

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/257303144>

Rural Poverty in Jharkhand: An Empirical Exploration of Socio-Economic Determinants Using High Frequency Panel Data

Article in SSRN Electronic Journal · October 2013

DOI: 10.2139/ssrn.2330844

CITATION

1

READS

295

6 authors, including:



K. M. Singh

Dr Rajendra Prasad Central Agricultural University Pusa

482 PUBLICATIONS 2,168 CITATIONS

[SEE PROFILE](#)



R.K.P. Singh

ICAR Research Complex for Eastern Region

132 PUBLICATIONS 842 CITATIONS

[SEE PROFILE](#)



Abhay Kumar

ICAR Research Complex for Eastern Region

156 PUBLICATIONS 573 CITATIONS

[SEE PROFILE](#)

Rural Poverty in Jharkhand: An Empirical Exploration of Socio-economic determinants using high frequency panel data

K.M.Singh¹, R.K.P.Singh², M.S.Meena³, Abhay Kumar⁴, Awadhesh K Jha⁵ and Anjani Kumar⁶

Introduction

Poverty has become a general phenomenon that is perceived to mean different things to different people at different times and places. Ogwumike (2001) defined poverty as a situation where a household or an individual is unable to meet the basic necessities of life, which include consumption and non-consumption items, considered as minimum requirement to sustain livelihood. Oguwumike (2001) and Odusola (2001) referred to poverty as a condition of deprivation which could be in form of social inferiority, isolation, physical weakness, vulnerability, powerlessness and humiliation.

In India, poverty reduction is one of the major objectives of economic development programmes. Though, India was the first country in the world to define poverty as the total per capita expenditure of the lowest expenditure class, which is required to ascertain a minimum intake of 2400 kcal/day in rural and 2100 kcal/day in urban areas. The same is converted into financial terms and the poverty line is defined as a minimum level of income or expenditure, which is periodically updated. The latest updated poverty line is Rs.356.30 in rural areas and Rs.538.60 in urban areas in 2004-05 (Planning Commission, 2007). There exists a substantial interstate and urban rural differential in the cost of goods and services. One in three Indians lives below the poverty line according to the Tendulkar Committee report which used a measurement of goods and services, rather than calorie intake, to calculate poverty. The World Bank estimates that 80% of India's population lives on less than \$2 a day which means a higher proportion of its population lives on less than \$2 per day as compared with sub-Saharan Africa. There has been no uniform measure of poverty in India. The Planning Commission of India has accepted the Tendulkar Committee report which says that 37% of people in India live below the poverty line.

World Bank (1994, p. 9) recognized that poverty is not only a problem of low incomes; rather, it is a multi-dimensional problem that includes low access to opportunities for developing human capital and to education. UNDP (1996, p. 27) commented, income poverty is only a part of the picture. Just as human development encompasses aspects of life much broader than income, so poverty should be seen as having many dimensions and accordingly developed the concept of human poverty. It observed that human poverty is more than income poverty: it is a denial of choices and opportunities for living a tolerable life (UNDP, 1997, p.2). According to Sen (1999, p. 87), 'real' poverty can be sensitively identified in terms of capability deprivation: deprivations that are intrinsically important, unlike low income, which is only instrumentally significant. Sen distinguishes between income poverty and capability poverty; and argues that the later is obviously more important. Capability poverty refers to deprivation of opportunities, and choices and of entitlements. Poverty is a widely

¹ Principal Scientist (Ag. Econ.) and Head, Division of Socio-Economics and Extension, ICAR-RCER, Patna-14

² Consultant, VDSA Project, NCAP, New Delhi-12

³ Senior Scientist (Agricultural Extension), Division of Socio-Economics and Extension, ICAR-RCER, Patna-14

⁴ Senior Scientist (Agricultural Statistics), Division of Socio-Economics and Extension, ICAR-RCER, Patna-14

⁵ Assistant Professor, Dairy Economics, SGIDT, Patna-14

⁶ Principal Scientist (Ag. Econ.), NCAP, New Delhi – On deputation to ICRISAT, Hyderabad

respected indicator of well-being, which is used to make comparisons of poverty over time and between spatial and social groups for the purposes of policy analysis. Several studies of Indian villages to determine why household's descent into poverty (Krishna 2004, Krishna *et al.*, 2005, Krishna 2006) find that in a majority of cases of decline into poverty, three principal factors are at work: health expenses, high-interest private debt, and social and customary expenses.

