

Impact of Remittances and Gender on Expenditure Pattern: An Insight into Intra-Household Resource allocation of Rural Sector Households in Sri Lanka

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Abstract

Using a nationally representative data set, this study examines the impact of migrant remittances on expenditure pattern and intra-household decision making process of rural households in Sri Lanka. The impact was estimated using fractional logit models within the Engel curve framework. Estimating the fractional logit models, we find evidence that there are strong differences in the impact on expenditure patterns of male and female household heads with the receipt of internal remittances whereas effect of international remittances on changing the expenditure pattern and the intra-household resource allocation is negligible. More specifically male household heads allocate less on education and more on ad hoc purchases, entertainment and transport expenditure, while female household heads allocate more on food expenditure with the receipt of internal remittances. Moreover, remitters' contribution for the ad hoc purchases, entertainment and transport expenditure increases with their presence as a migrant to the household head. Overall, the study concludes that remittances are not directed towards the productive investments or human capital formation with the receipt of remittances in male headed or female headed households of rural sector of Sri Lanka.

Keywords: *Expenditure pattern, Gender, Migration, Remittances, Rural sector*

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Introduction

Migration and remittances play a significant role in economies of developing nations in the world especially affecting social wellbeing of those nations. The impact is enormous such that in some countries contribution by remittances to Gross Domestic Product (GDP) is more than 40% (World Bank, 2015) and remittances even exceed Foreign Direct Investment (FDI) (Ratha, 2005; Yang, 2011). Migration and migrants' remittances take an important position in the economy of Sri Lanka also. In 2018, remittance accounted for 8.1 percent of GDP (World Bank, 2019). Worker remittances are the Sri Lanka's second largest source of foreign exchange earnings, which are only second to earnings from garment exports. Sri Lanka has experienced a large movement of rural labor, which is predominantly agricultural, seeking employment opportunities in Export Processing Zones (EPZ) and outside the country since economic liberalization taken place in 1977. This internal and international migration of household members especially from rural sector has created significant impacts on reducing agricultural production and creating rural agricultural labor scarcity.

In micro level, remittances play a crucial role in financial dynamics of rural households and have proved to help reduce poverty, relax credit constraints and improve living standard of rural households of developing nations. Since remittances from migrants are recognized as one of the major contributors to the overall household income and subsequently the development (Mendola, 2012), it is expected that household expenditure pattern and intra-household bargaining process over the allocation of resources change. Although literature highlights that remittances have a positive significant effect on reducing poverty

(Adams and Page, 2005), the impact on expenditure pattern and intra-household resource allocation is mixed (Ratha, 2005) and context specific depending on the nature of remittance receivers, remittance receiving community and the amount and frequency of receiving remittances. On the other hand, the distribution of intra-household resources depends on the bargaining power of individual household members (Haddad et al., 1997). Therefore, the extent to which migration and remittances can bring about a change in expenditure pattern and household development is quite a different question.

Women and men are typically assigned different responsibilities for different household decisions especially when the gender of the household head is concerned. There is a significant difference in allocating household resources in male headed and female headed households where male headed households attempt to invest on housing and business ventures and female headed households tend to invest on home improvement and acquisition of farm land and non-farm assets (De Silva, 2013). The remitter also should have an influence over the allocation of resources even if the remitter is not present in the household. It is also very important to highlight that gender of the remitter and the gender of the receiver of remittances play a major role in this regard. The gender of remitter and gender of the person who receives remittances become an important determinant of who sends remittances, how much is sent, to whom and why. This has important implications on household expenditure patterns. However, we need to see whether the remittances are used primarily for consumption or to finance investments in human and physical capital by origin households. Thus, the analysis of household expenditure pattern incorporating gendered impacts over household resource allocation is important



in the case of wellbeing of rural society or the living standard.

As out-migration for work abroad or locally has been a known phenomenon within the Sri Lankan labour force for a long time, by the mid-1980s, the proportion of unskilled workers was becoming more significant and at present this percentage lies in the region of 65 per cent. A large segment of these unskilled migrants come from the rural sector where the main occupation is agriculture. Out-migration of small farmers or members of their families can have both positive and negative effects on rural agricultural production as well as consumption (Samarathunga et al., 2012). According to the World Bank (2007), internal migration in Sri Lanka has doubled between the periods of 1996/1997 and 2003/2004 due to the widened economic attributes between rural areas and the rest of the country. Most of the international migrants are in the age group between 18-59 years among which 72 per cent are from the rural sector (Central Bank, 2016).

