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Source: *Indian Economic Review*, New Series, Vol. 50, No. 1 (January - June 2015), pp. 79-104

Published by: Department of Economics, Delhi School of Economics, University of Delhi

Stable URL: <http://www.jstor.org/stable/43917206>

Accessed: 11-01-2018 05:08 UTC

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Remittances, Household Expenditure and Investment in Rural India: Evidence from NSS data

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ABSTRACT

The paper attempts to study the migration trends and the factors driving it in India and also to understand and compare the marginal spending behavior of three groups of households in India - those not receiving remittances, receiving internal remittances and receiving international remittances - with an emphasis on its impact on investment in human capital defined as education and health. The analysis, based on a nation-wide sample survey, reveals that migration, besides playing a major role in poverty reduction, also has an important bearing on marginal spending behavior much in keeping with Engels Law and also that the amount set aside towards human capital formation is significant, which has wider policy implications.

Keywords: Remittances, Household Spending, Human Development

JEL Classification: F24, P46, O15

1. INTRODUCTION

Indian economy is passing through a phase of very rapid economic growth since 2003-04. This was accompanied by the structural changes in both output and employment which favoured the non-agricultural sectors (Mehrotra *et al.*, 2014). An absolute decline of agricultural employment was noticed for the first time, during post 2004-05 period. The substantial increase (about 25 million) in non-farm employment (16 million in industry and 9 million in services) during this period, on the other hand, clearly indicates a Lewisian transition in India (Parida, 2015). Agricultural distress² (see Abraham, 2008), mechanization in agriculture (see Himanshu, 2011; and Mehrotra *et al.*, 2014) and rising

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2 The distress partly showed itself in growing farmer suicides (See Gill and Singh, 2006; Jeromi, 2007; and Shroff and Mitra, 2007) during that period.

agricultural/rural wages (Gulati *et al.*, 2013; and Mehrotra *et al.*, 2014), were the major factors leading to the decline in agriculture workforce. The increasing participation in education (see Kannan and Raveendran, 2012; and Rangarajan *et al.*, 2011; and Thomas, 2012) in the recent years on the other hand caused a huge increase of rural to urban migration in India.

For the first time in the history of India, absolute number of poor declined from 407 million in 2004-05 to 269 million in 2011-12 (a total fall of 138 million with 20 million per annum). This was reflected through the rising rural consumption expenditure (Mehrotra *et al.*, 2014). And more importantly, a remarkable change in the consumption basket (with increasing share in clothing and bedding, footwear, education and medical care) was noticed. Since a huge number of people have out-migrated (42 million during 1999-2000 and 2007-08) from the rural areas and the migration rate is high in the agriculture dependent and relatively poorer states³ like Odisha, Bihar, Uttar Pradesh, Madhya Pradesh, Andhra Pradesh, Chhattisgarh, and Jharkhand etc., remittances has a greater role to play in the process of poverty reduction and changing consumption patterns in rural India. The purpose of the paper is to explore how remittances are spent and their impact on poverty and behavioral patterns, and thus on the larger implications for economic development. We also attempt to understand and compare the spending behavior of three groups of households: those not receiving remittances, those receiving internal remittances and those receiving international remittances.

This paper is organized in five sections: Section two reviews the literature on the impact of remittances on poverty reduction and behavioral patterns. In section three, we explain the methodology for our study based on the nationally representative sample. It outlines the data and econometric methodology used in the empirical estimation of migration function and household expenditure functions. Section four provides the empirical results and it has two subsections. Subsection one provides an overview of migration and remittance receiving patterns and explores household expenditure patterns with respect to receipts of remittance with an emphasis on the impact of remittances on investment in human capital defined as education and health. Subsection two, further reinforces the argument developed in subsection one by econometric estimates adopting methods of multinomial logit and seeming unrelated regression models. The significance of this method is to capture the multivariate estimates which are not possible through the analysis of descriptive statistics. In section five, we focus on the conclusions drawn from the study.

2. BRIEF REVIEW OF LITERATURE

The question as to how remittances are spent has become a subject of recent scholarship and this trend is likely to continue considering the direct implications this

3 The correlation efficient between Poverty Headcount Ratio (HCR) and rural out-migration is positive (0.43).

holds for economic development. As Adam and Cuecuecha (2010) have pointed out, there are chiefly three views on the impact of remittances and the manner in which they are spent on economic development. The first approach views remittances as fungible, being spent at the margin like income from any other source, and thus similar to other conventional sources of income. The second view holds that remittances instigate behavioral changes at the household level, with greater expenditure on consumption rather than investment goods. The third approach regards remittances as a transitory type of income with households spending them more at the margin on investment goods rather than on consumption goods, thus directly and positively contributing to economic development.

The fungibility argument is still not fully validated empirically; but, the other two approaches are supported by evidence gathered from country-based studies. The second position is supported by Chami, Fullenkamp and Jahjah (2003) and Chami *et al.*, (2008) who noted an increased expenditure of remittances on status-oriented consumption goods. Adams (1998) on the other hand supports the third approach with his study of remittances, investment and rural asset accumulation in Pakistan. Edwards and Ureta (2003) too agree with this position and so does Yang (2005). Edwards and Ureta (2003) in El Salvador found a significant impact of international remittances on student retention rates in school; Yang (2008) claimed that remittances enhanced human capital accumulation and entrepreneurship in Philippines. Osli (2004), on the other hand, found that a large proportion of remittance income is spent on housing in Nigeria. The study of Adam and Page (2005) based on 71 developing countries revealed that remittances play an important role in poverty reduction. Studies like Brown (1994) in the South Pacific, Vladicescu *et al.* (2008) in Moldova, Gupta, *et al.* (2007) in Sub Saharan Africa, Acosta *et al.*, (2007) in Latin America, Arif (2009) in Pakistan also claim that remittances play a greater role in poverty reduction as well as in human capital formation. More recently, the studies of Castaldo and Reilly (2007) in Albania, Adams and Cuecuecha (2010 and 2013) in Guatemala and Ghana respectively claimed that receipts of remittance cause a behavioural change in the households' expenditure, i.e. remittance is directed towards investment in human capital and housing. In Sri Lanka, De and Ratha (2012) also found that remittance income has positive and significant effect on childrens' health and education.

Although literature on the impact of remittances on marginal spending behavior is fairly diverse in its conclusions, most scholars by and large appear to support the theory that it has a significant impact on investment in human capital, whether in education or health or both, the two pillars of human development. The present paper attempts to contribute to and supplement this debate. This has wider policy implications in a country like India which is at the same time the largest remittance economy in the world but also has a significant proportion of its population excluded from the benefits accruing from this process. The major findings of the study are (i) migration has a major impact

on poverty reduction which is by and large a wholly expected outcome and (ii) it has an impact on marginal spending behavior in such a manner as to follow Engels Law and the amount set apart for building human capital formation is significant. This also leads us to policy suggestions which demand differential strategies from the government.

3. ON DATA AND METHOD

This paper is based on secondary data. Both 55th (1999-2000) and 64th (2007-8) rounds unit level data of National Sample Survey Organization (NSSO) are used to estimate the volume and trends of migration, and the analysis of remittances with respect to its influence on households' expenditure patterns is based on only 2007-8 data. It is important to note that only 2007-8 (latest data) round survey collects information on remittances along with employment & unemployment and migration particulars of the household members. The information on remittances include: the amount of remittance received during the previous 365 days and the different heads under which the households spent those remittances. There are mainly twelve different heads under which households use the remittances. For simplicity, we have classified them into eight categories (see Table 3). Absolute volume of migration is computed from NSS unit data and census population weights are assigned to it to obtain exact figures. Tendulkar estimates of rural poverty head count ratios are taken from planning commission annual report (Planning commission, 2012), whereas the data on rural wage rates and financial outlay for agricultural equipment (a proxy for mechanization) are taken from the Ministry of Agriculture.

