

MIGRATION, REMITTANCES AND POVERTY: EVIDENCE FROM RURAL SECTOR OF SRI LANKA

R.A.P.I.S. Dharmadasa¹²⁹, P.M.M. Fernando¹³⁰ & W.G.R.L. Samaraweera¹³¹

Correspondence: sampath@uwu.ac.lk

ABSTRACT

Households or individuals are considered as income poor if they are unable to achieve a minimum level of income or consumption, sufficient to ensure their basic requirements. Migration and remittances are phenomena where these marginalized communities seek economic opportunities to alleviate poverty in terms of uplifting their living standards. In addition, migration is regarded as offering upward economic mobility to those who are economically marginalized. However, studies on the impact of migration and remittances on the poverty and inequality of rural households in Sri Lanka are insufficient. Therefore, this study attempts to find the impact of migration and remittance on poverty and inequality in the rural sector households employing data compiled by the Department of Census and Statistics in Sri Lanka (2009/2010). Data were analysed using the multinomial logit-OLS two-stage selection control model. It was found that Poverty Headcount Index, Poverty Gap Index, and Squared Poverty Gap Index of the rural sector has reduced by 1.85%, 0.37%, 0.02% respectively and inequality has widened by 5.41%. The study concludes that remittance is an acceptable source of income for households in the rural sector of Sri Lanka while attention should be paid on appropriate actions to minimize inequality.

Keywords: migration, remittances, poverty, rural sector, Sri Lanka

Introduction

Migration is a phenomenon which has an impact on household welfare, home community and ultimately on the whole economy. Remittances can be addressed as a potential substitute for domestic earning (Adams, 1989; Barham & Boucher, 1998). Migration has become increasingly a significant and beneficial component generating meaningful welfare gains for migrants as well as the country in reducing the poverty levels and enhancing the living standards of many people. In 2018, remittance accounted for 8.1 percent of GDP (World Bank, 2019).

Poverty is a state or condition in which a person or community lacks the financial resource and essentials to enjoy a minimum standard of life and well-being, normally considered as acceptable in society. Poverty level in rural areas was higher among agricultural households, due to stagnation in agricultural incomes during the past 10 years. Almost 80% of the total population in Sri Lanka is distributed in the rural sector, reflecting the highest population share. Moreover, the highest number of poor individuals are recorded in the rural sector.

Agriculture is the most popular source of income for the rural community. Agriculture in rural sector of Sri Lanka is almost entirely made up of smallholders who operate less than one

¹²⁹ Department of Export Agriculture, Uva Wellassa University of Sri Lanka.

¹³⁰ Department of Export Agriculture, Uva Wellassa University of Sri Lanka.

¹³¹ Department of Export Agriculture, Uva Wellassa University of Sri Lanka.

hectare of land for cultivation and livestock purposes. Domestic agriculture is exposed to numerous risks so the rural population looking towards other sources of income (Samaraweera et al., 2019).

Among those options highest attention and priority is paid towards migration as it provides remittances and establish a reliable temporary income to their households to overcome the economic difficulties and nourish the household needs. In the Sri Lankan context, few studies have been conducted regarding the relationship between migration and poverty. Therefore, the aim of this study is to find the impact of remittances on poverty and inequality in rural sector of Sri Lanka.

Literature review

Migration is a temporary or permanent movement of individuals or groups of people from one geographic location to another for various reasons ranging from better employment possibilities to persecution (Hagen-Zanker, 2008). Theory of migration history starts from the Furr's remark on migration and Revenstein's response to the Furr's remark which is called "Laws of Migration" (Lee, 1966).

