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A Village-level Study of Poverty in Bihar: Using panel data Approach

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The removal of nation wide poverty has consistently been one of the main objectives of Indian policy. The Indian modern history contains several examples of discussion on this topic as far back as 1901. India embarked on a series of Five Year Plans, each containing some kind of poverty eradication or social justice component. The First Five Year Plan was launched in 1951, since then, there have been ten additional plans, the most recent being the Eleventh Five Year Plan launched in 2007. The consideration of economic policies vis-a-vis their impact on the poor highlights a continued emphasis by Indian policy makers on poverty elimination. However, there have been serious shortcomings of government efforts in alleviating poverty during the past few decades. Even after sixty five years of independence, one - fourth of India's Population still lives in poverty.

In India, poverty is conventionally defined in terms of income poverty, i.e., number of people living below the poverty line and it is measured in different ways, predominantly in terms of inadequacy of income to procure a defined minimum level of calories. It has to be noted that the so defined poor may be incurring expenditure, not just on food intake to get minimum number of calories, but also on several other non food items. Hence, the methodology of estimating poverty and identification of BPL (Below Poverty Line) households has been a matter of debate in India. The Multi-dimensional Poverty Index (MPI) is also being used to measure the incidence of poverty. MPI indicates the share of population that is multi-dimensionally poor adjusted by the intensity of deprivation in terms of living standards, health and education. According to this parameter, India with a poverty index of 0.296 and poverty ratio of 46.6 per cent is among 50 poor nations of the world (Government of India, 2011).

Bihar is amongst the poorest states in India, with poverty incidence of 42.6 per cent. Per capita net domestic product has been estimated to be \$ 446 for Bihar which is about one –third of the corresponding national average (\$ 1220) and less than one-fourth of Haryana (\$ 2052), one of the richest states in India (Government of Bihar, 2011). There has not been any significant influence of the agricultural development and poverty alleviation programmes on reducing poverty incidence. It reflects that strategies adopted under various rural development programmes seem to be inappropriate in the Bihar context. The most of the programmes aimed at improving the economic status of poor households, only a few attempted at improving their human capital (i.e., education, health, housing, social participation, etc.). This might

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be the reason for ineffectiveness of these programmes on alleviating poverty during the last three decades. Several studies have been conducted on various aspects of poverty at the national level (Dandekar *et.al*, 1971; Rath, 1996; Ravallion *et.al*, 1996; Chlliah *et.al*, 1999; Mahendra Dev, 2000; Pattanaik, 2003,), but there is a dearth of studies on social aspects of poverty, particularly in the context of Bihar. Most of these studies are based on secondary data and/or depict picture at the national level. During last decade few studies conducted at village level indicated education as one of the important factors causing poverty in Bihar (Thakur, J *et.al*, 2000 and Kumari,V and Singh RKP, 2009). The recent studies based on primary data dealing with both economic and non- economic aspects of poverty are not readily available which are needed to have deeper insights of different dimensions of poverty in Bihar, India. The present study is designed to examine various socio-economic dimensions of poor households in Bihar.

Data sources

A research project entitled “Tracking Change in Rural Poverty in Household and Village Economies in South Asia” has been launched in Bihar in July, 2010. Data generated in the project are used for this study. In the project, multi-stage stratified random sampling technique was used for selection of districts, blocks, villages and respondent households. A sample of two districts i.e., Patna and Darbhanga were selected from two contrasting agro-ecological situations of Bihar. Two blocks; one each from sample districts were selected randomly. Similarly a sample of four villages i.e., two each from selected districts was selected for detailed investigation. Thus, the sample consisted of 160 households, 40 each from each sample villages. Data on various socio-economic aspects are being collected through panel interview with the help of well structured schedules by Resident Investigators. In the present study, data collected for the period 2010-2011 have been used for detailed analysis. Data relating to social class, education level, asset, livestock, migration, employment pattern, housing, and drinking water of poor households are considered for meaningful conclusions. This study is based on the information collected from 65 Below Poverty Line (BPL) households of four villages of Bihar.