For estimating migration function households are divided into three mutually exclusive categories: (1) not reporting migration; (2) reporting international migration; and (3) reporting internal migration. Since the dependent variable is categorical with three categories we have used a multinomial logit model. Household level variables like household head's age, sex and level of education and other socio-economic variables including household size, landholdings, caste, religion and household month expenditure are used as explanatory variables. As inclusion of household monthly expenditure often leads to endogeneity problem (Taylor and Mora, 2006), we have used the predicted log of monthly household expenditure (estimation is given in Annexure 1) as an instrument. Finally, to understand the spatial aspects of migration decision we have included region dummies as explanatory variables.

Household expenditure functions for food and consumer goods, healthcare, education and durable goods are estimated within the framework of Engel's law following Working-Leser specification (see Working, 1943; and Leser, 1963) which is expressed as:

$$w_j = \alpha_j + \beta_j \ln(X) + \varepsilon_j \quad \dots(1)$$

Where w_j is the budget share of good j (i.e., the ratio of expenditure on good j to total household expenditure), X is total household expenditure, α_j and β_j are parameters to be estimated and ε_j is stochastic error term. Later on Deaton (1997), and Castaldo and Reilly (2007) have included a vector of socioeconomic and locational factors in equation 1, whereas Dubin and McFadden (1984) and Adams and Cuecuecha (2010) have included selection terms to correct the possible selection bias due to Heckman (1979). The modified expenditure equation can be expressed as:

$$w_j = \alpha_j + \beta_j \ln(X) + \gamma_j Z + \lambda_j S_{jc} + \varepsilon_j \quad \dots(2)$$

Where γ_j and λ_j are additional parameters to be estimated relating to household characteristics (Z_j) selection correction variable (S_{jc}) relating to choice C. Equation 2 is estimated for each category of household expenditures using seemingly unrelated regression model. Finally, the predicted values of each expenditure functions from the seemingly unrelated regressions are estimated, which is used to compare the average budget share of households: (1) not receiving remittances; (2) receiving international remittances; and (3) receiving internal remittances.

4. FINDINGS

4.1 Descriptive Statistics

Out-migration, Remittance Receipts and Poverty Reduction

In the period of structural transformation in India, huge numbers of people have out-migrated from the rural areas. The absolute number of out-migrants increased about 42 million (23.7 percent) from 175.3 million in 1999-00 to 216.8 million in 2007-8 (see Table 1). Absolute number of out-migrants and out-migration rates are very high in most of the agriculture dependent and relatively poorer states like Odisha, Bihar, Uttar Pradesh, Madhya Pradesh, Andhra Pradesh, Chhattisgarh, Jharkhand, Tamil Nadu and Maharashtra. In terms of number of rural outmigration, Uttar Pradesh stands at the top position during 1999-00 (35.6 million) and 2007-08 (about 37 million) with an absolute increase in the same of 1.3 million. Maharashtra registered the second highest number of rural out-migrants followed by Andhra Pradesh, West Bengal, Rajasthan, Bihar, Madhya Pradesh, Karnataka, Odisha and Tamil Nadu during 2007-08. In terms of the increase in out-migration, Chhattisgarh is followed by Andhra Pradesh, Rajasthan, West Bengal, Maharashtra and Bihar. It is important to note that the states with relatively high poverty head count ratio (HCR) are showing large number of rural out migration in India. This is also reflected through the positive correlation (0.44) between Poverty Headcount Ratio (HCR) and number of rural out-migration in rural India.

TABLE 1
STATE-WISE RURAL OUT-MIGRATION AND THE FACTORS AFFECTING IT IN INDIA, 1999-00 & 2007-08

Name of the State	Rural Poverty HCR during 2004-05	Agri-cultural wage rates (Rs.)	Avg. Expenses on Mechanization (Rs. in lakh)	Rural Literacy Rates (%)		Rural Unemployment (CDS) rates (%)		Number of people Out-migrated from rural areas (million)		Rural Out-migration rate (%)		
				1999-00	2007-08	1999-00	2007-08	1999-00	2007-08	Change	1999-00	2007-08
Andhra Pradesh	32.3	112	1335	42.2	49.6	1.8	5.3	12.5	18.7	6.2	22.7	29.7
Arunachal Pradesh	33.6	NA	205	47.7	58.2	0.3	1.2	0.07	0.02	-0.06	9.7	2.2
Assam	36.4	100	93	61.4	74.2	1.9	3.1	1.6	2.8	1.2	7.8	12.1
Bihar	55.7	114	613	35.1	46.4	1.0	3.6	12.8	14.4	1.6	15.1	20.3
Goa	28.1	157	27	73.5	73.1	4.5	2.5	0.18	0.10	-0.08	25.7	15.9
Gujarat	39.1	100	299	54.3	60.5	0.8	2.1	9.3	11.0	1.7	28.9	32.1
Haryana	24.8	167.2	288	56.0	61.2	0.8	2.4	3.7	5.1	1.4	25.2	31.1
Himachal Pradesh	25	110	156	65.7	73.4	0.8	2.9	1.7	2.5	0.8	32.0	40.2
Jammu & Kashmir	14.1	110	192	52.7	58.1	1.1	1.7	1.2	1.5	0.3	19.3	21.5
Karnataka	37.5	133.8	988	48.2	58.2	0.8	3.7	9.9	10.6	0.7	26.4	29.3
Kerala	20.2	200	31	81.6	85.2	4.3	6.7	6.5	7.7	1.2	30.1	30.1
Madhya Pradesh	53.6	114	368	43.9	57.7	0.8	2.9	14.7	14.0	-0.7	23.4	29.1
Maharashtra	47.9	120	295	58.4	67.6	1.4	4.4	18.7	20.9	2.2	32.3	34.0
Manipur	39.3	81.4	135	63.0	76.4	0.9	1.5	0.03	0.04	0.01	2.2	2.6
Meghalaya	14	100	82	65.4	84.2	0.2	0.4	0.05	0.1	0.05	3.3	4.1
Mizoram	23	132	152	81.8	88.6	0.6	0.3	0.01	0.06	0.05	3.7	11.6
Nagaland	10	80	77	74.1	82.0	1.3	2.8	0.09	0.1	0.01	18.5	10.9
Orissa	60.8	90	540	46.8	57.2	1.3	3.4	7.0	9.7	2.7	22.7	29.0
Punjab	22.1	148	110	57.8	63.3	0.9	3.7	4.5	5.6	1.1	29.0	32.5
Rajasthan	35.8	135	512	40.1	47.4	0.7	1.9	10.6	14.7	4.1	28.2	31.8
Sikkim	31.8	NA	23	66.8	76.7	1.1	1.8	0.2	0.1	0.0	39.6	25.3
Tamil Nadu	37.5	100	259	59.2	64.8	1.8	10.8	10.1	9.7	-0.4	25.7	23.4
Tripura	44.5	100	118	72.8	70.1	0.4	8.1	0.2	0.3	0.0	9.3	8.7
Uttar Pradesh	42.7	100	300	43.3	51.1	0.6	1.8	35.6	36.9	1.3	26.1	26.3
West Bengal	38.2	120.5	269	54.2	64.6	2.6	5.4	13.3	16.7	3.4	21.6	25.3
Delhi	15.6	234	6	73	76.3	1.4	1.3	0.63	0.57	-0.07	22.2	61.1
Chhattisgarh	55.1	100	194	NA	58.5	NA	2.1	NA	6.4	6.4	NA	30.0
Jharkhand	51.6	111	25	NA	54.3	NA	3.9	NA	3.9	3.9	NA	17.9
Uttaranchal	35.1	113.7	193	NA	63.2	NA	3.0	NA	2.3	2.3	NA	33.4
Other UTs	NA	NA	8	64.2	71.4	2.1	7.7	0.3	0.3	0.0	44.2	26.2
All India	41.8	NA	263.1	48.9	58.1	1.3	3.8	175.3	216.8	41.5	24.0	27.1

Source: These data are taken from multiple sources like planning commission (poverty), Ministry of Agriculture (wages and expenses) and the rest are estimated using NSS unit data.