The previous studies have used two general approaches with regard to remittance. (i) Remittance as 'exogenous transfer' (Stark, 1991; Stark et al., 1986; 1988) and (ii) remittance as 'potential substitute' for other household earnings (Barham and Boucher, 1998; Zhu and Luo, 2010), to assess the impact of remittance on poverty and income distribution. The advantage of the latter approach is that it allows correlation between remittance income and household activities. According to Adams (2005), level, depth and severity of poverty in Guatemala were declined by both internal and international remittances. Considering remittance as an 'exogenous transfer' in the study of rural Mexico, found that the impact depends on the incidence of migration in each region; the regions having higher level of foreign migration have lower inequality and poverty (Adams et al., 2008).

Migration has long been recognized as a self-selection process. Based on the insights of Roy (1951) and Borjas (1987; 1991), the endogeneity of the migration decision affects labour market performance, in terms of both unobservable characteristics and observable characteristics. However, there is no necessary correlation between the self-selection in terms of observable characteristics and unobservable characteristics. For instance, it is perfectly possible for migrants to be among the most educated in their home communities but perform poorly in the destination (Ghatak et al, 1996). Hence, investigating self-selection based on unobserved characteristics will only yield implications.

Heckman (1976; 1979) developed a two-step procedure to correct self-selection bias and infer the unobserved characteristics by checking whether individuals' unobserved characteristics from their choice: whether or not to participate in the activity of interest (e.g., migration), are correlated with the outcome of interest (e.g., migrant earnings). Lanzona (1998) analysed whether the selectivity of migration affects the wage structure estimated for those who stay in rural communities. Using Philippine data and Lee's sample selection model, Lanzona found that there is a negative selection bias in nonmigrants' wage estimate. In contrast to the

traditional approach in existing studies (typically a version of Heckman, 1976, 1979; or Lee, 1983), the selectivity correction methodology developed by Dubin and McFadden (1984) and modified by Bourguignon, Fournier, & Gurgand (2007) is preferred.

Counterfactual income is a situation which is artificially constructed what the status of a migrant household would have been if the household didn't produce a migrant. For example, if the topic is remittances and income, then it would be necessary to estimate the income of a migrant household by imputing the value of that migrant had he stayed and worked at home. For instance, Barham and Boucher (1998) in Nicaragua, Rodriguez (1998) in the Philippines and Cuecuecha & Adams (2016) in Indonesia constructed counterfactual situations and found that the Gini coefficient of inequality increases with the inclusion of remittances in household income.

Methodology

Data

This study utilises a nationally representative data set compiled by the Household Income and Expenditure Survey (HIES-2009/2010) conducted by Department of Census and Statistics in Sri Lanka (DCS). Rural sector comprised 12,949 households with 2,229 migrants' households.

Table 3.1 exhibits more than 50% of the sample belong to remittance non receiving households whereas both local and international remittance receiving households share approximately similar percentages.

Table 0.1: Distribution of Migrants' Households

Household Type	Frequency	Percentage
Internal remittance receiving households	511	23.07
International remittance receiving households	522	23.57
Remittance non receiving households	1182	53.36
Total	2215	100.00

Data Analysis

We used multinomial logit-OLS two-stage selection control model in estimating the impact of migration and remittances on poverty and inequality as it has its own advantages. First, it allows us to model multiple choices of migration decision. Second, it allows us to attribute a selection bias in the estimation of earnings to the allocation of individuals with better or worse unobserved characteristics of migration while it links the selection bias to the allocation of individuals to each other alternative (Wu, 2008). In estimating counterfactual

income, three steps were adopted namely: (1) Parameters predicting per capita household expenditure (excluding remittances) were estimated from all the households that do not receive remittances, (2) Parameters predicted from households with no remittances were applied to households that receive internal remittances from Sri Lanka, and (3) Parameters predicted from households with no remittances were applied to households that receive international remittances. In estimating income (expenditure) functions, first the multinomial logistic regression was estimated and selection correction terms (mills - Inverse Mills Ratios) were generated from multinomial logit estimates. By applying selection correction terms in income equations, four income functions for households receiving internal remittances and international remittances were estimated with and without Inverse Mills Ratios to check the self-selection bias. Depending on these results, our equation of interest to find the counterfactual income was estimated. Once the counterfactual incomes were estimated, poverty and inequality indices were estimated in including and excluding scenarios of remittances.

