FOREIGN REMITTANCES AND HOUSEHOLD-BASED HUMAN DEVELOPMENT: A REGIONAL ANALYSIS OF PUNJAB, PAKISTAN

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ABSTRACT

This article examines the disaggregated impact of foreign remittances on household-based human development for the Punjab province of Pakistan using the latest Multiple Indicator Cluster (MICS 2014-15) survey. To provide rich insights into the interactions between remittances and human development, a household-based human development index (HHDI) is constructed from three dimensions of education, health and housing. The analysis is also conducted for three regions (South, North and Central) of Punjab. The findings suggest that migrant households are better off than non-migrant households in all three regions but most prominent in South Punjab, the least developed region with the lowest values of HHDI.

Keywords: Remittances Inflow, Household-Based Human Development Index, Migrant Household.

INTRODUCTION

Remittances inflows have profound implications for the recipients, as they help households stabilize irregular incomes and enhance their human and social capital. In a number of cases, the migrant households are financially better-off than non-migrant households (Sander & Maimbo, 2003). Remittances are a vital source of revenue for households. There are however different views regarding consumption of this source of funding. A number of scholars, such as Lipton (1980), Sofranko & Idris (1999) and Kangmennaang et al. (2017) argued that remittances were mostly spent on consumption of basic needs, such as food and healthcare; a smaller portion was saved (treasury bonds and in bank/postal deposits; Arru & Ramella, 2000) or invested in acquiring better education and more assets in the form of housing and land purchases (Osili, 2004; Gyimah-Brempong & Asiedu, 2015). The general consensus from the literature is that remittances are used for education, healthcare and housing facilities.

A significant share of remittances was also spent on improving the standard of living through better housing and sanitation, consumer durables and loan repayment (Boly, 1998; de Vasconcelos, 2014), as housing is indeed one of the basic human needs (Siddiqui, 2013). Certainly, the findings of many studies conducted in different countries appear to demonstrate that remittances positively affected the income of the people and households (Rodriguez, 1998; Adams & Page, 2005; Adusah-Poku, 2016).

In 2015, a total of $554 billion was transferred by international migrants back to their home countries (compared to just $200 billion in 2000). Pakistan received 16.37 percent of the total remittance inflows to the South Asian region in 2015 (World Bank, 2016). Pakistan, a major labour supplier to host economies with labour shortages, is a notable recipient of remittances.

Pakistan workers currently reside in (and send money from) more than 50 countries around the world (BEOE, 2015). In 2013, more than 6.2 million Pakistani workers were serving in foreign countries (UN, 2016) and they remitted $19.30 billion in the same year (World Bank, 2016).

A crucial question is: What are the development impacts of remittances inflow on migrant households at the regional level? This paper addresses the above question for the case of Punjab, the province with the highest number of Pakistani emigrants (52 percent) (BEOE, 2015) and the largest recipient of international remittances inflow (55 percent) to Pakistan (PBS, 2014). Further, remittances to Punjab are already cited to have brought considerable developmental effects to the migrant households (PBS, 2014).

The rest of the study is organized as follow. Section 2 details the model specification, empirical strategies and data sources. Section 3 presents and discusses the empirical results and the last section concludes the study.

DATA AND METHODOLOGY

Data Source

The data is sourced from the latest Multiple Indicator Cluster Survey (MICS, 2014-15). The survey is giving a sample of 41,413 households. It comprises important social, economic and demographic related information. After dropping the households with incomplete data, a total of 36,400 households were available for the analysis. The data is arranged for all three 3 regions of the Punjab province by migrant households and non-migrant households. For the former group, we obtained 2,891 (7.9 percent) households by re-filtering the data and applying the geometric mean technique. Among these 2,891 households, 39 percent are from North region, 45 percent from Central Punjab and rest of from South Punjab.

Model Specification

To assess the impact of remittances on regional household-based human development, the empirical model is based on key determinants proposed in studies by Al-Samarrai & Peasgood (1998), Touhami et al. (2009) and Anyanwu (2014), while taking into account other household characteristics and a set of variables related to the household head (Lipton, 1980; Adams, 1993). The econometric specification is as follow:

$$HHDI_i = \alpha + \gamma RI_i + \beta X_i + \delta H_i + \varepsilon_i \qquad (1)$$

Where $HHDI_i$ represents overall household-based human development index, RI_i represents remittances inflow, X_i is a vector of household characteristics, H_i is a set of variables related to household head and ε_i is an error term. The description of the variables is provided in Table 1.