Notes: 1. State-wise Daily Rates of Minimum Wages for unskilled Agricultural Workers under Minimum Wages Act, 1948 in India, as on 31st March, 2011. In the states where more than one wage rates prevail the highest value of the wage rate is taken into consideration.

2. State-wise Financial Outlay for Agricultural Equipment to Farmers at Subsidized Rates under Centrally Sponsored Schemes of Macro Management (2003-4 to 2006-7) is used as a proxy for mechanization in rural India

Continuous growth of rural population and lack of non-farm employment opportunities in rural areas caused increasing rural unemployment⁴ rate (current daily status) in some states. The increasing unemployment rate on one hand and growing mechanization⁵ (as evident from the increase in average government expenses on subsidizing agricultural equipment to farmers across the states in India) in agriculture, on the other, caused increased rural out-migration in India. The increase in rural literacy rates (particularly due to Sarva Shiksha Abhiyan and Right to Education) during these periods would also have enabled a large segment of the rural educated youth to migrate. Micro studies (like Oberai and Singh, 1980; Krishnaiah, 1997; Deshingkar *et al.*, 2006; Samal, 2006; and Awasthi, 2010) conducted earlier in different parts of the country find income distress as a major factor determining internal migration in India. Hence, it is important to find out what role remittances play in improving the standard of living of households and in evening out the poverty gaps across the states.

About 27 percent of the rural households reported that at least one of their household members had migrated out to other states or other countries. About 1 percent of the total rural households reported international migration whereas about 26 percent of the rural households reported internal migration (see Table 2). The states like Kerala (9 percent), Punjab (4.5 percent), Tamil Nadu (1.6 percent) and Andhra Pradesh (1 percent) reported relatively higher international migration than the all India average. The percentage of households reporting internal migration is highest in Himachal Pradesh (42 percent), which is followed by the states like Haryana, Kerala, Maharashtra, Uttaranchal, Uttar Pradesh, Rajasthan, Gujarat, West Bengal, Karnataka, Andhra Pradesh, Odisha and Madhya Pradesh etc. Economic class-wise distribution of the migration reporting households (see Figure 1: Part A) reveals that households belonging to the relatively richer classes are reporting more international migration. In case of internal migration it is more or less neutral.

4 As the correlation between rural unemployment and out-migration is positive (0.06)

5 The correlations between mechanization in agriculture and rural out-migration is positive (0.52)

TABLE 2
STATE-WISE MIGRATION AND REMITTANCE DETAILS IN
RURAL INDIA, 2007-08

Name of the State	% of Households reported migration		% of Households received remittance by types of migration reported		Average Annual household remittance receipts (Rs) by types of migration reported		Remittances as % of Households' expenditure by types of migration reported	
	<i>inter-national</i>	<i>internal</i>	<i>inter-national</i>	<i>internal</i>	<i>inter-national</i>	<i>internal</i>	<i>inter-national</i>	<i>internal</i>
Jammu & Kashmir	0.02	18.8	81.5	33.5	36667	36740	57.9	64.3
Himachal Pradesh	0.42	42.0	9.8	36.2	25267	22721	90.8	48.7
Punjab	4.4	19.8	60.1	13.8	115533	52166	137.7	85.6
Uttaranchal	0.05	32.9	35.8	40.7	20000	20557	51.1	48.9
Haryana	0.34	38.6	72.2	9.8	87882	43295	113.6	67.5
Delhi	0.002	12.3	100	0.3	NA	21500	NA	31.9
Rajasthan	0.63	31.8	96.7	26.9	51186	25309	116.7	60.5
Uttar Pradesh	0.46	32.4	76.6	32.4	29261	15298	56.0	39.2
Bihar	0.26	17.2	93.8	63.8	31136	15079	86.6	49.6
Arunachal Pradesh	0.005	11.6	100	31.6	100000	16551	104.2	28.7
Nagaland	0.05	16.5	48.2	24.6	20000	14358	25.9	24.0
Manipur	0.02	11.1	100	30.2	40667	35572	75.2	69.4
Tripura	0.34	6.8	54.5	43.5	40882	23213	97.5	53.7
Meghalaya	0.18	7.3	0	35.8	NA	27024	NA	55.9
Assam	0.001	12.2	17.6	31.5	NA	16329	NA	36.5
West Bengal	0.12	27.0	59.1	22.0	32941	14372	139.5	48.8
Jharkhand	0.06	9.5	100	52.8	55333	18642	98.1	61.2
Odisha	0.02	22.6	99.0	38.9	58250	12536	78.8	47.9
Chhattisgarh	0.02	14.6	97.6	19.6	6000	8394	19.3	29.2
Madhya Pradesh	0.04	22.9	7.9	8.9	6750	10343	32.4	35.6
Gujarat	0.34	28.4	43.6	9.1	49923	14685	92.6	41.2
Maharashtra	0.06	33.0	91.4	15.8	23500	10982	76.6	34.2
Andhra Pradesh	1.01	24.5	51.2	8.9	37418	15951	108.6	64.0
Karnataka	0.12	26.1	100	16.7	52143	11002	64.2	43.3
Kerala	8.8	34.6	76.7	23.5	71704	40926	114.9	77.1
Tamil Nadu	1.6	17.9	86.6	24.3	56709	18413	192.9	65.7
Others	0.73	13.0	66.6	17.5	70142	28256	157.3	74.2
All India	0.78	25.5	73.1	24.6	65443	19205	121.6	49.4

Source: Calculation from NSS Unit data, 2007-08

About 73 per cent of households (those who had reported international migration) reported receipts of international remittances whereas about 25 percent of the households (those who had reported internal migration) reported receipts of internal remittance in rural India (see Table 2). In terms of international remittance receipt, among the top

four international migration reporting states Tamil Nadu stands at the top (87 percent), followed by Kerala (77 percent), Punjab (60 percent) and Andhra Pradesh (51 percent). The percentage of households reporting remittances is highest in Bihar, followed by Jharkhand, Tripura, Uttaranchal, Odisha, Jammu & Kashmir, Uttar Pradesh, Himachal Pradesh, Meghalaya, Assam, Arunachal Pradesh, Manipur, Rajasthan and Tamil Nadu. Given the high poverty incidence (head count ratio) in most of these states, it is expected that migration would play a greater role in raising household living standards in these states. Furthermore, higher remittance (both internal and international) receipts among the households belonging to the lower economic quintiles (See Figure 1: Part 2) suggests that the decision to migrate and remittance receipts is closely linked to the household living standards. Hence it would be expected that remittance could have played a greater role in reducing income poverty in India. Though average remittance received (See Table 2) during last 365 days from outside India is much higher (Rs. 70877) than within the country (Rs. 21012), given the volume of internal migration the role of remittance from within India is more crucial. More importantly, in the relatively backward states remittance has a key role to play in raising the standard of living of the households.

Remittances constitute about 50 percent of household expenditure (of those reporting internal migration) in rural India. In case of international remittance, it is about 122 percent of the household expenditure (see Table 2). Percentage of international remittance to household expenditure is highest in Tamil Nadu (193 percent), followed by West Bengal (140 percent), Punjab (138 percent), Rajasthan (117 percent) Kerala (115 percent), Haryana (114 percent) and Andhra Pradesh (109 percent). Percentage of internal remittance to households' expenditure is above 50 percent in most of the states including the poor and backward states like Himachal Pradesh, Uttaranchal, Jharkhand, Chhattisgarh, Odisha, West Bengal, Madhya Pradesh, Andhra Pradesh and Tamil Nadu. Economic quintile-wise distribution of the households by source of remittance receipts (see Figure 1: Part 3) reveals that remittance as a percentage of households' expenditure is very high in the lower economic quintiles. Furthermore, heavy concentration of households reporting less than Rs. 20,000 internal remittance receipts during last 365 days (see Figure 2) shows the significance of remittance in determining the standards of living of these households in rural India. The distribution of the households receiving international remittances is almost normally distributed whereas distribution of the households receiving internal remittances it is rightly skewed (Figure 2).