Results and Discussion

Figure 4.1 depicts that majority of the households: (local and international remittance receiving) do not own agricultural lands which causes people to search other options of earning money. The households which receive local and international remittances revealed that the members of those households were only educated upto G.C.E. A/Ls (96.6% and 98.6% respectively). Maximum number of individuals who have attained tertiary education were three per household but was found only in a single household. Accordingly most of the members have education below the tertiary level which make them unable to reach for better employment opportunities within the competitive job market and has led individuals to choose migration as an alternative.

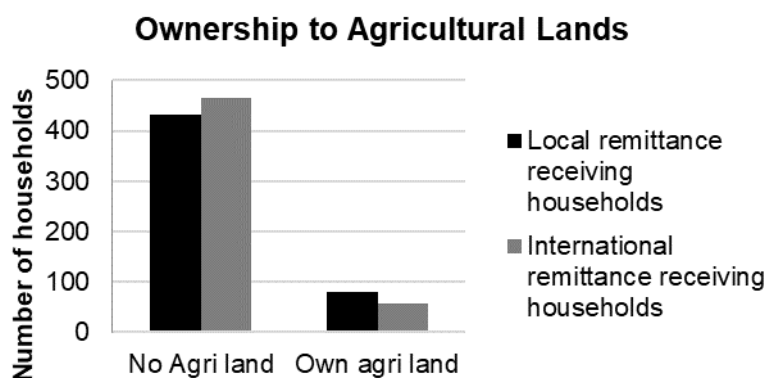


Figure 0.1: Household Distribution by Ownership to Agricultural Lands

Determinants of Migration and Remittances

The determinants of internal or international remittances receiving were estimated using the Multinomial Logistic model. The model was significant, and results are shown in **Table 4.1**. The model was estimated using non-remittance receiving households as the base category.

Rest of the two categories are local and international remittance receiving households. Relative to non-remittance receiving households, gender, marital status, members over 15 years of age, number of workers, young dependents, and members with educational level of G.C.E A/L and above are significant in local remittance receiving households. Moreover, marital status, number of workers and members with educational level of G.C.E A/L are significant in international remittance receiving households.

The results suggest that female household heads receive more internal remittances. In Sri Lankan rural sector, households are usually headed by males whereas female headed households are rare. Tendency to receive internal remittance and international remittance decreases with marital status of the household head. On the other hand, the receipt of remittances from migrants reduces when the households have more number of employed people due to the fact that they receive more income their employment. Therefore, do not have to depend on the remittances. It is also evident from the results that migrants tend to send more internal remittances when they have young dependents. In most cases these young dependents are school aged children. Therefore, more remittances are invested on their education in rural household in Sri Lanka. Local remittances are also required for taking proper care and provide essentials for the young dependents. When the number of individuals with better education increase potential of earning local and international remittance decreases because highly educated people enjoy greater employment and expected income-earning possibilities in destination areas (Todaro, 1976; Schultz, 1982).

Table 0.1: Result of Multinomial Logistic Regression

Variable	local remittance receiving household		International remittance receiving household	
	Coefficient	z	Coefficient	z
Household head characteristics				
Age	0.039	1.43	0.0491	1.4
Age ²	-0.0003	-1.28	-0.0005	-1.59
Education	0.0092	0.53	0.0046	0.24
Gender	-0.7341***	-5.09	-0.1244	-0.74
Marital status	-0.3230**	-2.27	-0.2252*	-1.69
Household characteristics				
Household size				