Study Area

Bihar is the second largest state in India with respect to population and eleventh largest in area. It supports 8.8 per cent of country’s population with only 2.8 per cent of land mass. Agriculture is an important sector since it generates 16 per cent of State GDP but provides employment to 70 per cent of rural working force. About 69 per cent of total geographical area is used for cultivation but almost one-third area is under problematic with respect to soil or ecological situation which includes Water logged area (0.40 million ha.), *Diara* area (0.93 million ha.), Alkaline soil (0.32 million ha), and *Tal* area (0.10 million ha.). Agricultural production showed increasing trend during last five years but agricultural productivity is still lower than corresponding national average. During 1983-94, there was almost no growth in agriculture sector in Bihar. Net State Agriculture Domestic Product stagnated at \$ 0.73 billion during 1983-94 but Net State Domestic Product increased from \$ 1.64 billion to \$ 2.14 billion (at 1980-81 prices). Per capita income increased by less than one US Dollar; from \$ 22.29 to \$ 22.98 during the period but poverty declined by 7.5 percent. Performance of agriculture was also much poor in ninth five year plan (-1.4%) and tenth five year plan (0.96%), as given in Table 1.

Table 1: Growth in SGDP and SAgGDP in Bihar during 9th, 10th and 11th five year plans

Particulars	9 th Five Year Plan	10 th Five Year Plan	11 th Five Year Plan
SGDP	2.9	4.0	10.93
SAgGDP	(-) 1.14	0.96	2.6

Despite the poor performance of agriculture in eighth and ninth five year plans, incidence of poverty declined by more than 10% during the period. Under adverse situation of two flood years (2007 & 2008) and two drought years (2009 & 2010) during the period of Eleventh Five Year Plan, the state achieved 2.6% growth in agriculture and 10.93% growth in State GDP. Agriculture performed much better in Eleventh Five Year Plan and recorded SAgGDP growth of 31.06% in 2006-07 and 11.32 % in 2008-09. Milk production increased from 3.0 million tonnes in 2004-05 to 6.3 million tonnes in 2010-11. Fish production also increased from 0.27 million tonnes in 2004-05 to 0.30 million tonnes in 2010-11. Due to higher growth in Bihar's economy, poverty must have declined but there is no recent estimate of poverty for Bihar

Poverty Scenario:

Bihar is the second poorest state after Odisha in India. The overall incidence of poverty in Bihar as per 61st NSS Report (2004-05) is 41.40%, much above the all India level of 27.50%. Incidence of rural poverty in Bihar declined from 64.4 per cent in 1983-84 to 56.6 per cent in 1993-94 and further declined to 42.1 percent in 2004-05 (Table 2). The rural poverty gap between Bihar and India has increased from 18.8 % in 1983 to 19.3% in 1993-94 but declined to 13.8% in 2004-05. Incidence of poverty has continuously declined in Bihar during last 20 years but number of poor persons increased from 38 million in 1993-94 to 43 million in 2010-11.

Table 2: Incidence of Poverty during last 30 Years

Period	Bihar			India		
	Rural	Urban	Combined	Rural	Urban	Combined
1983-84	64.4	47.3	62.6	45.6	40.8	44.4
1993-94	56.6	40.8	55.1	37.3	32.4	36.0
2004-05	42.1	34.6	41.40	28.3	25.7	27.5
Change in rural poverty (%)						
1983-1994	-7.8	-6.6	-7.5	-8.3	-8.4	-8.4
1994-2005	-14.5	-06.2	-13.7	-9.0	-6.7	-8.5
1983—2005	-22.3	-12.8	-21.2	-17.3	-15.1	-16.9
Number of Poor persons in million						
1993-94			38			318
2004-05			43			356

Findings and discussion:

Caste wise extent of poverty

In the present analysis, poor households are those who are declared BPL families by the state government on the basis of survey conducted by government officials. Among sample households, about 40% households in Patna district (32 households) and 41% households in Darbhanga district (33 households) belong to BPL category (Table 3). On the basis of our sample households, both districts under study do not differ much with respect to extent of poverty.

Table 3: Caste Wise Distribution of BPL Households in Bihar, India (%)

Caste categories	BPL Households	
	Patna	Darbhangha
Forward Castes	17	32
OBC (Other Backward Castes)	65	35
SC (Scheduled Caste)	92	100
Total	40	41

Among three social groups, all the Scheduled Caste households in Darbhanga district and 92 per cent Scheduled Caste households of Patna district belong to BPL category whereas proportion of OBC BPL households in Darbhanga district (35%) is lower than OBC BPL households (65%) in Patna district. Proportion of BPL families in forward caste is much lower in Patna district (17%) but about one-third of forward caste households are under BPL category in Darbhanga district. Hence, it may be said that the poverty is more prevalent in weaker section of society. However, a substantial proportion of forward caste families are also poor in poverty stricken area of Bihar.