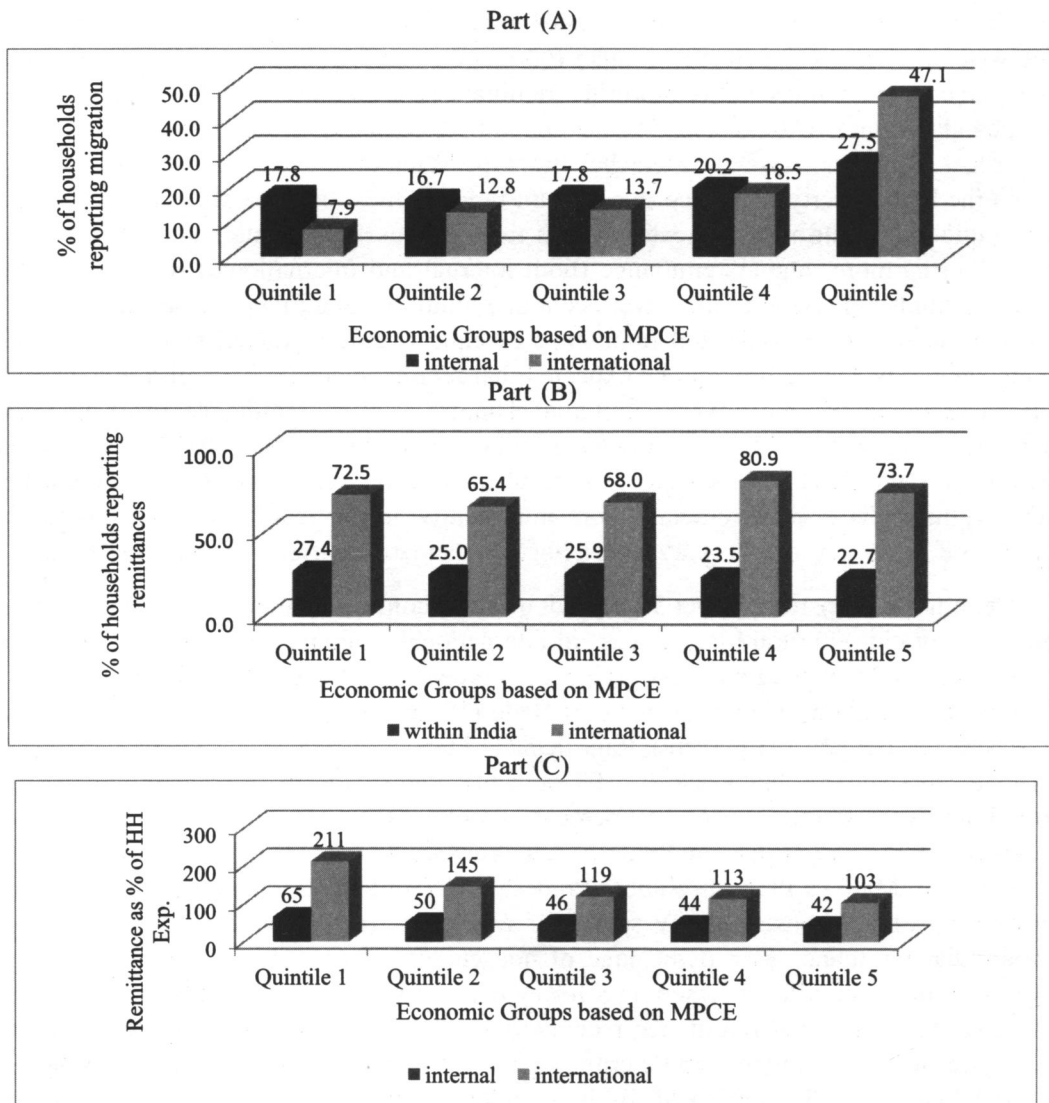
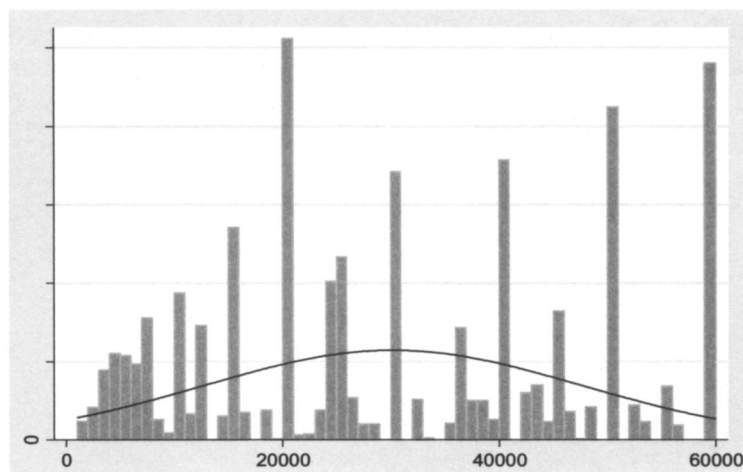


Figure 1: Households (%) Reporting Migration and Receipts of Remittance by Economic Groups in Rural India.

Source: Plotted using NSS Unit data, 2007-08

Part (A)



Part (B)

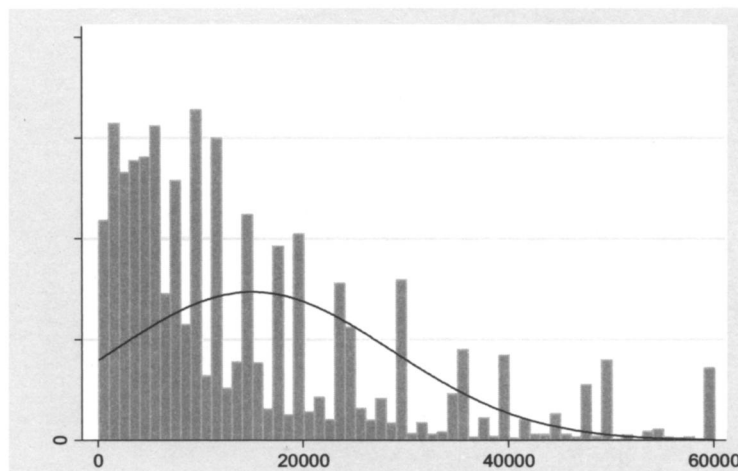


Figure 2: Density of Rural Households by Amount (Rs) and Types of Remittances Receipts, 2007-8

Source: Plotted using NSS Unit data, 2007-08

Remittances and Households Expenditure

To compare the living standards of remittance receiving and not receiving households we have plotted their log of monthly per capita expenditure (See Figure 3). The distribution of remittance receiving households placed rightward suggests that the living standards of remittance receiving households are relatively better than that of not

receiving households. The standard of living of the households receiving either internal or international remittances is better than that of remittance not receiving households (see Fig 3-part A and B). The comparison of living standards between internal remittance and no-remittance households is important since internal migration is related to households' income distress and poverty. It is clear that internal migration improves the relative standard of living through receipt of remittances.