	-0.3853	-1.57	0.2533	0.87
Number of members (age>15 years)	0.5894**	2.3	-0.3331	-1.05
Number of workers	-0.4363***	-5.08	-0.5338***	-5.26
Number of young dependents	0.5666**	2.38	-0.088	-0.31
Number of old dependents	-0.0938	-0.62	0.165	0.98
Education				
Number of members above A/L education	-0.5408*	-1.75	-1.1905***	-2.61
Number of members with A/L education	-0.3699**	-1.96	0.2068	0.96
Number of members with O/L education	-0.2829	-1.37	0.3387	1.56
Number of members with 6 to 10 years education	-0.0818	-0.46	0.2905	1.44
Number of members with 5 years education	-0.0879	-0.47	0.0906	0.45
Wealth				
Ownership of agricultural lands	-0.0369	-0.23	-0.1854	-1.00
Percentage of Durables	-0.0015	-0.39	0.0025	0.60
Ownership of Livestock	0.1579	0.89	-0.0478	-0.24
Constant	-1.3374	-1.62	-0.6338	-0.73

***, **, * indicate significance level at 1%, 5% and 10% respectively

Log pseudo likelihood = -661252.56

Chi²(42) = 259.06

Prob > chi² = 0.0000

Pseudo R² = 0.0789

Considering the members over 15 years of age, an increase of one such individual would cause local remittance to be increased in a household which can be due to increase of

manpower to engage in jobs and earn money. Number of members with A/L education is a significant variable for internal remittance where for each addition of a member with A/L education, it lowers the possibility of earning more local remittance.

Table 0.2: Result of OLS Estimation in Local Remittance Receiving Households

Variable	OLS		Selection corrected	
	Co-efficient	P value	Co-efficient	P value
Age	-0.0014	0.5010	-0.0012	0.1500
Household size	-0.1630**	0.0320	-0.1640*	0.0620
Number of members (age>15 years)	-0.0210	0.7870	-0.0133	0.8810
Number of workers	-0.0123	0.7380	-0.249	0.7080
Number of young dependents	0.0619	0.3870	0.0803	0.3700
Number of members above A/L education	0.2714***	0.000	0.3303*	0.0540
Number of members with A/L education	0.2816***	0.0000	0.2896***	0.0000
Number of members with O/L education	0.1585***	0.0030	0.1887***	0.001
Number of members with 6 to 10 years education	0.1206***	0.0010	0.1260***	0.0010
Ownership of agricultural lands	-0.1055*	0.0880*	-0.1210*	0.0600
Mills_1			0.0658	0.0870
Mills_2			0.3790	0.4130
Mills_3			0.1080	0.0640
Overall significant	0.0000			
R-Squared	.18			

N 511

***, **, * indicate significance level at 1%, 5% and 10% respectively

Table 4.2 indicates the income estimated for local remittance receiving household with and without the use of Inverse Mills Ratio. Accordingly, the values of Inverse Mills Ratio are not significant at 95% confidence level. It highlights that the selection terms are statistically insignificant suggesting that subsample of households receiving remittances are randomly selected from the population. Therefore, the results suggest that income equations can consistently be estimated by OLS as the bias resulting from this would be small.

The results of the Table 4.2 reveal that household size, ownership of agricultural land, and human capital variables significantly affect the income of the local remittance receiving household.

Table 0.3: Result of OLS estimation in international remittance receiving households

Variable	Co-efficient	P value	Co-efficient	P value
Age	-0.0004	0.8460	0.0002	0.9140
Total household size	0.0249	0.7970	0.1038	0.3100
Number of members over 15 years of age	-0.1963**	0.0460	-0.2730**	0.0100
Total number of workers	-0.0612*	0.0930	0.0150	0.8330
Number of young dependents	-0.1421	0.1260	-0.2380**	0.0210
Number of members above A/L education	0.3970*	0.0570	0.4962**	0.0390
Number of members with A/L education	0.2989***	0.0000	0.3393***	0.0000
Number of members with O/L education	0.1967***	0.0000	0.2170***	0.0000
Number of members with 6 to 10 years education	0.1368***	0.0000	0.1292***	0.0010
Ownership of agricultural lands	0.0966	0.2330	0.8247	0.2960
Mills_1			0.0823	0.0510

