0,018	0,0125	1,02
		Primary	-0,014	0,0170	0,9	0,023	0,0179	0,7	-0,034*	0,0206	0,46
		Middle	-0,041*	0,0218	0,5	-0,047	0,0305	0,3	-0,093*	0,0403	0,09
Secondary		-0,008	0,0310	0,2	0,062	0,0461	0,1	-0,064	0,0788	0,02	
		High Sec.	-0,097	0,1509	0,01						

Note: dy/dx – marginal effects; se- standard error; % - Proportion of workers in that category  
 \*\*, \* indicates significance at 1% and 5% level.

**Table 9: Probit Estimates of Rural Poverty for 1999-2000, 1993-94, 1983 – Service I and II industries**

Industry	Variables		1999-2000			1993-94			1983			
	Employment Status	Education	dy/dx	se	%	dy/dx	se	%	dy/dx	se	%	
Service I	SE	Illiterate	0,076**	0,0098	2,1	0,035**	0,0113	2,1	0,044**	0,0105	2,82	
		Primary	0,010	0,0112	1,9	-0,040**	0,0126	2	-0,047**	0,0131	2,59	
		Middle	-0,052**	0,0132	1,3	-0,115**	0,0160	1,1	-0,117**	0,0204	0,87	
		Secondary	-0,097**	0,0135	1,2	-0,150**	0,0182	0,8	-0,116**	0,0278	0,37	
		High Sec.	-0,164**	0,0304	0,2	-0,214**	0,0425	0,2	-0,191*	0,0835	0,08	
	Salaried	Illiterate	0,037	0,0302	0,3	-0,111**	0,0342	0,3	0,012	0,0255	0,37	
		Primary	-0,016	0,0268	0,4	-0,083**	0,0281	0,4	-0,052*	0,0234	0,54	
		Middle	-0,077**	0,0280	0,4	-0,149**	0,0335	0,4	-0,079**	0,0315	0,35	
		Secondary	-0,114**	0,0279	0,5	-0,209**	0,0360	0,4	-0,246**	0,0447	0,27	
		High Sec.	-0,368**	0,0947	0,1	-0,406**	0,1275	0,1				
	Casual Labour	Illiterate	0,063**	0,0154	0,6	0,014	0,0215	0,5	0,037*	0,0208	0,63	
		Primary	0,038*	0,0186	0,5	-0,017	0,0273	0,4	-0,036	0,0248	0,36	
		Middle	-0,005	0,0250	0,4	-0,069*	0,0381	0,2	-0,114**	0,0464	0,06	
		Secondary	-0,068*	0,0424	0,2	-0,012	0,0584	0,1	-0,140	0,0924	0,02	
		High Sec.	-0,001	0,1465	0,01				-0,010	0,3160	0,002	
Service II	SE	Illiterate	-0,008	0,1992	0,01	0,032	0,1705	0,01	-0,008	0,1336	0,02	
		Primary	-0,019	0,1802	0,02	-0,121	0,1092	0,03	-0,019	0,0997	0,03	
		Middle	0,048	0,0357	0,03	-0,359**	0,1516	0,02	0,048	0,1175	0,03	
		Secondary	-0,105	0,0510	0,1	-0,222**	0,0797	0,1	-0,105	0,0793	0,03	
		High Sec.	-0,106	0,0538	0,1	-0,189**	0,0788	0,1	-0,106	0,1510	0,01	
	Salaried	Illiterate	0,037	0,0420	0,1	-0,041	0,0416	0,2	-0,045	0,0335	0,37	
		Primary	-0,064*	0,0311	0,3	-0,085**	0,0312	0,3	-0,064**	0,0271	0,66	
		Middle	-0,141**	0,0280	0,4	-0,203**	0,0299	0,4	-0,157**	0,0254	0,73	
		Secondary	-0,229**	0,0187	1,4	-0,258**	0,0184	1,3	-0,238**	0,0189	1,73	
		High Sec.	-0,231**	0,0217	1	-0,283**	0,0235	0,8	-0,262**	0,0323	0,72	
	Casual Labour	Illiterate	0,140	0,1149	0,03	0,047	0,0868	0	0,105	0,0841	0,1	
		Primary	-0,147	0,1126	0,02	-0,041	0,1091	0	-0,119	0,0722	0,07	
		Middle	-0,033	0,0986	0,02	-0,152	0,0905	0	-0,030	0,0836	0,01	
		Secondary	-0,059	0,0861	0,03	-0,229	0,1729		0,024	0,1703	0	
		High Sec.	0,236	0,1997	0,01							
	Unemployed											
				-0,004	0,0100		-0,012	0,0111		0,003	0,0122	

Note: dy/dx – marginal effects; se- standard error; % - Proportion of workers in that category

\*\* , \* indicates significance at 1% and 5% level.