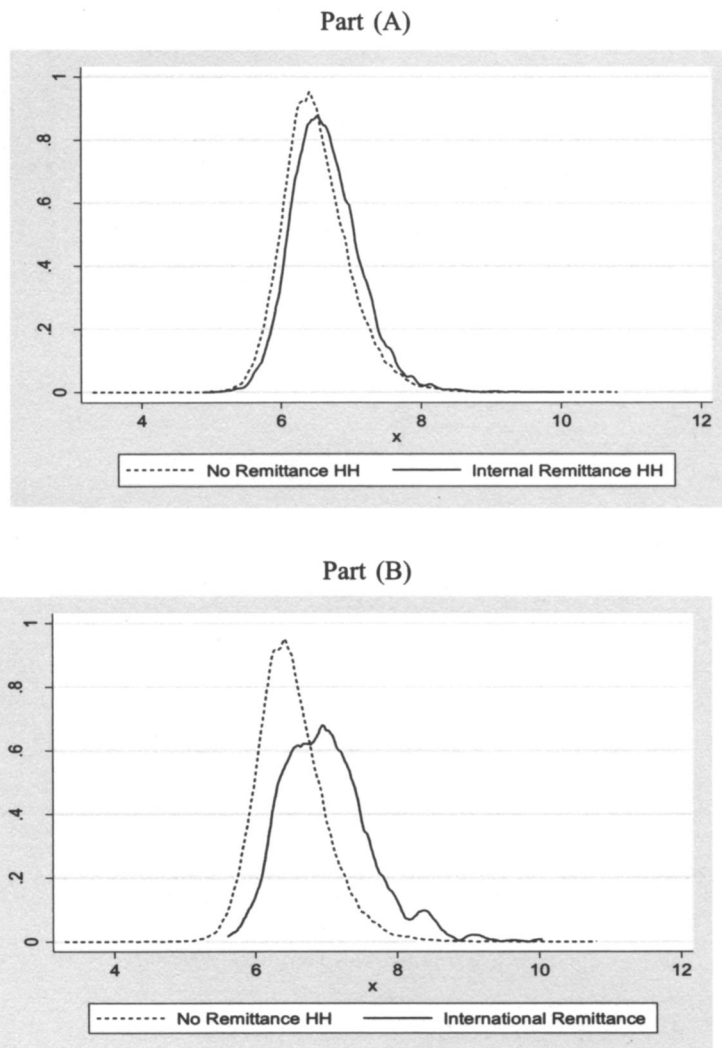


Figure 3: Distribution of Log Monthly Per Capita Expenditure (MPCE) by Households' Receipt of Remittances in Rural India.

Source: Plotted using NSS Unit data, 2007-08

To explore further how households spend these remittances and what role remittances play in the process of human capital formation in India, we plot the remittance use data. The information on the uses of remittance is given under 12 different heads. We have reclassified the remittance use into eight major categories (see Table 3). Most of the households reported that they use remittance on food and consumer goods. About 76 per cent and 63 per cent of the households (those who were reporting receipts of internal and international remittance respectively) reported that they used remittances for the purpose of either purchasing food items or other consumer goods. Though there exists a state-level variation in the percentage of households reporting use of remittances on food and other consumer goods, but it ranges from 58 to 89 percent in case of internal remittance receipts. Since a large percentage of households report remittance use on basic necessities, it is clear that internal remittance plays a key role in improving the living standards of households.

At all India level about 7 per cent of households receiving internal remittance spent remittances on healthcare. The percentage of households spending remittances on health care is high (above 10 percent) in relatively poor states like Uttar Pradesh, Assam, Jharkhand, Chhattisgarh, Madhya Pradesh and Arunachal Pradesh. Similarly about 20 per cent of households receiving international remittance reported that they had spent on healthcare in Odisha, Gujarat, and Nagaland etc. The percentage of households reported use of remittance for education spending is quite low. The expenditure on health care has important labour market implication that would increase labour productivity (see Ribero, 1999 and Behrman *et al.*, 2009) and hence is responsible for initiating economic growth. Furthermore, using remittance to repay past debts (about 4 per cent and 19 per cent of households receiving internal and international remittances) always has a positive psychological impact on the household members through reduction of social stress. Spending remittance on housing improves the living conditions and secures a better future for the entire household.

TABLE 3
PERCENTAGE OF HOUSEHOLDS REPORTING THE USE OF REMITTANCE ON
DIFFERENT HEADS IN INDIA, 2007-08

Name of the State	Households Reporting use of Internal Remittance								Households Reporting use of International Remittance							
	Food & consumer items	Education	Health care	Housing & Durables goods	Marriage & ceremonies	Saving & Investment	Debt repayment	Others	Food & consumer items	Education	Health care	Housing & Durables goods	Marriage & ceremonies	Saving & Investment	Debt repayment	Others
Jammu & Kashmir	82	1	4	9	2	2	0	1	37	7	0	42	0	14	0	0
Himachal Pradesh	89	1	3	2	1	3	0	0	89	0	7	0	0	4	0	0
Punjab	77	1	3	7	3	4	4	2	48	2	6	8	6	12	13	6
Uttaranchal	86	1	2	5	2	1	0	3	99	0	0	0	0	0	0	1
Haryana	76	2	6	3	2	4	2	5	70	0	0	4	0	14	2	11
Delhi	89	2	3	0	0	5	0	0	83	0	0	0	0	0	0	16
Rajasthan	82	1	2	4	2	2	6	3	65	1	0	0	2	6	26	1
Uttar Pradesh	77	3	10	3	3	1	2	2	62	0	16	7	0	0	13	2
Bihar	79	0	7	4	2	1	1	6	80	0	3	5	1	0	10	0
Arunachal Pradesh	58	2	16	5	3	0	2	12	100	0	0	0	0	0	0	0
Nagaland	68	5	7	5	1	3	2	10	0	0	100	0	0	0	0	0
Manipur	74	3	4	4	2	3	4	8	61	0	8	0	0	31	0	0
Tripura	87	1	6	0	1	0	1	5	85	0	2	5	0	0	8	0
Meghalaya	86	4	7	0	0	2	0	2	0	0	0	50	0	50	0	0
Assam	73	1	10	6	2	3	1	3	92	0	0	0	0	8	0	0
West Bengal	82	1	6	5	2	2	1	1	62	3	12	16	0	1	7	1
Jharkhand	79	1	10	4	1	1	2	2	48	0	0	37	16	0	0	0
Odisha	74	1	4	9	3	2	7	1	39	0	23	7	10	21	0	0
Chhattisgarh	64	1	13	8	6	1	1	6	100	0	0	0	0	0	0	0
Madhya Pradesh	71	1	10	7	2	2	3	3	78	0	0	2	0	11	10	0
Gujarat	77	0	6	5	1	3	2	5	55	1	24	8	0	5	3	2
Maharashtra	77	2	11	3	2	2	1	2	74	0	8	8	1	6	1	2
Andhra Pradesh	64	1	7	4	1	8	11	3	51	1	5	1	1	6	34	0
Karnataka	78	1	6	7	3	1	3	0	93	1	1	0	1	4	0	0
Kerala	69	1	11	4	1	2	9	1	67	0	4	4	3	1	19	2
Tamil Nadu	70	1	6	2	1	5	12	2	59	0	3	2	1	6	30	0
Others	78	2	4	4	1	9	2	1	81	0	1	1	4	12	0	1
Total	76	1	7	5	2	2	4	2	63	0	5	4	2	4	19	2