As nearly 80 per cent of the Sri Lankan population belongs to the rural sector in which nearly 83 per cent of the total poor also happen to live in and the source of income for these households is predominantly dependent on agriculture (Department of Census and Statistics, 2011), the remittances received through migration becomes very useful in household income and expenditure. Therefore, it is reasonable to assume that many migrant households receive remittances and it leads to change the expenditure pattern and resource allocation within the households through differences in bargaining process. Therefore, a study highlighting identifying how the household members spend remittances and how the bargaining power of remitter and others affect the resource allocation within the household would provide implication towards policy recommendation such as including a

gender perspective in order to further our understanding of the relationships between migration and its development impacts (Guzman et al., 2008). Thus, the analysis of household expenditure pattern incorporating gendered impacts over household resource allocation is important in the case of wellbeing of the rural sector or the living standard as well.

The women in Sri Lankan households, in most cases, are not the household heads and could be expected to have low decision-making power over the allocation of resources in social understanding. This may not be the case if the women are employed locally, work abroad or are married with a dowry as women's decision-making power could also be expected to increase. In most cases, the international migrants from rural sector are women and they tend to send remittances home while sending remittances by internal migrants is substantially low and the receiver of the remittances could be the spouse or the household head. Therefore, the role played by the household head in allocating the resources is of real importance. It implies that the difference in expenditure patterns could be observed depending on the gender of the household head. Once the women migrate, they may have some control over household resource allocation as they send substantial amount of remittances. Therefore, it could be assumed that they also may have more bargaining power over the allocation of household resources.

It is surprising that studies on labour migration and its issues in the rural sector, especially focusing on the expenditure pattern and intra-household resource allocation have not been adequately carried out in Sri Lanka. Shaw (2008) and Ukwatta (2010) show that most of the studies related to migration have been carried out to find out the pattern and social consequences of migration. Ranathunga (2012) also highlights this



fact stating that the lack of data and statistics, has resulted in a dearth of studies related to migration. To our knowledge, Dharmadasa et al., (2016) have conducted a study on impact of migration and remittances on expenditure pattern of estate sector of Sri Lanka taking the intra-household bargain process and resource allocation. Although the literature related to expenditure patterns of Sri Lankan households highlight the fact that remittances from females emphasize investment in home improvements and acquisition of farm land and nonfarm assets, whereas remittances of men are channeled more toward housing assets and business ventures (De Silva, 2013) and have positive and significant effect on children health and education, but not on conspicuous consumption or asset accumulation (De and Ratha, 2012), none of these studies except Dharmadasa et al., (2016) has taken the intra-household bargaining process into account although women and men are typically assigned different responsibilities for different household decisions. De Silva, (2013) and De and Ratha, (2012) have used the Sri Lanka Integrated Survey (SLIS) of 1999–2000 for their studies and which is an old data set. Therefore, carrying out a study on a recent data set would provide new implications as to how the remittances have affected the expenditure pattern. Therefore, by considering all these factors, this study also attempts to answer the questions of how the expenditure pattern of rural households' changes with the receipt of remittances, how budget allocations are affected by gender of remitter and gender of recipient of the remittances.

This paper is divided into several sections. First, we introduce the study by giving emphasis on background of the research, rationale and objectives. Second a review of literature on remittances, gender and expenditure is done. Third, we present the methodology adopted in the study. In this

section, data, theoretical background and empirical strategy are presented and discussed. Next, as the fourth section, results are presented. This section, it examines the link between migration and remittances with household expenditure pattern considering gendered aspect of household resource allocation. The last section outlines the summary and conclusions drawn from the study.

Remittances, Gender and Expenditure Pattern – A Review of Literature

Remittances can be defined as “monetary transfers that a migrant makes to his/her country of origin” (IOM, 2011). These are the most important factors of overseas worker outcomes. Utilization of the monetary fund depends on household decisions. Several studies have found that remittance receipt increases household expenditure on education and health. Gobel (2013) found strong evidence that remittances enhance expenditures on education, health, and housing, but decrease expenditures on food. But some studies counter argues these findings. Adams and Cuecuecha (2010) carry a study in Indonesia and found that remittances affect positively the marginal expenditure on food while marginal spending on housing is reduced after receipt of remittances. Chami et al. (2003) concludes that the significant and even the major portion of the remittances are spent on status-oriented consumption goods like buying a television or a radio.

In reviewing literature on remittances and expenditure pattern, more recent studies have focused on gender specific household resource allocation, rather than the gender neutralized household expenditure pattern. Throughout the literature on gender role and remittances in resource allocation, women have been given the priority and many authors emphasize that household expenditure on



children's education, health and nutrition increases when resources are controlled by women (Haddad et al., 1997; Quisumbing & Maluccio 2000; Dharmadasa et al., 2016). Pajaron (2013) examines whether the individual bargaining power within the household affects how remittances are allocated or spent. Accordingly, female heads allocate remittances more on food and other expenditures and less on medical services, alcohol, tobacco and household operations than male counterpart. Guzman et al., (2008) found that female remitters function as insurers for the receiving families and prefer their remittances to be spent on education and health, while male remitters tend to prefer investments in housing and other assets.