Mills_2	0.0299	0.5550
Mills_3	0.0055	0.9250
Overall significant	0.0000	
R-Squared	0.25	
N	522	

***, **, * indicate significance level at 1%, 5% and 10% respectively

Table.4.5 exhibits the results for OLS and sample selection-corrected household income estimates. In other words, income is estimated for international remittance receiving household with and without the use of Inverse Mills Ratio. Accordingly, the values of Inverse Mills Ratio are not significant at 95% confidence level. This also suggests the subsample of international remittance receiving households are not systematically different from others. This means that, under the assumptions imposed, the bias resulting from the estimating the equations by OLS without selection control would be small.

Household Member above 15 years of age, number of young dependents and human capital variables affect the income of international remittance receiving households. As the number of young dependents decrease, the income of the household increases, and the burden associated with migration to earn international remittance reduces. When individuals with better education increase, receipt of international remittance could increase due to the migration for international career opportunities.

Estimation of Predicted Income Function

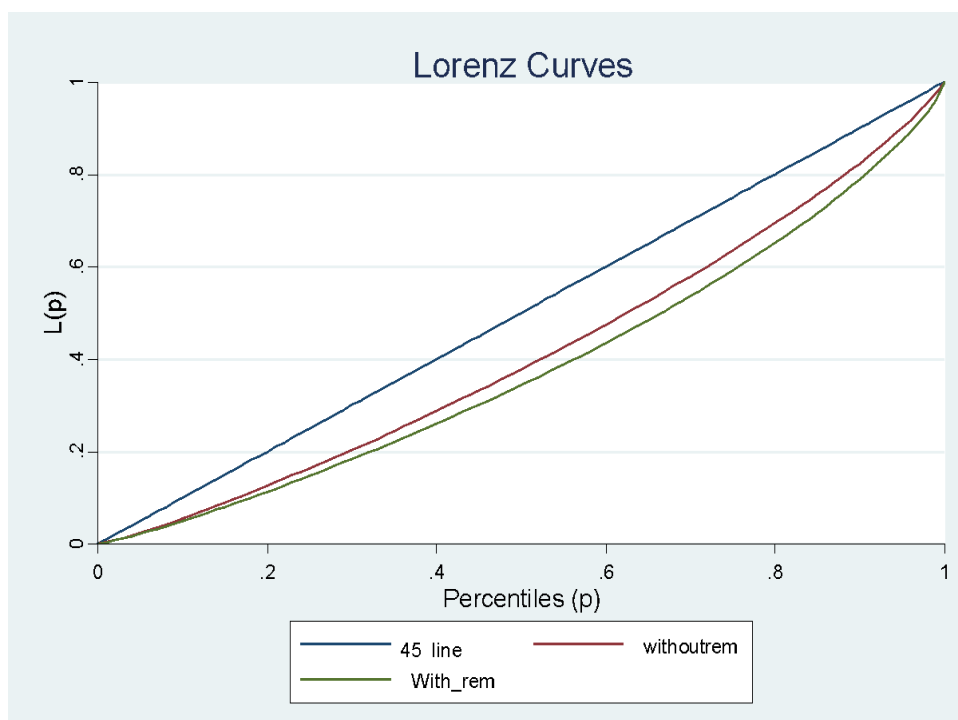
In developing the counterfactual of what household income (expenditure) would have been in the absence of migration and remittances, the following strategy was adopted. First, parameters predicting per capita household expenditures (excluding remittances) were estimated from 1182 households that do not receive remittances. The estimated parameters were then applied to 511 internal migrant households to predict their per capita expenditure in the absence of migration and remittances. The same procedure was adopted in predicting the per capita expenditure of 522 international migrant households. To find the per-capita expenditure excluding remittances, the following regression function was estimated by OLS. The major reason to estimate the function using OLS is that the household receiving households are not systematically different from households receiving no remittances. This enable to predict per capita household income / counterfactual income excluding the remittance situation for the three groups of households.