Source: Calculation from NSS Unit data, 2007-08

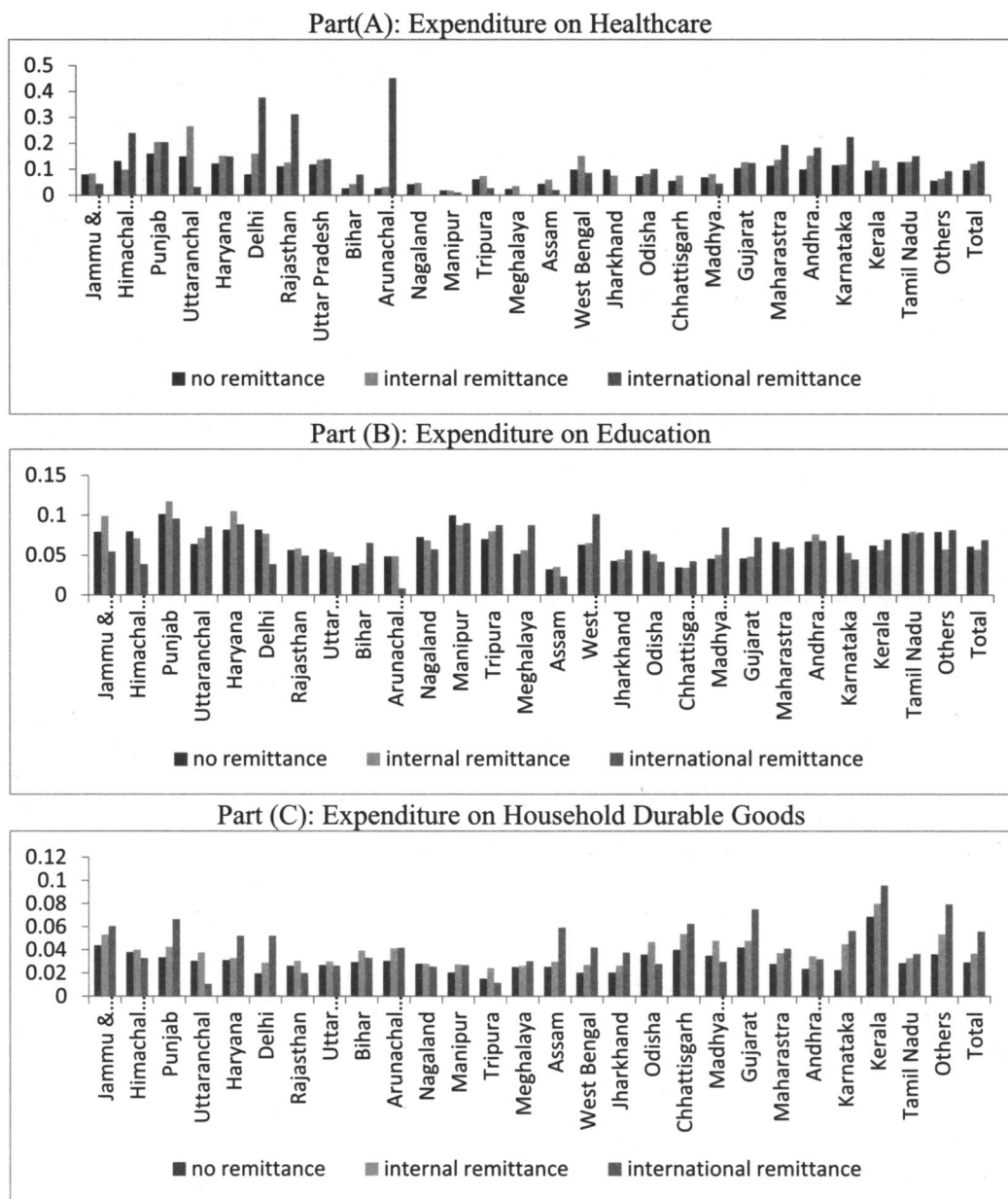


Figure 4: Percentage Share of Households' Expenditure on Healthcare, Education and Household Durable Goods by Receipt of Remittance

Source: Calculation from NSS Unit data, 2007-08

Comparing the average budget shares of remittance receiving and not receiving households, it is observed that receipts of remittances has positive influence on the budget shares allocated to health care, education and consumer durable goods (see figure 4-part A, B and C); and has a negative influence on the budget shares allocated to food and other consumer goods. A common behavior pattern with respect to the receipts of internal and international remittances across the poor states in India is observed. The households receiving remittance on average spend a higher proportion of their expenditure on health care, education and consumer durable goods as compared to the households that do not receive any such remittances. Households reporting international remittances, spend higher proportions of their budget on health care, education and consumer durable goods as compared to households reporting internal remittance. This suggests the fact that households receiving remittances are economically better off than no remittance households as it is also reflected through their shifting consumption pattern. This shifting consumption pattern follows Engel's law. With this back ground we have attempted to test the Engel's law in India with respect to the receipt of remittances (its role on the human and physical capital formation) in the next section.

4.2 Econometrics Results

Since we have observed that expenditure pattern of remittance receiving (from internal or international sources) households and not receiving households are different, we are interested in examining whether remittance has any influence on household spending patterns? Before, estimating the households' expenditure function it is important to find out the household level factors that influence both internal and international migration decision, which partly influences the remittance receipts. A multinomial logit model is estimated (see Table 4) to find out the factors determining migration decisions, in the first-stage, from which two inverse mills ratios (for internal and international migration) are calculated. These inverse millions ratios are used as additional explanatory variables in the household expenditure functions (viz., food, education, health, and durable goods) in the second stage (see Table 5) to correct the likely selection bias.

Estimating Determinants of Migration Decision

The migration decision of the household members is influenced by a set of socio-economic and demographic characteristics of households. Households that belong to higher economic classes are able to spend more on educating their household members, and hence are more likely to report migration. Households reporting migration are likely to receive remittances. The receipt of remittance influences households' economic condition positively. Hence using monthly household expenditure as an explanatory variable in the migration decision function would cause endogeneity problem. To address this issue, at the outset, we have estimated a household expenditure function (See Annexure 1) and estimated the predicted value of household expenditure, which is later used as

TABLE 4
DETERMINANTS OF INTERNAL AND INTERNATIONAL MIGRATION
DECISION IN RURAL INDIA (MULTINOMIAL LOGIT ESTIMATES)

Variables	Reporting International Migration			Reporting Internal Migration		
	Coefficient	Z-Value	ME	Coefficient	Z-Value	ME
Constant	-17.1	-7.2***	---	-7.7	-9.1***	---
HH size	-0.12	-2.6***	-0.0012	-0.013	-1.6	-0.0014
HH monthly exp. (estimated)	0.91	3.1***	0.0101	-0.39	-3.25*	-0.052
HH Head's Age	0.06	2.6***	0.0004	0.09	11.4***	0.012
HH Head's Age Square	-0.0002	-0.9	-0.000001	-0.0004	-5.6***	-0.00006
Household Head's Sex (reference category-Male)						
Female	-9.5	-1.9*	-0.063	-13.9	-15.8***	-1.79
Female* HH monthly exp	1.18	1.9*	0.0068	2.12	18.7***	0.27
Household Head's Level of education (reference category-Illiterate)						
Primary	0.13	1.2	0.001	0.10	3.1***	0.013
Secondary	0.26	1.5	0.003	0.03	0.7	0.004
Higher Secondary	0.52	2.1**	0.005	0.21	2.7***	0.026
Graduate and Above	0.44	2.0**	0.004	0.18	2.4**	0.023
Landholding dummy (reference category-less than 0.005 hectare)						
0.005-1 hectare	1.50	7.5***	0.014	0.65	13.2***	0.082
1 to 2 hectares	1.57	6.5***	0.014	0.84	13.7***	0.107
2 to 4 hectares	1.30	4.8***	0.011	0.90	12.1***	0.117
4 to 8 hectares	0.83	2.3**	0.006	1.12	10.1***	0.146
Above 8 hectares	1.71	3.7***	0.014	1.25	7.2***	0.162
Social group dummy (reference category-Scheduled Tribe)						
Scheduled Caste	0.90	2.8***	0.008	0.29	5.5***	0.036
Other Backward Caste	1.35	4.4***	0.013	0.37	7.2***	0.046
Others	1.00	3.0***	0.009	0.40	6.5***	0.051
Religion group dummy (reference category-other religion)						
Hindu	-1.78	-9.6***	-0.020	0.72	8.0***	0.099
Muslim	-0.25	-1.2	-0.004	0.64	6.2***	0.085
Christian	-0.65	-2.8***	-0.009	0.83	6.5***	0.111
Region dummy (reference category-Eastern Region)						
Western	1.23	4.3***	0.012	0.06	1.3	0.005
Northern	1.49	5.5***	0.014	0.31	6.8***	0.038
Southern	2.78	10.8***	0.029	-0.43	-8.5***	-0.064
Central	0.26	0.8	0.003	-0.30	-6.4***	-0.041
North Eastern	-2.09	-4.5***	-0.019	-1.05	-13.4***	-0.134
Pseudo R ²	0.2908					
Wald chi2(52)	8466.5 ***					
Observations (N)	73862					

Source: Author's Estimation

Note: (i) Base category is households not reporting any migration (ii) For dummy variables marginal effect (ME) implies the discrete change from 0 to 1 and (iii) a *, ** and *** imply 1 per cent, 5 per cent and 10 per cent level of significance respectively.

an instrumental variable in the migration function. Since household head is the major decision making member in most of the Indian household, household head's age, sex and level of education are used as explanatory variables. Other household characteristics like household size, social group, region and size of landholding are expected to influence the decision to migrate and hence are used as additional explanatory variables. Using regional dummies would enable us to capture the influence of local level indicators including language, existing social networks etc.