**Table 10: Probit Estimates for Urban Poverty for 1999-2000, 1993-94, 1983**

Household Variables	1999-2000		1993-94		1983	
	dy/dx	se	dy/dx	se	dy/dx	se
Household size	0,086**	0,0038	0,073**	0,0042	0,063**	0,0037
Household size <sup>2</sup>	-0,002**	0,0002	-0,002**	0,0003	-0,002**	0,0002
Reference variable: HH type – Self Employed						
HH type: Salaried	-0,050**	0,0097	-0,038**	0,0101		
HH type: CL	0,190**	0,0152	0,178**	0,0161		
HH type: Other	0,002	0,0129	-0,037**	0,0130	0,004	0,0096
Remittances	-0,049**	0,0156	-0,002	0,0180	-0,064*	0,0342
Female head of HH	0,080**	0,0109	0,094**	0,0109	0,096**	0,0114
Reference variable: Forward caste						
ST	0,116**	0,0167	0,066**	0,0175	0,110**	0,0181
SC	0,095**	0,0092	0,090**	0,0098	0,090**	0,0116
Reference variable: Hindu Household						
Muslim	0,029**	0,0080	0,052**	0,0084	0,044**	0,0089
Other Religion	-0,050**	0,0108	-0,042**	0,0108	-0,033**	0,0107
Child/women ratio	0,053**	0,0027	0,045**	0,0026	0,040**	0,0026
Old Age Dependents	0,098**	0,0308	0,119**	0,0324	0,094**	0,0360
Round Effect	-0.187**	0,0174	-0.100**	0,0188		
Sample size	227263		208375		208768	

Note: dy/dx – marginal effects; se- standard error  
 HH type- Household type; CL-Casual Labour  
 \*\*, \* indicates significance at 1% and 5% level.