Table 0.4: Poverty measures in general with and without receipt of remittance

	HCI	PGI	SPGI	Gini index
Without Remittance	0.0654	0.0108	0.0032	0.1789
With Remittance	0.0469	0.0071	0.0020	0.2330
Difference	1.85%	0.38%	0.12%	5.41%

Table 4.4 illustrates that Head Count Index (HCI) reduces with the receipt of remittance, as a percentage it will be reduced by 1.85%. This reveals that proportion of population that is counted as poor is reduced with receipt of remittance. The Poverty Gap Index (PGI) is dropped down by 0.32% revealing that the depth of poverty is reduced with the receipt of remittances. Squared Poverty Gap Index (SPGI) averages the squares of the poverty gaps relative to the poverty line and puts more emphasis on observations that fall far short of the poverty line rather than those that are closer. Based on above results squared poverty gap index reduces by 0.12% with the receipt of remittance.

With the receipt of remittance Gini index increases by 5.41%. This reveals that with the gain of both local and international remittances inequality among the individuals increases.

**Figure 0.2: Lorenz curve for with and without receipt of remittance**

Lorenz curve is the visual representation of inequality. Figure 4.3 represents the inequality of income distribution with and without receipt of remittance. The line at 45° angle shows perfectly equal income distribution, while the other lines show actual distribution of incomes with receipts of remittance and without receipts of remittance. The farther away the curve

represented by the straight diagonal line the higher the level of inequality. When compared the lines with and without remittance, line with receipt of remittance lays farer than line without remittance. It reveals that inequality of the income distribution is higher with receipt of remittance compared to without receipt of remittance.

Table 0.5: Poverty measures for household with and without receipt of remittance

Household type		HCI	PGI	SPGI	Gini index
Local remittance receiving household	Without remittance	0.0567	0.0094	0.0024	0.1629
	With remittance	0.0273	0.0037	0.0008	0.2291
	Difference	2.9354%	0.5738%	0.1628%	6.618%
International remittance receiving household	Without remittance	0.0938	0.0178	0.0058	0.1697
	With remittance	0.0440	0.0074	0.0021	0.2755
	Difference	4.9809%	1.0453%	0.3718%	10.58%
Remittance non-receiving household		0.0566	0.0084	0.0024	0.1865

Table 4.7 shows that in local remittance receiving households head count index reduces when remittance reach. The difference of it accounts for 2.93%. Poverty gap index reduces with receipt of remittance indicating a 0.57% difference. Squared poverty gap reduced with the receipt of remittance. The reduction is indicated as 0.16%. Gini Index increases with receipt of remittance revealing that inequality increases. In case of international remittance receiving households all three HCI, PGI and SPGI reduce when remittance is received by 4.9%, 1.04% and 0.37% respectively. But Gini index increases with the receipt of remittance by 10.58%. When compared local and international remittance receiving households more income inequality arises with the receipt of international remittance rather than local remittance receipt. Both head count index and poverty gap index reduce in higher amounts with international remittance rather than local remittance.

Conclusion and Recommendations

As per the results obtained, poverty of rural sector in Sri Lanka is reduced with the receipt of both local and international remittance. According to the poverty headcount measure, the inclusion of internal remittances in household income reduces the level of poverty by only 2.9354% percent and the inclusion of international remittances in such income actually

reduce the level of poverty by 4.9809% percent. However, poverty is reduced much more when measured by indicators focusing on the depth and severity of poverty. The squared poverty gap (which measures the severity of poverty) shows that including internal or international remittances in household income, poverty is reduced respectively. And also, the inequality widens with receipt of internal and international remittance.

This study concludes that remittances are an acceptable source of income for household income on rural sector of Sri Lanka since the depth and the severity of poverty is reduced with the receipt of remittance while inequality is widened. The government can further enhance the impact of remittance flows for rural sector development by making them cheaper, safer and more productive for both migrants sending and the receiving parties.

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