World Bank identified Jharkhand as one of the most poverty-stricken state in the country with a sharp contrast between rural and urban poverty. Jharkhand is blessed with abundant natural and mineral resources, cheerful and hard working human population of tribal origin with a rich cultural heritage and traditional knowledge. Out of a total geographical area of 7.9 million ha, nearly 2.6 million ha are cultivated, while 2.3 million ha (29% of total area) are under forests. The area under assured irrigation is less than 10 percent. Out of a total population of 27 million, 21 million (78%) live in villages, while about 6 million (22%) reside in urban areas. Nearly 49% of the population lives below the poverty line. Rural poverty is greater than urban poverty. The most important rural occupations are crop and animal husbandry, fisheries and agro-forestry. Jharkhand comprises 28 percent of tribal communities and therefore enjoys the status of a 'tribal state' in the country. About 60% of schedule caste and schedule tribes are still below poverty line. It may be said that agro-ecological and social factors are the main causes for rural poverty in Jharkhand. Poor infrastructure, difficult terrains, high population pressure on arable land, low coverage of irrigation, limited in-situ employment opportunities, social customs and traditions, natural calamities like drought are some of the factors that inflict poverty in the state. Bihar and Jharkhand are listed as the most insecure in terms of food and nutritional security (The world food program mapping). Evidence indicates that in Jharkhand about 2 percent of population suffer from acute and chronic hunger and 10 percent from seasonal food insecurity (National Sample Survey II).

Income based approach to poverty can not tell any thing about other forms of deprivations poor go through. Poverty is basically a denial of a range of material needs such as nutritious food, safe drinking water, shelter, healthcare, education, etc. Therefore, multidimensional poverty measures provide better understanding of the nature of poverty-at local, regional, national, and world level. The present study is a part of the ICRISAT-ICAR-IRRI collaborative project "*Tracking change in rural poverty in villages and household economies of South Asia*" being pursued in three states of Eastern India, namely, Bihar, Jharkhand and Odisha. It attempts to track and explore some of the important causes of rural poverty in the state of Jharkhand.

Poverty prospects in Jharkhand, India

Agriculture is the main source of livelihood for most of the rural people. About 70% of farm households own less than 1 hectare of farm land. However, average size of land holding in Jharkhand is comparatively higher (0.56 ha) than neighbouring states, but only 66% of land owned by farmers is under cultivation in sample villages, indicating abundance of culturable waste land. The state is rich in mineral resources and poor in agricultural production. More than 75% of work force is engaged in agriculture, but generates only 20% of state's GDP. About 45% area is under non-agricultural use and 32% is cultivable wastes which are unsuitable for agricultural production and only 23% area is under cultivation. Livestock is the second important economic activity on sample households, but the productivity is very low due to domestication of local and indescrpt breeds of animals. However, the distribution of land and livestock ownership is more equitable in Ranchi than in Dumka district.

The poverty scenario in Jharkhand taking into account the pre-partition poverty figures from districts falling under Jharkhand from undivided Bihar prior to year 2000 have been presented in Table-1. A

perusal of the poverty figures reveals that over time there has been a decline from 65.9 percent to 41.6 percent from 1993-94 to 2009-10. However this is still much higher than the all India average of 37.3 percent. A steady decline in poverty is evident from 14.3% during 1993-94 to 2004-05 to 10% during 2004-05 to 2009-10, however the over all decline in poverty during 1993-94 to 2009-10 was at 24.3% which was relatively higher.

Table 1: Population below poverty line in Jharkhand (%)

YEAR	Incidence of poverty
1993-94	65.9
2004-05	51.6
2009-10	41.6
DECLINE IN RURAL POVERTY	
1993-94 TO 2004-05	14.3
2004-05 TO 2009-10	10.0
1993-94 TO 2009-10	24.3
ANNUAL RATE OF DECLINE IN RURAL POVERTY (% PER ANNUM)	
1993-94 TO 2004-05	1.3
2004-05 TO 2009-10	2.0
1993-94 TO 2009-10	1.5

The spatial distribution of poverty in Jharkhand is shown in Table 2. It is obvious that there exists a huge inter-regional disparity in terms of incidence of poverty in the state. Except Dhanbad, which is mainly a non-agricultural economy, poverty is wide spread. About a two-third of the districts is constrained with more than 50% to 80% of the poor population.

Table: 2- Spatial distribution of poverty in Jharkhand

BPL (%)	Districts
80% AND ABOVE	Gumla, Simdega, West Singhbhum, Latehar
70-80%	Lohardaga, Seraikela, Kharsawan
60-70%	Ranchi, Dumka, Jamtara
50-60%	Deoghar, Pakur, Sahebganj, Garhwa
40-50%	Giridih, Koderma. Godda, Hazaribagh, Giridih
Below 40%	Bokaro (36.22%), Dhanbad (8.3%), Deoghar

Source: Annual Report 2004-05, Department of Food, Civil Supplies and Commerce, Government of Jharkhand pp.50.