Literature on gender of the remitter and the gender of the recipient matters much in this regard. New Economics of Labor Migration (NELM) supports the view that remittances are the outcome of migration and the decision to migrate is jointly determined by the migrants and the non-migrants of the household (Stark, 1984; Lucas and Stark 1985). As migration could be considered as a contractual arrangement between the migrant and the other members of the household, households fund the cost of migration and migrants send the remittances. In allocating the remittances among the different preferences of the household members, basic assumption is that the women have more bargaining power over the use of remittances in female headed households while males have the more bargaining power in male headed households (Guzman et al., 2008). Apart from this assumption, it is assumed that all the migrant remittances are received and controlled by household head. The reason for this is that the head of a household is considered as a proxy for household decision making to maximize the welfare of the entire household. Although we consider the household head as the

controller of remittances, it ignores that male headed households' control over remittances could have an impact on women's bargaining power and the ability of the women to influence the resource allocation within.

In relation to this, the economic theories that describe intra-household decision making on household resource allocation are reviewed first. Accordingly, the models that describe intra-household decision making can be categorized into unified household models which deal with New Household Economics (NHE) and intra-household bargaining models which incorporate the game theoretic approach. The basic assumption of New Household Economics is that the preferences of household members can be aggregated to form a common utility function and that the household income is pooled. Keeping this assumption, migration of household members is undertaken to maximize household utility obtained from the consumption of goods and services subject to time and income constraints. The traditional unitary theory doesn't distinguish between decision-making agents and therefore assumes that households are units that have a sole preference and pool all resources (Becker, 1974). The approach of New Household Economics has been used to find the determinants of migration by Bhattacharyya (1985) in India, Low (1986) in Southern Africa, Bigsten (1996) and Agesa and Kim (2001) in Kenya.

Rationale for selecting independent variables to the intra household bargaining model follows the distinctive literature on remittances and expenditure pattern. According to the basic human capital model, human capital variables are likely to affect migration and remittances because more educated people enjoy greater employment and expected earning possibilities in certain areas (Adams and Cuecuecha, 2008). Literature on characteristics of household head such as



age of household head and number of children are hypothesized to affect the probability of migration and the receipt of remittances.

Limited studies have focused on the impact on remittances, expenditure pattern and gender in reference to Sri Lankan context. Arunatilake et al., (2010) show that household receiving remittances have higher expenditure levels of total expenditure reflecting higher spending on food, nonfood, health and education. Ranathunga (2012) demonstrated the remittance accounts for one fifth of household income in the place of origin. The decision to remit regularly depends positively on the monthly income, number of students of the household, and negatively depends on the amount of farmland owned by the household. Sharma (2013) examines the impact of international migration on household welfare using household survey in Sri Lanka.

Ratha (2005) find that remittance income helps in income mobility and children's human capital accumulation. De Silva (2013) finds that remittances from females emphasize investment in home improvements and acquisition of farm land and nonfarm assets, whereas remittances of men are channeled more toward housing assets and business ventures by utilizing a nationally representative sample of households from Sri Lanka. Dharmadasa et al., (2016) have used HIES data for analyzing the impact of gender and remittances on expenditure pattern of estate households in Sri Lanka. However, they have not done the analysis either for rural sector or urban sector. Therefore, this study was carried out to fill the research gap on remittances, expenditure patterns and gender in rural sector in Sri Lanka.

It is evident from the literature that impact of remittances on expenditure pattern of households differs from country to

country, community to community and household to household. Although the principal agent problem exists, the remitter has a bargaining power to a certain extent. Generally, literature suggests that women prefer their remittances to be spent on food, clothing, education and health while men direct their remittances towards housing and purchase of consumer durables. This implies that women seem to function as an insurer for their families (Guzman et al., 2008). The main reason highlighted in the literature for influence of women is that they gain bargaining power over the allocation of household resources due to increased income via their earnings abroad. Many studies have been focused on international migration and the studies to estimate the impact of internal migration on expenditure patterns are lacking.