Multinomial logit estimates suggests that while the push factors drive internal migration, pull factors account for international migration in rural India. The coefficient of logarithm of household monthly expenditure (estimated) is highly significant with positive sign in case of international migration; which is negative in case of internal migration. This suggests the fact that the probability of international migration is high among the members of the households those who can afford migration cost. Otherwise, it is sensible to assume that households belong to higher incomes classes would have spent more on educating their household members to enable them for migrating to other countries. The negative coefficient of household expenditure in case of internal migration suggests that members of the relatively poor households are likely to migrate out either to other states or within states because of household income distress. This result is consistent with the findings of earlier studies like Oberai and Singh (1980), Krishnaiah (1997), Deshingkar *et al.*, (2006), Samal (2006) and Awasthi (2010). Since internal migration is driven by income distress the role of remittance is more crucial in determining households' spending behavior in rural India.

The size of land holdings positively influence the decision to migrate and a relatively stronger coefficient in case of large holdings reflects two things: (i) as land holding also reflects the economic status of the rural households, those belong to higher economic groups would support (financial) their household member to migrate to other countries for better opportunities (ii) and due to the rising mechanization in agriculture in the recent years, surplus labourer of the households are likely to migrate out to support household income. This is also revealed through a fall in absolute agriculture employment in recent times (Mehrotra *et al.*, 2014). Migration as a strategy to maximize household utility (Hoddinott, 1994; and Stark and Fan, 2007) is explained by the coefficient of log of monthly expenditure, landholdings and partly by the coefficients of household heads' sex, age and its square. Household heads' sex has negative sign; whereas household head's age has a positive sign and its square has a negative sign. This implies the fact that relatively younger member of the households migrate to support the family, and the member of household whose head is relatively older or a female are less likely to migrate.

The coefficients of social group dummies indicate that relative probability of both international and internal migration is high among the households belongs to forward caste as compared to the backward Schedule Tribes (ST). The coefficient of religion dummies on the other hand shows that probability of internal migration is high among Hindus,

Christians and Muslims as compared to the household belonging to other religions. And in the case of international migration just the reverse is true. The coefficients of region dummies, however, suggest that migrants from the eastern and north-eastern regions (i.e., states with relatively high level of poverty head counts) would push their people into the internal migration stream, whereas the probability of international migration (mainly to obtain better opportunities) is high in the northern, western and southern regions that consist of the high and middle income states in India.

Estimating Households' Expenditure Functions

The house expenditure functions are estimated in the second stage after correcting the selection bias. The results of the second-stage equation for each expenditure category are given in Table 5. The most important variable is the selection term (λ). The significant λ variables (international and internal migration) in all the expenditure equations suggest that excluding these variables from the regression would have resulted in selection bias. And estimating through seeming unrelated regression model captures correlations across the equations (significant Breusch-Pagan test statistics). The coefficient of logarithm of total expenditure is negative in case of food and consumer goods and positive in health, education and durable goods equations; whereas the coefficients of expenditure square terms are just the opposite. This result is consistent with Engel's law, which states that higher the standard of living, lower is the share of expenditure devoted to necessary goods and vice versa. In other words with increasing standard of living households tend to devote relatively less share of expenditure on necessary goods (food and consumer goods) and relatively more share on investment goods (both physical and human capital investments).

The negative coefficients of land holding dummies and household head's occupation dummies are again consistent with the Engel's law. This implies that households possessing more land assets (normally better off households in rural area) are devoting relatively less share of expenditure on food and consumer goods and relatively more share on physical and human capital investments. This is also true in case of household heads' occupation dummies, which also partly reflects household's economic status in rural India. Coefficients of social groups and religion dummies also show similar results, indicating that socially backward and marginalized groups are more likely to devote a larger share of their households' expenditure on food and consumer goods and less on investment goods.

The negative and significant coefficients of the selection terms (λ international migration and λ internal migration) in food and consumer goods equation indicates that the households reporting migration on average spend less on these goods. On the other hand, positive and significant coefficients of selection terms in health care, education and durable goods (apart from λ internal migration in education equation) equations imply that households reporting migration on average devote larger share of their household's expenditure on both physical and human capital investments.

TABLE 5
HOUSEHOLD EXPENDITURE FUNCTIONS IN RURAL INDIA
(SEEMINGLY UNRELATED REGRESSION ESTIMATES)

Variables	Food & Consumer goods		Health care		Education		Household durables	
	Coeff.	t-values	Coeff.	t-values	Coeff.	t-values	Coeff.	t-values
Constant								
HH monthly exp. (estimated)	-0.0371	-3.3***	0.0273	2.8***	0.1014	18.6***	0.0031	0.66
HH monthly exp. (estimated) Square	0.0218	13.8***	-0.0028	-2.2**	-0.014	-18.5***	-0.0002	-0.24
HH size	-0.0443	-24.2***	0.0026	1.6	0.0191	21.7***	-0.0003	-0.39
Sex of Household head (reference category male)								
Female	0.0310	13.2***	-0.0257	-12.9***	0.0019	1.7*	-0.0057	-5.9***
Households' Landholding dummy (reference category-less than 0.005 hectare)								
0.005-1 hectare	-0.0299	-21.1***	-0.0030	-2.5**	0.0120	17.7***	0.0052	8.9***
1 to 2 hectares	-0.0622	-23.7***	-0.0053	-2.4**	0.0232	18.4***	0.0083	7.6***
2 to 4 hectares	-0.1029	-25.5***	-0.0016	-0.46	0.0378	19.6***	0.0133	7.9***
4 to 8 hectares	-0.1398	-24.2***	0.0068	1.4	0.0473	17.1***	0.0189	7.9***
Above 8 hectares	-0.1724	-21.3***	0.0073	1.07	0.0673	17.4***	0.0123	3.7***
Occupation of Household Head (reference category-Elementary occupations)								
Senior Official & Manager	-0.1581	-24.4***	0.0069	1.27	0.0683	22.1***	0.0089	3.4***
Professional	-0.1889	-25.8***	0.0078	1.27	0.0847	24.2***	0.0114	3.8***
Clerk	-0.2240	-25.7***	0.0081	1.11	0.1113	26.7***	0.0099	2.7***
Sales & Service worker	-0.0973	-24.2***	0.0059	1.74*	0.0453	23.6***	0.0023	1.4
Skilled Agri. & Fishery worker	-0.0611	-24.2***	0.0019	0.87	0.0275	22.8***	0.0042	4.1***
Craftsman, machine operator	-0.0818	-25***	0.0066	2.4**	0.0360	23.1***	0.0034	2.5**
Social groups (reference category-Scheduled Tribe)								
Scheduled Caste	-0.0382	-23.1***	0.0133	9.5***	0.0180	22.7***	-0.0021	-3.1***
Other Backward Caste	-0.0610	-27.5***	0.0143	7.7***	0.0265	25.1***	0.0001	0.07
Others	-0.1091	-29.2***	0.0190	6.1***	0.0512	28.6***	-0.0003	-0.21
Religion group dummy (reference category-other religion)								
Hindu	0.1111	23.6***	-0.016	-4.2***	-0.046	-20.7***	0.0030	1.5
Muslim	0.1463	26.1***	-0.023	-4.8***	-0.064	-24.1***	0.0027	1.2
Christian	-0.0163	-4.6***	-0.0026	-0.9	0.012	7.5***	0.0028	1.9*
Lambda International migration	-0.2586	-20.5***	0.2384	22.5***	0.0216	3.6***	0.0152	2.9***
Lambda Internal migration	-0.0172	-13.1***	0.0205	18.5***	-0.004	-6.4***	0.0029	5.4***
R ²	0.571		0.217		0.669		0.194	
Chi2	529125.2***		31078.18***		31954.36***		28615.81***	
Observations (N)	73862		73862		73862		73862	
Breusch-PagantestChi2	61707.8***							