	Table 1 DESCRIPTION OF VARIABLES	
Variable	**Description**	**Measure**
HHDI	Household-based human development	Household-Based Human Development Index
RI	Foreign remittances inflow	Binary variable 1 for remittance receivers, 0 for non-receivers
Dep	Dependency	Number of household members that are below14 years of age and above 64 years

Table 1 DESCRIPTION OF VARIABLES		
lnOI	Other income	Logarithmic value of income (measured in local currency) from all sources other than foreign remittances
HHage	Age of household head	Number of years
HHedu	Education level of household head	Measured as none, primary, middle, secondary and higher level
Male	Male household head	Binary variable 1 for male, 0 for female

Empirical Strategy

Following previous survey based studies on remittances inflow (e.g., Adams, 1998; Arif, 2004; Ahmad et al., 2010; Beyene, 2014) the ordinary least squares (OLS) technique is employed to estimate equation (1). In order to perform an unbiased estimation, the current study also used sample weights. To empirically compare the living status of migrant households from non-migrant households, the Propensity Score Matching (PSM) technique is adopted. The PSM is applied to match the migrant households and non-migrant households to calculate the Average Treatment effect on Treated (ATT). The ATT advocates what a household would have looked like if it did not receive remittances. This approach helps us to control for a probable selection effect in which it may be that the migrant household may be more settled and therefore more likely to emigrate.

The use of dummy variables can be a cause of multicollinearity; likewise, the inclusion of a variable which is computed from other variables in the data set. Since we used variables such as the HHDI and gender of household head that is derived from other variables and a dummy variable respectively, we had to deal with the multicollinearity problem. Thus, we applied the tolerance technique that is derived from variance inflation factor (VIF) technique.

EMPIRICAL RESULTS

Regional Results

Table 2 reports the results of equation (1) based on the OLS approach for all regions of the Punjab province. To ensure that the estimations are unbiased, sample weights are used. Overall, the results indicate that foreign remittances inflow has a positive impact on household development for all regions. This implies that migrant households have higher household development than non-migrant households, which concur with previous related work (Arif, 1999; Acosta et al., 2008; Le & Bodman, 2011). Since the HHDI is a weighted sum of the education, health and housing indices, the results also suggest that a positive impact on any of the three sub-indices will boost household development.

By region, the highest and lowest differences in household development between migrant and non-migrant households are noted for the South and Central regions, respectively. The ratio ranges from 0.0252 to 0.0494 (Central to South regions). It is also observed that migrant households are better-off than the non-migrant households in the region with the lowest overall HHDI, namely South Punjab. A possible reason for this is that the less developed region of South Punjab offers fewer opportunities of employment, which then results in a lower earnings stream and purchasing power for households in that location.

Remittances inflows have the lowest impact on the development of migrant households for Central Punjab. This may be due to the large presence of industrial units and trading activities, apart from the availability of fertile land in Central Punjab relative to the other two regions. Cities with high urbanization and industrialization, such as Lahore, Faisalabad, Gujranwala, Sialkot & Sheikhupura are located in this region, thereby providing employment and business opportunities. Hence, contrary to the North and South regions of Punjab, migrant households in Central Punjab are comparably not much better-off than their non-migrant household counterparts.

Table 2 REGION WISE OLS BASED RESULTS FOR PUNJAB			
Variables	**North**	**Central**	**South**
RI	0.0391*** (0.0080)	0.0252** (0.0103)	0.0494*** (0.0075)
Dep	-0.0097*** (0.0010)	-0.0091*** (0.0007)	-0.0134*** (0.0008)
lnOI	0.0228*** (0.0021)	0.0263*** (0.0024)	0.0197*** (0.0021)
HHedu	0.0524*** (0.0016)	0.0532*** (0.0013)	0.0557*** (0.0015)
HHage	0.0011*** (0.0001)	0.0013*** (0.0001)	0.0007*** (0.0001)
Male	0.0337 (0.0276)	0.0244 (0.0188)	0.0688*** (0.0077)
Constant	-0.0197 (0.0272)	0.0747** (0.0268)	-0.0684** (0.0298)

Robust standard errors are reported in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

In terms of household characteristics, as expected, the number of dependent members has a negative impact on household development, while the opposite holds true for income from other sources. As for the characteristics of the household head, an experienced (aged) and educated head matters for the development of the household than a younger or uneducated household head. Particularly, in the less developed region of South Punjab, an educated household head matters for household development. In this region, the competition for employment is lower and as such, the probability of getting a good job is higher. Again, male-headed households only significantly matter for household development relative to female-headed households in South Punjab compared to the other two regions.