Education Level

Poverty is not simply the absence of financial resources. According to *Prof. Amartya Sen*, poverty is the lack of capability to function effectively in society. Inadequate education can be thus being considered a form of poverty. A study conducted in Bihar found education as one of the determinants of poverty. About two-third of family members of BPL households are literate in both the districts of Bihar whereas 92 per cent of family members of APL (Above Poverty Line) households in Patna district and 75 per cent in Darbhanga district are literates, indicating lower level of education among poor households in Bihar (Table 4).

Table 4: Education Level of Family Members of BPL Households in Bihar, India (%)

Particulars	BPL Households	
	Patna	Darbhangha
Total Population(above 6 yrs)	162	188
Illiterate	32	35
Primary	22	24
Middle	17	14

Secondary	23	22
Post Secondary	6	5

BPL households of both the districts do not differ much with respect to education level but their education level is much less than their APL families of respective districts (Appendix-I). About one-third of family members of APL households of Patna district are educated up to post secondary level but only 6 percent of family members of BPL families of this district are educated upto post secondary level. The gap in post secondary education of APL and BPL families also exists in Darbhanga district. Hence, it may be inferred that the literacy and education levels are the most important determinants of rural poverty in Bihar.

Land and Tenure

Land is most important asset in rural area. Landlessness may not be the only indicator of poverty but lack of land is highly correlated with lack of other productive assets which imply that the agricultural landless are the poorest group in the population. In Bihar, average size of land holdings is very low (0.37 ha.) and about 84 per cent households own less than 0.4 hectare of land.

Table 5: Per Capita Land and Tenural Status of BPL Households in Bihar, India

Particulars	BPL Households	
	Patna	Darbhangha
Average Size of Landholding (ha)	0.28	0.24
Per capita land (ha)	0.052	0.036
% of leased in of Operational holding	9.7	0
% of leased out of own land	21.7	1.3

Average size of land holdings of sample BPL households is 0.28 hectare in Patna district and 0.24 hectare in Darbhanga district (Table 5). BPL families of both the districts do not differ with respect to average size of their land holdings but APL families of both the districts differ much with respect to their size of land holdings. APL families of Patna district own about double of land holdings (2.12 ha) than owned by APL families of Darbhanga district (1.08 ha) (Appendix-II). Per capita land is also low in BPL families of both the districts i.e; 520 m² in Patna district and 360 m² in Darbhanga district. Hence, any level of agricultural development on the small area of land owned by poor households may not have any significant impact on poverty alleviation in Bihar. There is an urgent need to create employment opportunities in non- farm sector to alleviate poverty in Bihar.

While analysing land tenure system on BPL households we observed higher incidence of leased- out land (21.7%) than leased- in land on BPL households in Patna district. In Darbhanga district also leased- out land on BPL households is higher than leased- in land. The higher incidence of leased- out on BPL families may be due to higher incidence of migration and their small size of holding which is not economically viable for agricultural production by themselves. The majority of BPL households prefer to lease out their small piece of land before migrating for gainful employment.

Asset and Livestock

Asset poverty is an economic and social condition that is more persistent and prevalent than income poverty. It can be defined as a household's inability to access wealth resources that are needed to generate income for maintaining livelihood. We analysed the assets owned by BPL families in villages in Patna and Darbhanga districts. Per BPL household assets is worked out at Rs 18.86 thousand in Patna district which is about two and half time more than average asset owned by BPL families of Darbhanga district. Per BPL household's agriculture asset is only Rs 334 in Darbhanga district which is only 6 percent of agricultural assets owned by BPL families under study in Patna districts (Table 6). It is mainly due to small size of land owned by BPL families in Darbhanga district. However, agriculture is also less developed in Darbhanga district. Domestic asset is the most important in BPL families which accounts for 55 percent and 60 per cent of respective total assets owned by poor households in Patna and Darbhanga districts. BPL families of both districts do not differ much with respect to transport and communication assets because almost all BPL families have one bicycle and majority of them have cell phone to have contact with migrant family member.

Table 6: Per Household Assets own by BPL Households Under Study, Bihar, India (Rs)

Particulars	BPL Households	
	Patna	Darbhangha
Agriculture Assets	5449	334
Domestic Assets	10384	4202
Transport Assets	1597	1585
Communication & Information Assets	1431	921
Total	18861	7041

One US Dollar is equal to Rs 45

Livestock production is an important economic activity after crop production in rural Bihar. In Patna district, 72 percent of BPL families own any type of livestock whereas 50 percent of BPL families of Darbhanga district own either cattle or buffalo. Ownership of livestock is less skewed than distribution of land among households in villages under study (Table 7).