Source: Author's Estimation

Note: 1. *, ** and *** imply 1 per cent, 5 per cent and 10 per cent level of significance respectively.
2. MPCE- monthly per capita consumption expenditure.

Comparing Estimated Average Budget Shares by Households' Remittance Receipts

To arrive at a conclusive remark, we have conducted t-test for comparing the average budget shares by households' receipts of remittances. We have computed the predicted values of the budget shares for each expenditure category and used it for comparison (see Table 6). It is important to note that households receiving either internal remittances or international remittance on average spend less on food items compared to the households that do not receive any remittance. At the mean, households receiving internal remittances spend 0.24 percent less on food and consumer goods and the households receiving international remittances on average spend 2 percent less on food and consumer goods. This result is consistent with the findings of Taylor and Mora (2006), Castaldo and Reilly (2007) and Adams and Cuecuecha (2010 and 2013) who find that, at the margin, households which receive remittances spend considerably less on food, than those that do not receive any such remittance.

TABLE 6
ESTIMATED AVERAGE BUDGET SHARES OF NON-REMITTANCE AND
REMITTANCE RECEIVING HOUSEHOLDS IN RURAL INDIA, 2007-08

Type of Expenditure	Average share of Expenditure (Predicted value)			Mean Difference	
	<i>No remittance HH</i>	<i>Internal remittance HH</i>	<i>Inter-national remittance HH</i>	No remittance and Internal remittance HH	No remittance and International remittance HH
Food & Consumer goods	0.8257	0.8237	0.8106	0.0020 (9.7***)	0.0151 (20.8***)
Health care	0.0514	0.0507	0.0597	0.0006 (7.1***)	-0.0084 (-25.7***)
Education	0.0289	0.0296	0.0338	-0.0007 (-6.1***)	-0.0049 (-12.3***)
Household durables	0.0245	0.0260	0.0267	-0.0015 (-29.9***)	-0.0022 (-12.6***)

Source: Author's Estimation

Note: t-statistics are given in parentheses and *** imply 1 per cent level of statistical significance.

On the other hand, households receiving remittances on average spend more on investing in human capital and household durables. At the mean, households receiving internal remittances spend more on education (2.4 per cent) and household durable goods (6.1 per cent). Similarly, households receiving international remittances on average spend 16 percent more on healthcare, 17 percent more on education and about

9 percent more on household durable goods as compared to the household that do not receive any remittances. While this result suggests a global convergence with respect to migrant households' behavior, there is much more research to be done before we come to a definite conclusion.

This large increase in spending on education and health is important because it can help in raising the level of human capital in rural India. The marginal increase in spending on household durables shows the improvement in the standard of living, due to the receipts of remittance. Since the receipts of remittance increase the budget share allocated to education and health, with state intervention on human capital formation, remittances would accelerate growth. Provision of better health facilities and increasing the public expenditure on general and technical education would reduce the households' marginal spending on human capital. As a result they would have more surplus in hand which could be channelized into saving and productive investments.

5. CONCLUDING REMARKS

The paper attempted to explore the current trends of rural out-migration and the factors affecting it; and to understand and compare the marginal spending behavior of three groups of households in India - those not receiving remittances, those receiving internal remittances and those receiving international remittances - with an emphasis on the impact of remittances on investment in human capital defined as education and health. The analysis based on a nationally representative sample survey for two periods, reveals that migration, besides having a major impact on poverty reduction, also has an impact on marginal spending behavior in such a manner as to follow Engels Law and also that the amount set apart for the building of human capital is significant with wider policy implications.

The study clearly reveals the levels of development and nature of migration from the poorer states, exhibiting a high percentage of outmigration within the country. The outcome of such migration also has implications for the lower sections of households with the remittance income largely accruing to the families belonging to the bottom quintiles of the income distribution. This implies that migration helps reduce poverty, as has been expected and evidenced from other countries. The study further provides evidence as to how the remittance recipient families move up the income ladder in terms of human capital formation. Majority of the households spend remittances on food items; the share of expenditure on different heads with respect to receipts of remittance suggests that households receiving remittances on the average spend less (0.24 per cent internal remittance and 2 % international remittance households respectively) on food than the households not receiving remittance. In contrast to this, households receiving remittances spend more at the margin on investing in human capital and household

durables. Situated in the larger body of literature, it is thus revealed that there is an international convergence taking place with respect to the marginal spending behavior of migrants. This behavioural pattern has wider policy implications for a country like India.

The large marginal increase in spending on education and health care is of great significance as it helps raise the level of human capital in India. And the marginal increase in spending on household durables reflects the improvement in the standard of living of households due to the receipts of remittance. Since the receipts of remittance increase the average budget share on education and health, with state intervention on human capital formation, remittances would help accelerate overall economic growth in rural India. Provision of better health facilities and increasing the public expenditure on general and technical education by the state would reduce the households' necessity of spending more on such aspects of human development. As a result they would have more surplus in hand which could then be channeled into saving and productive investments which again would help rural economy to grow. In terms of equity, the state could further target non-remittance households helping them to improve their status in terms of human capital. This could take the form of cross subsidization, where the state advantaged with the overall remittances tilt their spending pattern in favour of those households that are outside the remittance network. This could be done by adopting a strategy of differential inclusion in support of the non-remittance households helping them to stabilize themselves on the human development ladder.

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ANNEXURE 1

ESTIMATES OF HOUSEHOLD EXPENDITURE FUNCTION IN RURAL INDIA
(OLS ROBUST ESTIMATES)

Dependent Variable- Logarithm of monthly household expenditure	Coefficients	t-values
Constant	7.26	729.6***
Household size	0.13	164.6***
Sex of Household head (reference category male)		
female	-0.02	-5.0***
Households' Landholding dummy (reference category-less than 0.005 hectare)		
0.005-1 hectare	0.07	15.4***
1 to 2 hectares	0.16	24.3***
2 to 4 hectares	0.25	29.2***
4 to 8 hectares	0.33	22.8***
Above 8 hectares	0.42	16.9***
Occupation of Household Head (reference category-Elementary occupations)		
Senior Official and Manager	0.43	35.1***
Professional	0.51	65.7***
Clerk	0.57	39.2***
Sales and Service worker	0.27	37.9***
Skilled agriculture and Fishery worker	0.18	46.2***
Craftsman, machine and plant operator	0.23	44.2***
Social groups (reference category-Scheduled Tribe)		
Scheduled Caste	0.07	12.8***
Other Backward Caste	0.13	27.6***
Others	0.25	46.1***
Religion group dummy (reference category-other religion)		
Hindu	-0.30	-35.8***
Muslim	-0.36	-37.5***
Christian	0.07	6.9***
R ²	0.4822	
F-statistics	2851.86***	
Observations (N)	73862	

Source: Author's Estimation

Note: *, ** and *** imply 1 per cent, 5 per cent and 10 per cent level of significance respectively.