In Jharkhand, about 92% of the cropped area is under paddy, wheat, maize, pulses and oilseeds (Niger, linseed and mustard). The productivity of crops is low and the deficit with reference to demand and supply is as high as 52% in the case of cereals, 65% in the case of fruits, 51% in the case of milk and 34% in the case of fish. Only one crop is taken during the kharif season in most parts of the state and current fallow and other fallow lands contribute 2.0 million ha (about 25% of the area). It is thus clear that accelerated agriculture development holds the key to poverty eradication and

employment generation in the state. The Government of India (GOI) placed in Parliament, in November 2007, a National Policy for Farmers which calls for a paradigm shift from a purely commodity centered approach to agricultural development to a human centered approach. The policy calls for 'improving the economic viability of farming by substantially increasing the net income of farmers and to ensuring that agricultural progress is measured by advances made in this income'. The economic wellbeing of the farming family should become the major goal of agricultural development strategies and programs. Only then, we will be able to eradicate the pervasive poverty and malnutrition prevailing in the country. The GOI has also initiated many programs for strengthening the farmers' livelihood and income security.

Poverty and Socio-Economic Indicators

Socio-economic indicators provide a background to understanding the poverty scenario in a country. These indicators provide data on education, gender, poverty, housing, amenities, employment and other economic indicators. These indicators for the country as well as states will help in identifying the linkages between socio-economic indicators and achievement of health goals. Gang *et al.* (2007) reveals that the incidence of poverty in Scheduled Caste (SC) and ST (Scheduled Tribe) households is much higher than among non-scheduled households. There is a non-linear relationship between age and poverty incidence across all three social groups, with the poverty rate increasing as we move from age group 20-29 to 30-39, and then decreasing for ages 40 years and above. Poverty increases with household size, highest poverty rates observed among households that have seven or more members. While literacy is negatively related to the incidence of poverty, the negative correlation between educational attainment and poverty incidence seems weaker for SC households as compared to ST and non-scheduled households. There was a higher incidence of poverty among agricultural laborers across all three social groups as compared to other occupations. The SC and ST households had a lower mean age for the head of the household and smaller (mean households size) as compared to non-scheduled households. A much higher proportion of SC and ST households were not literate compared with non-scheduled households. With respect to occupation, a majority of SC households (54 percent) were engaged as agricultural laborers, however this proportion is lower in ST households (44 percent) are agricultural laborers followed by non-scheduled households (38 percent).

In India, at national level, West Bengal and Kerala are cited as two successful cases of land reforms followed by states like Tripura and Karnataka. Under the tenancy reform in West Bengal, an estimated 1.6 m tenants were registered and given heritable rights over tenanted land. Half a million landless were given homestead land up to 5 cents each and under ceiling reforms, 2.5 m landless and land poor households were distributed land (Bandyopadhyay, 2003; Dasgupta, 2004).

Banerjee *et al.*, (2002) have carefully estimated the effects of tenancy reform (Operation Barga) on agricultural productivity. Their model, based on district disaggregated results for tenancy reforms, attributes 28% of the increased agricultural productivity in WB to reform. Since land reforms were weak and limited, substantial land owners remained at the apex of economic, social and political power in the rural areas, excluding the rural poor and the landless from participatory democracy. This continues to be the case even today and there are strong evidences that relatively improve the prospect of the poor participating in democratic processes (Srivastava, 2006). Education can very significantly influence both income poverty and capability poverty. Education is one such important opportunity, deprivation of which in itself represents poverty: poverty of education or education poverty (Tilak, 2002).

Fasoranti (2010) examined the effects of micro-credit scheme on poverty alleviation among rural dwellers and found that poverty was high among the economically active age bracket. The scheme had positive influence on major macro economic variables such as income savings, consumption expenditures and asset acquisition of respondents. The general perception of the people is that programme was primarily designed to favour the poor. Generally, the benefits from the programmes should be intensified by mandating beneficiaries to invest profits in economic activities.

A comparative analysis of rural poverty in farm and agricultural labour households revealed that poverty in agricultural labour households has been much higher than incidence of poverty in farm households during last two decades (Table-3). The decline in poverty was also higher in Agricultural Labour households (42.9%) than corresponding decline in case of Farming households(29.7%) during 1993-94 to 2009-10. The decline in poverty among agricultural labour was much higher (28.4%) than poverty decline among farm households (7.9%) during 2004-05 to 2009-10, mainly due to two drought years in Jharkhand during the period but the launching of MNREGA and large scale employment opportunities in construction work started by Government during the period helped increasing agricultural wages (Rs 66 to 104/per/day) and decline in their poverty in the state.

Table 3: Trends in incidence of poverty among farming and agricultural labour household (%)

Year	Farming Household	Agricultural Labour
1993-94	65.8	89.6
2004-05	44.0	75.1
2009-10	36.1	46.7
Decline In Rural Poverty		
1993-94 To 2004-05	21.8	14.5
2004-05 To 2009-10	7.9	28.4
1993-94 To 2009-10	29.7	42.9
Annual Rate of Decline in Rural Poverty (% Per Annum)		
1993-94 To 2004-05	2.0	1.3
2004-05 To 2009-10	1.6	5.7
1993-94 To 2009-10	1.9	2.7

The present study envisages analysing the nature, extent and severity of rural poverty across different household classes at selected villages in the state of Jharkhand. It also attempts to find out the determinants of poverty in the villages under study with the help of data obtained from four village's viz. Dubaliya, Hesapiri, Dumariya and Durgapur under the project entitled "Tracking change in rural poverty in household and village economies in Eastern India."