**Table 7: Herd Size of Livestock on BPL Households in Bihar, India
(per 100 Households)**

Particular	Patna	Darbhangha
Buffalo	28	12
Bullock	3	12
Cow (local)	9	15
Cow (improved)	6	0
Cow (cross-bred)	19	0
young stock cattle (<3 year)	22	15
young stock buffalo (<3 year)	3	0

Total Value (A)	10368	3342
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Herd size of buffalo and cross bred cow is larger on BPL families of Patna district than herd size of these livestock owned by BPL families in Darbhanga district. On the other hand, herd size of local cows and buffalo are higher in Darbhanga district than that of Patna district. Average value of livestock of BPL families is three fold higher in Patna district than the value of livestock owned by BPL families in Darbhanga district. It is mainly due to larger number of cross bred cows in Patna district.

Residential and facilities

An attempt has been made to understand the nature (type of house), extent and causes of housing poverty in study villages. Poor households in Bihar live along with their animals in their dwelling house. Analysis of housing related data revealed that the majority of BPL households do not have *Pucca* house (made of concrete) in both the districts under study. They live in *Kacha* (made of soil) thatched house. About one – fifth of BPL households of Patna district have toilet facilities in their house whereas only 6 percent of BPL households have toilet facilities in Darbhanga district. Despite programme of free electric connection to BPL families in Bihar, 59 per cent BPL families of Patna district and only 6 per cent of Darbhanga district could get electric connection in their dwelling houses. About 69 percent BPL households in Patna district and 51 percent in Darbhanga district have their own source of safe drinking water.

Main Occupation

Wage employment is the major source of income due to low land base or landlessness, less number of livestock and poor asset base. Analysis of data revealed that about 55 percent adult male family members in Patna district and 50 per cent in Darbhanga district are engaged in gainful employment. In both the districts, less than 10 per cent of adult women are engaged in gainful employment (Table-8).

Table 8: Occupation of Family members of BPL Households in Bihar, India (%)

Occupation	Patna		Darbhanga	
	Male	Female	Male	Female
Farming	15	1	7	4
Farm Labour	6	3	0	3
Non-Farm Labour	14	2	36	0
Salaried job/Monthly wage employee	14	0	6	0
Others	4	0	1	0
No gainful employment	45	94	50	93
Total	100	100	100	100

Farming, non-farm labour, monthly wage earning are main occupations of BPL family members in Patna district whereas non-farm labour is the main occupation in Darbhanga district. In Darbhanga district, size of landholding is small and the majority of them belong to OBC/SC category and almost all the labour requirement is met by family/ exchange labour. There is no employment opportunity as farm labour

in villages under study of Darbhanga district. More than one-third adult male labours get employed in non-farm sector in Darbhanga district. Salaried jobs/monthly wage employment is more important occupation in Patna district (14%) than Darbhanga district (6%), Hence, it may be said that agriculture is now not an important employment opportunity for labours of BPL families in Bihar.

Migration

Extent of migration is proportion of migrant households with migrant(s) to total BPL households under study. Analysis of data revealed that the extent of migration is 70 per cent in Darbhanga district and 34 per cent in Patna district. In Patna district, one or more family members are migrated from nearly half of forward castes and OBC categories of households whereas all the forward castes households and 78 percent of OBC category households have one or more migrants in Darbhanga districts (Table-9).

Table 9: Caste Category-wise Extent of migration in BPL Households in Bihar, India

Caste group	Patna		Darbhanga	
Forward	50	100		
OBC	54	78		
SC/ST	0	33		
Total	34	70		

There is no migration from Scheduled Caste households in Patna district but one-third households of SC categories has migrant family members. Low level of migration from scheduled caste households in Patna district is mainly due higher size of land holdings and developed agriculture of the district. The villages are dominated by forward caste and even male members of their family do not work in the field. Hence, there is opportunity for agricultural and non-farm employment in the village. The situation is just reverse in Darbhanga district.

Incidence of migration is also high in both the districts. About 29.31 per cent of adult males in Patna districts and 50.7 per cent adult males of Darbhanga district have migrated. In both districts, majority of migrants (more than two-thirds) belong to productive age group i.e. 20 – 40 years of age. In Darbhanga district, all the migrants migrated outside state whereas 57.14 percent migrated to outside state from Patna district. While analyzing the employment at destination place, we found that none of migrants of both districts are engaged in farming at the place of destination (Table-10).