**Table 11: Probit Estimates of Urban Poverty for 1999-2000, 1993-94, 1983 – Agriculture and Manufacturing**

Industry	Variables Employment Status	Education	1999-2000			1993-94			1983		
			dy/dx	se	%	dy/dx	se	%	dy/dx	se	%
Agriculture	Cultivator	Illiterate	0,073**	0,0119	1,46	0,071**	0,0108	2,24	0,031**	0,0090	2,38
		Primary	-0,003	0,0169	0,85	0,034*	0,0151	1,37	-0,018	0,0128	1,67
		Middle	0,022	0,0199	0,62	-0,023	0,0196	0,77	-0,007	0,0185	0,63
		Secondary	-0,069**	0,0215	0,63	-0,078**	0,0205	0,74	-0,102**	0,0266	0,48
		High Sec.	-0,240**	0,0450	0,25	-0,135**	0,0433	0,23	-0,082	0,0572	0,14
	Salaried	Illiterate	0,152**	0,0516	0,16	0,118**	0,0468	0,16	0,044	0,0360	0,32
		Primary	-0,177*	0,0785	0,09	0,096*	0,0589	0,17	0,173**	0,0506	0,17
		Middle	-0,021	0,0924	0,05	-0,009	0,1410	0,04	-0,116*	0,0552	0,07
		Secondary	-0,103	0,0871	0,06	-0,069	0,0845	0,06	-0,047	0,0791	0,06
		High Sec.	-0,201*	0,0480	0,04				0,042	0,1574	0,04
	Casual Labour	Illiterate	0,135**	0,0124	2,18	0,135**	0,0121	2,95	0,154**	0,0101	2,17
		Primary	0,082**	0,0219	0,7	0,078**	0,0182	1,1	0,141**	0,0174	0,84
		Middle	0,083*	0,0374	0,26	0,109**	0,0328	0,32	0,042	0,0372	0,14
		Secondary	0,023	0,0527	0,13	-0,003	0,0677	0,08	0,033	0,0926	0,03
		High Sec.	0,003	0,2527	0,01				-0,120	0,1191	0,02
Manufacturing	SE	Illiterate	0,122**	0,0129	2,02	0,096**	0,0115	2,26	0,073**	0,0108	2,3
		Primary	0,022*	0,0115	2,25	0,019*	0,0105	3,18	0,040**	0,0107	3,59
		Middle	0,004	0,0135	1,5	0,005	0,0144	1,68	-0,002	0,0154	1,29
		Secondary	-0,090**	0,0143	1,8	-0,128**	0,0161	1,77	-0,083**	0,0202	0,89
		High Sec.	-0,209**	0,0270	0,87	-0,249**	0,0328	0,68	-0,244**	0,0473	0,3
	Salaried	Illiterate	0,109**	0,0182	1,29	0,059**	0,0152	1,73	0,009	0,0134	3,09
		Primary	0,030*	0,0148	2,56	0,009	0,0131	3,36	-0,025*	0,0113	5,52
		Middle	-0,015	0,0154	2,28	-0,028*	0,0148	2,48	-0,074**	0,0143	2,9
		Secondary	-0,126**	0,0157	3,94	-0,155**	0,0145	4,11	-0,199**	0,0156	3,72
		High Sec.	-0,229**	0,0251	2,26	-0,274**	0,0247	2	-0,327**	0,0331	1,45
	Casual Labour	Illiterate	0,119**	0,0191	1,01	0,038**	0,0157	1,45	0,125**	0,0128	1,66
		Primary	0,063**	0,0176	1,19	0,026	0,0169	1,59	0,078**	0,0129	1,61
		Middle	0,013	0,0215	0,81	-0,014	0,0222	0,75	0,037	0,0240	0,58
		Secondary	0,007	0,0269	0,45	-0,068*	0,0355	0,38	0,051	0,0395	0,18
		High Sec.	0,115	0,1514	0,02	0,103	0,1100	0,02	-0,044	0,1037	0,002

Note: dy/dx – marginal effects; se- standard error; % - Proportion of workers in that category  
 \*\*, \* indicates significance at 1% and 5% level.

**Table 12: Probit Estimates of Urban Poverty for 1999-2000, 1993-94, 1983 – Construction**

Industry	Variables Employment Status	Education	1999-2000			1993-94			1983		
			dy/dx	se	%	dy/dx	se	%	dy/dx	se	%
Construction	SE	Illiterate	0,057	0,0367	0,36	0,124**	0,0422	0,32	0,072*	0,0324	0,57
		Primary	-0,040	0,0329	0,48	0,044	0,0351	0,41	0,097**	0,0373	0,54
		Middle	-0,098**	0,0415	0,29	-0,125**	0,0506	0,22	-0,146**	0,0593	0,18
		Secondary	-0,125**	0,0396	0,38	-0,132**	0,0419	0,31	-0,251**	0,0621	0,21
		High Sec.	-0,367**	0,0900	0,27	-0,441**	0,0996	0,24	-0,425**	0,1476	0,08
	Salaried	Illiterate	0,206**	0,0599	0,12	-0,004	0,0640	0,14	0,076	0,0495	0,17
		Primary	0,003	0,0677	0,15	-0,048	0,0614	0,13	0,083	0,0546	0,22
		Middle	0,066	0,0632	0,11	0,088	0,0542	0,14	-0,197**	0,0685	0,14
		Secondary	-0,197**	0,0689	0,2	-0,120*	0,0419	0,18	-0,167**	0,0578	0,17
		High Sec.	-0,328**	0,1070	0,14	-0,236**	0,0965	0,12	-0,215**	0,0194	0,13
	Casual Labour	Illiterate	0,072**	0,0119	2,48	0,071**	0,0134	2,31	0,133**	0,0160	1,49
		Primary	0,052**	0,0154	1,81	0,006	0,0173	1,44	0,089**	0,0204	0,94
		Middle	0,036*	0,0195	1,02	0,014	0,0253	0,56	0,010	0,0325	0,3
		Secondary	0,000	0,0292	0,44	-0,051	0,0403	0,24	0,108	0,1076	0,03
		High Sec.	-0,146	0,0670	0,03			0,02	0,007	0,2475	0,02

Note: dy/dx – marginal effects; se- standard error; % - Proportion of workers in that category  
 \*\*, \* indicates significance at 1% and 5% level.