Data were collected from the sample households through panel interview method. Dubaliya and Hesapiri villages in Ranchi district represent relatively better socioeconomic conditions whereas villages Dumariya and Durgapur in Dumka district represent less developed economy. Forty households, 10 from each category of household's i.e. Labour, Small, Medium and Large were selected randomly in each of four villages, making a sample size of 160 households in Bihar. Data collection was started from July, 2010. Household level data relate to 2010-11.

The study considers a household poor if it's per capita per day income is less than USD 1.25. The income was worked out by considering purchasing power parity (PPP) between USD and Indian

Currency (Rupee) i.e; 1USD=Rs 14.67. Income data, pulled from various information schedules like Transaction schedule, Employment Schedule, Livestock Schedule and cultivation Schedule are computed to calculate per capita income of different categories of households under study.

Analytical Methods

The measures of poverty involves a) the specification of the threshold income level below which a person is considered poor (the poverty line) and b) construction of an index to measure the intensity and severity of poverty suffered by those whose income is below the poverty line. Sen (1976) has proposed several criteria that a poverty measure must satisfy to be able to assess the changes in social welfare whereas Foster et al (1984) proposed a class of poverty measures that are additively decomposable and that satisfy all the criteria for an ideal poverty measure. For this study, we used a method known as FGT index to measure the incidence of poverty (headcount ratio), intensity of poverty (poverty gap ratio) and severity of poverty (squared poverty gap ratio). To find out the determinants of poverty, affecting the probability of an individual being poor, we estimated a Probit model using poverty as a dependent factor-a binary (poor-1 and non-poor-0) and a set of agricultural and socio-economic variables as explanatory variables.

Village profile

The study is based on data collected from four sample villages that is; Dubaliya, Hesapiri, Dumariya and Durgapur. Villages Dubaliya and Hesapiri are comparatively developed due to their proximity to the state capital Ranchi, whereas Dumariya and Durgapur are less developed. Developed villages have relatively better infrastructure facilities in comparison to less developed villages. Agriculture is yet a subject to monsoon in all four villages. Less developed villages lack many basic amenities like telephone/ cell phone for communication, pump set for irrigation, etc. Table 4 present the socio-economic characteristics of the sample households in study area. A perusal of the Table reveals that among the four Jharkhand villages Durgapur had the smallest family size, while Hesapiri the largest at 5.9 members per household. Literacy among the villages also varied from 48.1 % in Durgapur to 64.6% in Dubaliya, which implied that size of family did have some correlation with levels of literacy in the state.

Table 4: Agro-economic Characteristics of Sample Villages, in Jharkhand

Particulars	Dubaliya	Dumariya	Durgapur	Hesapiri
Av.Size of family (in no.)	5.2	5.1	4.7	5.9
Education Level(% Literacy)	64.6	62	48.1	49.4
Per capita Land	0.4	0.2	0.3	0.4
Per pumpset cultivated area(acre)	7.4	12.7	0	45.1
Fertilizer (N+P) consumption(kg/acre)	6.9	33	9.7	0.1
Proportion of purchased seeds (%)	100	43.8	87.9	20.9
Electrified households	97.5	85	32.5	75

Dubaliya village among the four villages under the study, had highest number of households electrified (97.5%), purchased all their seeds from the market, but were poor in fertilizer

consumption (6.9 kg/acre) compared to Dumaria which though purchased only 43.8 % of their seeds, but were using the highest doses of fertilizers (33 kg/acre) among the studied villages. The area irrigated by pump set per household was highest in Hesapiri (45.1 acre), followed by Dumaria village, possibly due to its proximity to Ranchi town and the farmers were generally growing vegetables in this village.

Incidence of Poverty

The Rural poverty arises from a number of factors like low agricultural production, population increase, health hazards, low income, illiteracy, and lack of accessibility to natural resources, etc. (Ali, 2007). Inadequate employment opportunities, social hierarchy and systems also play a role in poverty. The multifaceted dimensions of poverty make measurement of poverty a daunting task. However a conventional method to measure poverty is to establish poverty line or the threshold level of income which is needed to satisfy the basic minimum food and non-food requirements, and count the number of people living below poverty line. In the present study, the poverty was estimated at annual per capita income of Rs 7867. This poverty threshold income was adopted to estimate and compare per capita income for the households under study for determining different poverty indices.