Table 10: Employment of Migrants at Destination Place, Bihar, India (%)

Occupation	Patna	Darbhangha
Farming	0	0
Farm Labour	0	0
• Non-Farm Labour	9.52	71.79
• Salaried Job/Monthly Wage Employee	61.9	15.38
• others	28.57	12.82

About 71.80 per cent migrants of Darbhanga district are employed as non-farm labour at destination place where as 62 percent migrant of Patna district are employed as monthly wage earner or salaried job. In RAU–IRRI collaborative study(2003-04), It was found that a substantial proportion of migrants of less developed area were employed in agriculture but migrants of developed region of Bihar were employed as monthly wage earners or non- farm workers at destination place .Hence a change in migrant’s employment pattern at destination place took place during last seven years.

Access to Institutional Credit

The access of BPL families to institutional credit agencies was also analyzed and it was found that about 30 per cent BPL families of Patna district has access to institutional and non – institutional credit whereas 67 percent BPL families of Darbhanga district have taken loan from institutional and non-institutional agencies. In Patna district, 22 per cent BPL families borrowed from institutional agencies whereas only 12 per cent BPL families of Darbhanga district could obtain loan from institutional sources. Money lender is the main source of credit in Darbhanga district since 51.5 percent of BPL households borrowed from them. Money lender is not an important source of credit for BPL families in Patna district (Table 11). Agriculture, marriage and consumption are important purposes of loan for BPL households in both districts. Agriculture is important purpose of credit (57.1 %) in Patna district whereas consumption is important purpose of credit (87.5 %) in Darbhanga district. Almost identical proportion of loan has been taken for marriage purpose in both the districts under study (Table 12).

Table 11: Source Wise per household loans of BPL Households in Bihar, India

Source of Borrowing	Patna		Darbhanga	
	Average Amount (A)	No. of Households (%)	Average Amount (A)	No. of Households (%)
Co-operative banks	94	3.1	0	0
Commercial banks	3125	12.5	182	3
Gramin banks	4219	6.3	1364	9.1
Friend & Relativs	313	3.1	909	6.1
Shopkeeper	94	3.1	0	0
Landlord	453	6.3	515	3
Moneylender	234	6.3	3358	51.5
Others	219	3.1	0	0

Table 12: Proportion of Different Types of Loan on BPL Households in Bihar, India

Purpose of Borrowing	Patna	Darbhangha
Agriculture	57.1	4.2
Education	0	0
Marriage	7.1	8.3

Consumption	35.7	87.5
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Analysis of saving behaviour of BPL families under study revealed that 47 percent of BPL families of Patna district and one-third BPL families of Darbhanga district have saving account. In Patna district, 53 percent BPL households have saving account in commercial banks and 26.67 percent families have invested in Insurance. One -fifth of BPL families of Darbhanga district have saving account in commercial banks and 40 per cent families invested in insurance. The higher proportion of investment in insurance is mainly due to insurance programme launched by State Government for BPL families in Bihar.

CONCLUSIONS

Bihar agriculture was stagnant in eighties and early nineties and observed poor growth up to tenth five year plan. In eleventh five year plan, there has been growth in agriculture sector in Bihar. Bihar is the second poorest state in India. During last 20 years poverty has declined by more than 14 percent but number of poor persons increased during the period. On the basis of analysis of household level data of VDS villages, it may be inferred that the education, land and asset poverty have been prevalent in Bihar villages. Landlessness and low per capita land are also causing poverty in Bihar.

The majority of poor persons are getting employment in non-farm sector and migration is main strategy for maintaining livelihood of poor households in Bihar, But majority of persons migrated out-side state and were engaged mainly in non-farm sector. Their access to electricity, improved living condition and sanitation has been very low which may be the cause of their poor health. Despite various programmes of improving access to financial institutions, the majority of poor households of Bihar, particularly of less developed area are still dependants on money lenders for credit facilities.

Various poverty alleviation programmes have not been effective in reduction of poverty up to desired level in Bihar. Hence, there is an urgent need to have holistic approach for improving various social and economic dimensions of state for faster reduction in poverty in Bihar

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Appendix I: Education Level of APL (Above poverty Line) Family Members of Households in Bihar, India (%)

Particulars	APL HOUSEHOLDS	
	Patna	Darbhangha
Total Population(above 6 yrs)	326	318
Illiterate	8	25
Primary	12	15
Middle	18	13
Secondary	29	31
Post Secondary	34	17

Appendix II: Per Capita Land and Tenural Status of APL Households in Bihar, India

Particulars	APL Households	
	Patna	Darbhangha
Per HH land (in acre)	5.3	2.7
Per capita (in acre)	0.64	0.34
% of leasedin of Operational holding	1.2	0
% of leasedout of own land	12.5	4.8