Table 3 presents the PSM results, the mean values for migrant and non-migrant households, the ATT and the sensitivity analysis results. Using the nearest neighbour (NN), Kernel estimator and Radius methods, the results reveal that migrant households scored higher than the matched non-migrant households in household development. The inflow of remittances increases the development of the treated group by 5.45 units (significant at the 1 percent level in the case of Kernel (Gaussian)) in North Punjab. In Central Punjab the migrant households are superior than non-migrant households by 4.59 units ((significant at the 1 percent level in the case of Kernel (Gaussian)). While in the case of South Punjab the score of the treated group is 7.16 units higher than the non-treated group. The results are almost similar to the other matching algorithms like NN and Radius in all three cases. The last column of Table 3 on the critical levels of sensitivity to hidden bias, the Gamma values (Γ) ranging from 1.15 to 1.19 (North Punjab), from 1.14 to 1.15 (Central Punjab) and from 1.14 to 1.17 (South Punjab) suggest higher levels of

sensitivity for the outcome variable (*HHDI*). So it can be determined that the matched households are almost sensitive to hidden bias in all three cases (regions).

HHDI (Per Matching Algorithm)	Treated	Controls	ATT	T	No. of treated	No. of untreated	Hidden bias (T) (Critical level)
Table 3 PSM: REMITTANCES INFLOW AND HOUSEHOLD DEVELOPMENT							
North Punjab							
NN(3)	0.5670	0.5238	0.0432***	5.21	1041	7667	1.15
Kernel (Gaussian)	0.5670	0.5125	0.0545***	7.59	1041	7667	1.17
Radius, caliper (0.01)	0.5670	0.5136	0.0534***	7.33	1041	7667	1.19
Central Punjab							
NN(3)	0.5530	0.5120	0.0410***	5.27	1190	14825	1.14
Kernel (Gaussian)	0.5530	0.5071	0.0459***	6.99	1190	14825	1.15
Radius, caliper (0.01)	0.5535	0.5123	0.0412***	6.22	1190	14825	1.15
South Punjab							
NN(3)	0.6648	0.5996	0.0652***	1.94	660	10304	1.14
Kernel (Gaussian)	0.6648	0.5932	0.0716***	2.82	660	10304	1.14
Radius, caliper (0.01)	0.6646	0.5931	0.0715***	1.99	660	10304	1.17

*** $p < 0.01$.

Table 4 reports the results of tolerance approach. The results show that most of the values are close to 1, suggesting no multicollinearity problems. The results are therefore considered reliable.

Variable	Tolerance value
Table 4 TOLERANCE BASED RESULTS FOR PUNJAB	
RI	0.9550
Dep	0.9912
lnOI	0.9192
HHedu	0.8692
HHage	0.9900
Male	0.9351

CONCLUSION

This study investigates the development impacts of foreign remittances inflow for households in the three regions of the Punjab province, based on a newly constructed *HHDI*. The results suggest that migrant households are relatively better-off than non-migrant households across all three regions in Punjab, after controlling for household characteristics and features specific to the household head. However, remittances inflow matter more for household development in South Punjab relative to the other two regions. The results clearly reflect the lowest levels of development and HHDI in South Punjab. Therefore, remittances have a profound impact on migrant households relative to their non-migrant counterparts in this region. A straightforward implication of this study is that the government needs to improve the current channels of emigration (especially to avoid unintended effects from irregular emigration) and the role of migrant networks for this region, to improve the overall living standard of the households.

ENDNOTES

1. For the calculation of HHDI the details are provided in Imran, Kashif & Devadason, Evelyn Shyamala & Cheong, Kee-Cheok and Construction of Household-Based Human Development Index: New District-Level Evidence for Punjab, Pakistan. Available at SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2903790
2. We employed residual based robust regression that used bi-weight and Cook's distance (Cook's D); a procedure that combines the leverage and residual of a model (http://www.ats.ucla.edu/stat/stata/dae/rreg.htm). The results are fairly robust to the OLS and therefore only the OLS results are reported in want of space.
3. The overall HHDI values for each region for the whole sample (migrant households + non-migrant households) are not reported here in want of space.

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