Analysis of household data of the sample villages highlights a high incidence of rural poverty ranging from more than 20 percent in Dubaliya to about 76 percent in Durgapur (Table 5). The percentage of poor household in Hesapiri (68.4%) and Dumariya (57.6%) clearly indicates the level of wide spread deprivation in the villages of Jharkhand. The lower level of poverty in Dubaliya might be due to larger size of land holdings, better road connectivity, higher level of education, and better employment opportunities in the village whereas the situation is just reverse in case of Durgapur village. The village wise comparison shows that the socio-economic and infrastructure development are likely to have substantial positive effect on alleviation of poverty. Hence, it may be inferred that the incidence of poverty is comparatively high in less developed village and it declines with increase in development indices of villages.

Table 5: Population below poverty line in Jharkhand (%)

Village	Labour	Small	Medium	Large	All
Dubaliya	26.8	0.0	18.6	35.1	20.4
Hesapiri	51.0	84.6	83.6	52.4	68.4
Dumariya	49.0	58.3	81.7	35.4	57.6
Durgapur	74.4	100.0	69.4	59.6	76.1

A further probe into the incidence of poverty for four groups of households viz. labour, small, medium and large, grouped on the basis of land owned by them, shows no distinct pattern of incidence of poverty among the selected villages. It emanates from Table4 that both the extreme groups that is, labour class households and large households were comparatively less poor in most of the villages than that of the other classes i.e., small and medium households. About 27 to 74 per cent population of labour households were poor according to the headcount measure. Incidence of poverty among large households was found to be ranging between 35 percent in Dubaliya to about 60 percent in Durgapur. Surprisingly, none of the small households in Dubaliya was found to be poor whereas in Durgapur all small households were poor. Hesapiri and Dumariya also had very large shares of poor small and medium class households. Land with lack of irrigation facilities and

production technologies compels farmers to go for subsistence farming that hardly generates any income to bring these small and medium farm households out of poverty. In contrary, programmes like MNAREGA have benefited the labour class households and reduced their proportion to some extent. It may therefore be asserted that provision of assured non-farm employment is imperative to mitigate the widespread poverty in the villages of Jharkhand as agriculture alone cannot alleviate the poverty. It would also be essential to generate location specific need based customized agricultural technologies for small and medium farm households who depend on agriculture and their middle class mentality does not allow them to opt for alternative employments like MNAREGA, etc.

As a matter of fact, these households suffer multiple deprivations and fall prey of chronic poverty that often leads to resourcelessness, choicelessness, insecurity, etc. Evidence indicates that the head-count measure of poverty is insensitive to the distribution of income among poor households and is incapable of measuring what has been happening to the intensity and severity of poverty (Sen 1976). The poverty gap index and the squared poverty gap index are used to capture these dimensions of poverty.

Table 6: Poverty gap index in selected villages in Jharkhand

Village	Labour	Small	Medium	Large	All
Dubaliya	2.2	0	0.9	10.9	3.5
Hesapiri	14.4	17.5	23.9	8.5	16.1
Dumariya	12.6	19	32.2	10.2	18.5
Durgapur	26	41.4	18	26.2	27.9

Poverty gap index measures the extent to which individuals fall below the poverty line as a proportion of the poverty line and expresses it as a percentage of the poverty line. It represents the mean proportionate poverty gap in the population. In study villages, the highest poverty gap index was found in Durgapur village (27.9%) where head count ratio was also highest (Table 6). Poverty gap index was least in Dubaliya where head count ratio was also the lowest. The poverty gap indices in Hesapiri and Dumariya were 16.1% and 18.5% respectively. The poverty gap indices of the sample villages indicate that the households in these villages fall below the poverty line to the tune of 3.5% in Dubaliya to 28% in Durgapur.

Poverty gap indices were also estimated for different categories of households of villages under study. Here also a mixed picture has emerged. Except Dumariya, it appears that intensity of poverty is more pronounced among small and medium households.

Poverty Severity Index

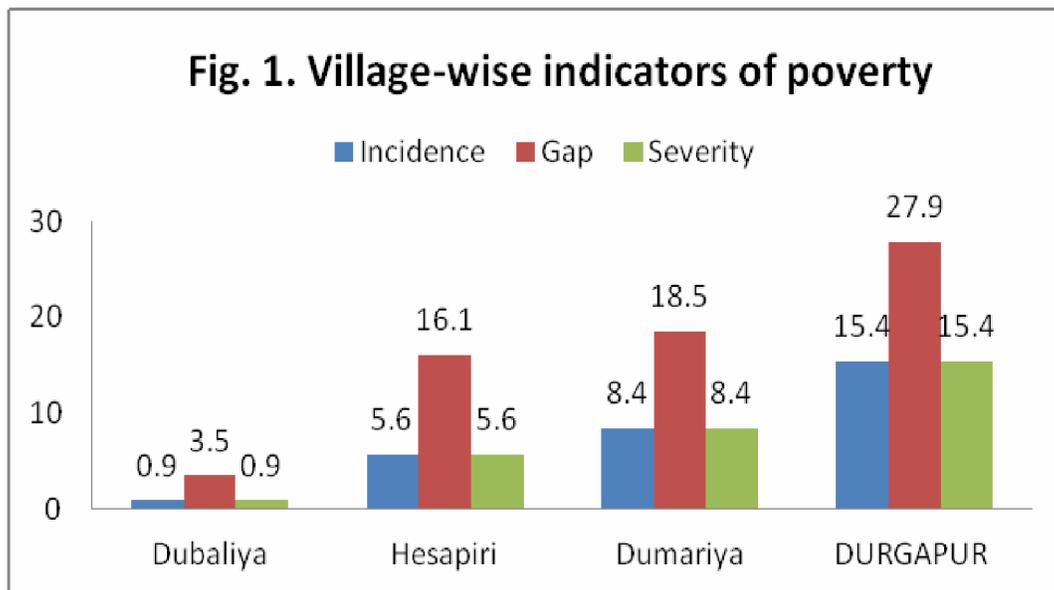
It measures the severity of poverty. It is measured as the square of poverty gap, divided by the population. It gives more weight to the poorest in contrast to poverty gap index that gives equal weight to all. It shows the depth of poverty. It takes into account not only the distance of poor separately from the poverty line (poverty gap) but also the inequality among the poor. The present study attempts to estimate the poverty severity for all four categories of households in villages under study to examine the severity of poverty. The estimated ratios are presented in Table 7.