**Table 13: Probit Estimates of Urban Poverty for 1999-2000, 1993-94, 1983 – Service I and II industries**

Industry	Variables		1999-2000			1993-94			1983		
	Employment Status	Education	dy/dx	se	%	dy/dx	se	%	dy/dx	se	%
Service I	SE	Illiterate	0,117**	0,0089	4,93	0,103**	0,0093	4,82	0,061**	0,0091	5,37
		Primary	0,022**	0,0089	5,13	0,010	0,0086	5,52	-0,002	0,0090	0,68
		Middle	-0,018*	0,0091	4,6	-0,009	0,0097	3,94	-0,042**	0,0111	3,45
		Secondary	-0,101**	0,0088	6,01	-0,106**	0,0096	5,19	-0,120**	0,0130	3,28
		High Sec.	-0,211**	0,0144	2,83	-0,215**	0,0166	2,14	-0,249**	0,0270	0,97
	Salaried	Illiterate	0,105**	0,0147	1,8	0,082**	0,0137	2,08	0,105**	0,0135	2,3
		Primary	0,070**	0,0129	2,88	0,029*	0,0126	3,03	0,070**	0,0119	4,05
		Middle	0,003	0,0134	2,87	-0,024*	0,0141	2,38	0,003	0,0140	2,62
		Secondary	-0,058**	0,0125	4,42	-0,111**	0,0141	3,32	-0,058**	0,0149	3,2
		High Sec.	-0,226**	0,0260	1,92	-0,247**	0,0283	1,35	-0,226**	0,0317	1,13
	Casual Labour	Illiterate	0,088**	0,0134	1,89	0,071**	0,0143	1,93	0,122**	0,0144	1,79
		Primary	0,053**	0,0152	1,51	0,023	0,0168	1,42	0,094**	0,0163	1,22
		Middle	-0,001	0,0182	1,06	-0,044*	0,0230	0,65	0,067	0,0292	0,27
		Secondary	-0,009	0,0265	0,49	0,075*	0,0346	0,34	0,012	0,0488	0,11
		High Sec.	-0,106*	0,0648	0,06	0,011	0,0996	0,03	-0,108	0,0936	0,03
Service II	SE	Illiterate	-0,018		0,04	0,126	0,1352	0,06	-0,018	0,0830	0,06
		Primary	0,084	0,0658	0,11	-0,088	0,0515	0,1	0,084	0,0551	0,17
		Middle	0,039	0,0409	0,23	-0,021	0,0495	0,16	0,039	0,0608	0,13
		Secondary	-0,176**	0,0255	0,66	-0,005	0,0301	0,43	-0,176**	0,0468	0,23
		High Sec.	-0,260**	0,0270	1,26	-0,276**	0,0343	0,27	-0,260**	0,0534	0,3
	Salaried	Illiterate	-0,037	0,0269	0,61	0,001	0,0275	0,6	-0,015	0,0220	1,13
		Primary	-0,031	0,0207	0,99	-0,020	0,0199	1,29	-0,045**	0,0166	2,61
		Middle	-0,093**	0,0203	1,39	-0,089**	0,0193	1,59	-0,056**	0,0155	2,78
		Secondary	-0,141**	0,0135	4,94	-0,158**	0,0131	5,35	-0,188**	0,0118	6,81
		High Sec.	-0,246**	0,0143	7,05	-0,273**	0,0143	6,73	-0,253**	0,0148	5,59
	Casual Labour	Illiterate	0,121*	0,0625	0,06	0,067	0,0970	0,06	0,066	0,0522	0,05
		Primary	0,054	0,0677	0,06	0,109	0,1047	0,07	0,025	0,0620	0,06
		Middle	-0,067	0,0709	0,07	0,034	0,0736	0,07	0,117	0,0719	0,06
		Secondary	0,033	0,0786	0,06	0,057	0,1025	0,06	-0,002	0,0914	0,03
		High Sec.				0,030	0,1622	0,02	0,435	0,3320	0,001
	Unemployed	0,005	0,0080		0,011	0,0081		0,017*	0,0084		

Note: dy/dx – marginal effects; se- standard error; % - Proportion of workers in that category  
 \*\*, \* indicates significance at 1% and 5% level.