Table 7: Severity of poverty (squared poverty gap) in selected villages in Jharkhand

Village	Labour	Small	Medium	Large	All
---------	--------	-------	--------	-------	-----

Dubaliya	0.2	0	0.1	3.3	0.9
Hesapiri	4.4	5.8	9.9	2.3	5.6
Dumariya	4.9	8.9	16	3.6	8.4
Durgapur	15.3	22.1	10.3	14.1	15.4

Among the villages under study, the severity of poverty was least (0.9%) in Dubaliya village whereas it was highest in Durgapur village (15.4%) of Jharkhand where incidence and depth of poverty were also comparatively high. The severity of poverty followed the same pattern observed in case of incidence and depth of poverty that is; higher the incidence and depth of poverty, higher the severity of poverty in the village (Figure-I).



Even in case of poverty severity, labour class households and large farm households appears to be comparatively less affected than that of small and medium classes. However, in general, the pattern of severity is apparently mixed here.

Determinants of Poverty

Of the several ways to conceptualise and operationalize poverty, the Indian state has narrowly defined poverty as income poverty. A poverty line represented by an income that commands a minimum calorie intake to individuals is first defined and then estimates are made of all those people whose income falls below this line. Although poverty was traditionally measured as lack of adequate income to have access to minimum basic needs of food and non-food commodities but it is now recognized as a multifaceted problem that includes income as well as non-income components of economy. In other words poverty may be defined as pronounced deprivation in well-being.

In terms of deprivation it connotes to lack of capability to fulfil many essential functions in human life. Apart from food, clothe and shelter a man needs education, health, sanitation and rural institutions (Tilak, 1993, Benerji, 2000, Janaiah et.al., 2000 and Kumari and Singh, 2009). Poverty is a social stigma and therefore it has received considerable attention in the development policies of the country. Efforts are being made to identify the critical factors that induce poverty and extinguish the

effect of poverty mitigation plans in India. Jharkhand, being one of the most opulent states in terms of availability of natural resources ironically harbours a huge proportion of poor and thus it is imperative that the critical determinants of poverty in the state be analyzed and studied for a larger impact of development programmes. To examine various factors that inflict poverty, an ordered Probit regression was undertaken. The dependent variable(y), being a binary variable to determine probability the poor family is coded as one (1) and non-poor as zero (0). The probit computes maximum likelihood estimates of the parameters. The positive sign of estimate means a direct relationship with the dependent variable while negative sign shows an inverse relationship.

Table 8 presents the generated co-efficient of the Probit model.

Table 8: Probit regression of Jharkhand

Dependent variable (Poor household - 1, Non-poor household – 0)				
Explanatory variable	Probit regression		Marginal effect ⁷	
	Coefficient	Standard error	Dy/dx	Standard error
Factors that pull out of poverty				
Earning member (no.)	-0.3499**	0.1421	-0.1393	0.0566
Average education (years)	-0.1862***	0.046	-0.0741	0.0183
Own land (acre)	-0.0209	0.0304	-0.0083	0.0121
Factors that push in poverty				
Family size (no.)	0.2571***	0.0771	0.1023	0.0307
Farm asset value (Rs.)	0.0000**	0	0	0
Average age (years)	0.0078	0.0126	0.0031	0.005
Share of farm income (%)	0.0091**	0.0042	0.0036	0.0017
Constant	-0.8052	0.6654		
No. of observation	150			
Pseudo R square	0.1747			
Prob > chi square	0			
Log likelihood	-85.532			

*** Significant at 1 per cent level, ** Significant at 5 per cent level, * Significant at 10 per cent level

It emanates from Table 8 that education and more number of earning members in households has significant impacts on poverty reduction. The coefficient obtained for education, which is significant at 1% clearly indicates that education has a significant antagonistic effect on poverty. With more education the prospect of getting a better and remunerative job becomes high. It is therefore imperative that education should receive high priority if poverty has to be reduced. It is essential that quality of education be improved by making more investment in education.

⁷ The marginal effect of an independent variable is the change in the probability of observing a certain outcome, if the independent variable changes by one unit, whereas all the other variables remain constant. Marginal effects have a "ceteris paribus" interpretation. They tell what happens if a given variable varies, while all the other variables remain unchanged.

The next important determinant which has poverty reducing effect is number of earning members in the households. It is expected that as more and more number of family members work and earn the family income will increase and help the household to come out of poverty. Generating more employment opportunities in agriculture and out of agriculture would help Jharkhand reduce the poverty.

There are factors that inculcate poverty also. It emanates from Table 8 that big family size with non-working, non-earning members' increases poverty. Jharkhand, being a tribal economy often supports large families with more number of unproductive family members. This is one of the reasons that help poverty grow in the state.

The coefficient obtained for share of income in total household income clearly indicates that creation of more non-farm employment opportunities is essential to reduce the poverty as agriculture would no more be able to combat poverty. Due to subsistence farming practices and disguise employment in agriculture it is no more remunerative.

Conclusions

Despite years of concerted efforts rural poverty is rampant in Jharkhand. Although in last couple of decades its pace has reduced but yet in 2009-10 about 36 percent farming households and 47 percent agricultural labour households were poor, indicating that their incomes were less than the threshold income level i.e. annual per capita income of Rs 7867, which is required to sustain a minimum living. Interestingly, the rate of decline in poverty is more in agricultural labour class households (27%) than that of farming households (1.9%). Analysis of household data of the sample villages also highlights a high incidence of rural poverty ranging from more than 20 percent in Dubaliya to about 76 percent in Durgapur.

Incidence of poverty for four groups of households viz. labour, small, medium and large shows mixed pattern of incidence of poverty. Labour class households and large households were comparatively less poor in most of the villages than that of the other classes i.e., small and medium households. About 27 to 74 per cent population of labour households were poor according to the headcount measure. Incidence of poverty among large households was in the range of 35 percent in Dubaliya to about 60 percent in Durgapur. Surprisingly, none of the small households in Dubaliya was found to be poor whereas in Durgapur all small households were poor.

The severity of poverty was least (0.9%) in Dubaliya village, whereas it was highest in Durgapur village (15.4%) of Jharkhand where incidence and depth of poverty were also comparatively high. Even in case of poverty severity, labour class households and large farm households appears to be comparatively less affected than that of small and medium classes. However, in general, the pattern of severity is apparently mixed here.

Among various determinants of poverty, obtained by estimating a probit model, considering poor as 1 and non-poor 0, it was found that length of education and number of earning members in family had significant poverty reducing effect, implying that for taking a poor household out of poverty promotion of education and creation of more employment opportunities to provide employment to a large number of household members are essential. It also emanates that big family size and increased dependency on agriculture would induce poverty and it is therefore imperative that family planning policies and alternative non-farm employment programme should receive due priority in any poverty alleviation programme in the state.

References

Aasha Kapur Mehta and Shashanka Bhide. Poverty and Poverty Dynamics in India: Estimates, Determinants and Policy Responses.

www.chronicpoverty.org/uploads/publication_files/mehta_bhide.pdf

Ali, S. (2006), Dimensions of Urban Poverty, Rawat publication, New Delhi.

Annual Report (2004-05). Department of Food, Civil Supplies and commerce, Government of Jharkhand, pp.50.

Approach Paper Eleventh Five Year Plan 2007-2012:

<http://planningcommission.nic.in/plans/planrel/appdraft.pdf> ; last accessed on 24/09/07.

Asia. The World Bank.

<http://siteresources.worldbank.org/SOUTHASIAEXT/Resources/.../fullreport.pdf> .

Bandyopadhyay, D (2003). Land reforms and agriculture: The West Bengal Experience, EPW, March 1.

Banerjee, Abhijit.V, Gertler Paul,J and Ghatak, Maitreesh (2002). Empowerment and Efficiency: Tenancy reform in West Bengal, Journal of Political Economy, Vol.110 No.2 April,pp.239-280.

Benerji, R (2000). Poverty and Primary Schooling: Field Studies from Mumbai and Delhi, *Economic and Political Weekly*, 35:795-802

Dasgupta, Anirban (2004). Agrarian reforms in West Bengal: A closer look at actual facts, Department of Economics,University of California,Riverside.

Deshingkar, P. (2010). Migration, remote rural areas and chronic poverty in India, ODI Working Papers 323, December 2010. <http://www.odi.org.uk/resources/download/4531/pdf>

Fasoranti , MM (2010).The influence of micro-credit on poverty alleviation among rural dwellers: A case study of Akoko North West Local Government Area of Ondo State, *African Journal of Business Management*, Vol.4 (8), pp.1438-1446.

Foster, James, Greer, J And Eric Thorbeck (1984). A class of Decomposable Poverty Measures, *Econometrica*, 52(3):761-765

Gang, Ira N., Sen, Kunal and Yun, Myeong-Su, Poverty in Rural India: Caste and Tribe. Review of Income and Wealth, Vol. 54, No. 1, pp. 50-70, March 2008. Available at SSRN:

<http://ssrn.com/abstract=1096748> or <http://doi:10.1111/j.1475-4991.2007.00259.x>

http://en.wikipedia.org/wiki/Poverty_in_India .

Janaiah,A.;Manik,L. Bose And Agarwal, A,G(2000).Poverty And Income Distribution In Rainfed And Irrigated Ecosystem: Village Studied In Chhattisgarh, *Economic And Political Weekly*.35(10):4664-69

Krishna, Anirudh (2004). *Escaping Poverty and Becoming Poor: Who Gains, Who Loses, and Why?* World Development Vol. 32, No. 1, pp. 121–136.

Krishna, Anirudh, M. Kapila, M. Porwal and V. Singh (2005). *Why Growth is not Enough: Household Poverty Dynamics in Northeast Gujarat, India. Journal of Development Studies*, Vol. 41, No. 7.

Krishna, Anirduh (2006). *Pathways Out of and Into Poverty in 36 Villages of Andhra Pradesh, India*. *World Development*, Vol. 34, No. 2, pp. 271-288.

Kumari, V and Singh, R.K.P. (2009). Fragile Human Capital Causes Poverty in North Bihar: Empirical Evidences, *Agricultural Economics Research Review*, 22(1):99-108

National Sample Survey II National Sample Survey Organisation:
http://mospi.nic.in/mospi_nssso_rept_pubn.htm ; last accessed on 24/09/07

Ogwumike FO (2001). "Profile and dimension of Poverty in Nigeria", Paper presented at NCEMA workshop on poverty reduction, Development policy centre, Ibadan, 3rd-21st August.

Odusola, AF (2001). "Conceptual issues in poverty and poverty measurement" Paper presented at NCEMA Workshop on poverty alleviation policies and strategies, 15th-26th, October.

Planning Commission (2007). Poverty Estimates for 2004-05. New Delhi: Press Information Bureau.
Poverty Alleviation. <http://wcd.nic.in/research/.../4%5B1%5D.2%20Poverty%20%20alleviation.pdf>

Sen, Amartya (1976). Poverty: An Ordinal Approach to Measurement, *Econometrica*, 46:437-446

Sen, A.K. (1999) *Development as Freedom*. New Delhi: Oxford University Press.

Singh, Krishna M.; Meena, M. S.; Kumar, Abhay and Singh, R. K. P., Socio-Economic Determinants of Rural Poverty: An Empirical Exploration of Jharkhand State, India (September 13, 2011).

Available at SSRN: <http://ssrn.com/abstract=2017593> or <http://dx.doi.org/10.2139/ssrn.2017593>

Singh, Krishna M.; Meena, M. S.; Singh, R. K. P. and Kumar, Abhay, Dimensions of Poverty in Bihar (September 13, 2011). Available at SSRN: <http://ssrn.com/abstract=2017506> or <http://dx.doi.org/10.2139/ssrn.2017506>

Singh, R. K. P., Singh, Krishna M. and Jha, A. K., Effect of Migration on Agricultural Productivity and Women Empowerment in Bihar (July 17, 2012). Available at SSRN:

<http://ssrn.com/abstract=2111155> or <http://dx.doi.org/10.2139/ssrn.2111155>

Singh, R.K.P. and Thelma, R. Paris. (2004). Impact Of Labour Out-Migration On Rice Based Household Economy And Gender Roles In Bihar; Rau & Irri(Philippines, Collaborative Project, Rajendra Agricultural University, Pusa, Samastipur, Bihar

Srivastava, Ravi, S. (2006). Land reforms, employment & poverty in India. International conference on land, poverty, social justice and development, Institute of Social Studies, The Hague, January 12-14.

Thakur, J, Bose, Manik, L, Hussain, M. And Janaiah, A. (2000). Rural Income Distribution And Poverty In Bihar: Insights From Village Studies, *Economic And Political Weekly*, 35(10):4657-4663.

Tilak, J.B.G. (2002) Education and Poverty, *Journal of Human Development* 3 (2) (July): 191-207.

Tilak, J.B.G.(1989). Education And Its Relation To Economic Growth, Poverty And Income Distribution, World Bank Comparative Studies, Research Paper No. 3, The World Bank

UNDP (1996) *Human Development Report*. New York: Oxford University Press.

World bank (2007). Jharkhand: Addressing the Challenges of Inclusive Development. Report No. 36437-IN Poverty Reduction and Economic Management. India Country Management Unit, South.