In the case of Sri Lanka, a handful of studies could be found with regard to remittances, expenditure pattern and gender. For example, Arunatilake et al., (2010) show that households receiving remittances have higher spending on food, non-food, health and education. They further reveal that there is no significant difference between health and education outcomes across migrant and non-migrant households. However, De and Ratha (2012) find that there is no impact on consumption of durable goods and land holdings due to remittances. In general, remittances help families maintain or increase consumption, housing and small business formation (Lasagabaster et al., 2005). None of the discussed studies has focused on the gender of the remitter or gender of the recipient. They have just focused on comparing the difference in expenditure levels between migrant and non-migrant families using, in most cases, matching approach. Apart from this, there is only one study in Sri Lanka which has considered gender. According to this study, De Silva (2013) explains that



households with female migrants spend more on housing quality and home amenities in the long run while male migrants bring significant increase in the holding of durables. It is also interesting to see in his findings that households with female migrants invest on agricultural land and non-farm asset holdings. All the studies mentioned above have focused on international migration and none of the studies has considered internal migration. Therefore, a study focusing on internal as well as international migration would add to the knowledge more. On the other hand, none of the studies has emphasized the sectoral differences in expenditure patterns. Therefore, a study on rural sector in Sri Lanka would provide important implications towards the expenditure pattern and policy recommendation on the poorest sector in Sri Lanka.

Methodology

Data

Secondary data compiled under the Household Income and Expenditure Survey (HIES 2009/2010) conducted by Department of Census and Statistics (DCS) in Sri Lanka was utilized for the study. Therefore, extracting the rural subsample from HIES data, this study was carried out. On the other hand, our data source has several advantages that make it particularly suitable for this study. It is a nationally representative household-level dataset. The survey was carried out at a time when civil war was over in Sri Lanka. It could be expected that the expenditure pattern may have changed significantly after the war. Estimating an impact on the expenditure pattern related to this period would help compare the change in life style and expenditure pattern in subsequent years with a recent data set. It could also be expected that dynamism in the migration and sending remittances may have changed once the war was over. This could also be the first step in

analyzing the impacts and compare the impacts in subsequent years.

The HIES survey was conducted over a period of 12 months (July 2009 to June 2010). The questionnaire for HIES consists of nine sections to collect household information covering the following areas; demography, school education, health, food and non-food expenditure, income, inventory of durable goods, access to facilities in the area and debts of the households, housing information and agriculture holdings and livestock. The HIES gathers information related to demographic characteristics of the members of the surveyed households, expenditure on food and non-food items and income received by each household member from all the different sources in a compulsory manner. It is not a specialized survey of remittances or migration. Therefore, it contains basic information on migrant's and non-migrant's characteristics: gender, relationship to household head, and place of residence. On the other hand, it does not provide any information on either temporary or permanent migration. The survey collected information on remittances for the last 12 calendar months.

Sample design of the survey is two stage stratified and the urban, rural and the estate sectors in each district of the country are the selection domains thus the district is the main domain used for the stratification.

Total data set comprises 19,958 households and it is representative at the national level for rural, urban and estate sector areas. Data on rural sector comprises 12,949 households. It consists of 2,229 rural sector migrants' households. Among the migrant households, 1,041 households are remittance receiving households and 1,188 households are non-remittance receiving households. 528 remittance receiving households receive internal remittances, while 536



households receive international remittances and 23 households receive both internal and international remittances. In the analysis of the impact we dropped these 23 observations as the number is not sufficient to make an inference and we needed to check the impact separately for remittance receiving and other households.

Estimation of Impact of Remittances on Expenditure Pattern

The general objective of the paper is to find the impact of migration and remittances on expenditure pattern of the rural households in Sri Lanka. The empirical strategy in estimating effect was developed based on standard economic theory derived from Engel’s Curve framework. Here, a form of a Working Lesser Model was estimated within the Engel’s Curve framework to estimate the impact. Therefore, in explaining the methodology, economic theory was first explained and then the empirical strategy was discussed.

Theoretical Consideration

As this section is dealt with expenditure pattern of the remittance receiving and not receiving households, the following properties should be considered in choosing the functional form.

1. As wide range of goods such as food, housing, and education is used, it should provide a good statistical fit. This implies that it must be suitable for multiple types of goods.
2. It should have the properties of increasing decreasing and constant marginal propensity to spend over wide range of goods and expenditure levels.
3. It should satisfy the additivity criterion *i.e.* to be internally consistent sum of the marginal propensities for all goods should equal unity.

In fulfilling those criteria, a form of working lesser model *i.e.* adjusted Working-Lesser model was used. This equation of interest of household expenditure, the working lesser model, was derived from the economic theory of consumer demand following the Engel approach.

Most of the household models make the assumption that households allocate their budgets across expenditure categories so as to maximize the utility obtained from the consumption of goods and services, either presently or in the case of investment in the future. Engel curve is the function of describing how a consumer’s expenditures on some goods or services are related to the consumer’s total resources holding prices fixed. It expresses the share of each consumption item as a linear function of the logarithm of total expenditure, remittances, and other household’s socio-economic characteristics.

$$q_i = g_i(y, z) \tag{1}$$

Where;

- q_i – Quantity consumed of good i
- y – Income, wealth or total expenditure
- z – Vector of other characteristics of a consumer

Engle curve is generally expressed in budget shares and therefore;

$$w_i = h_i[\log(y), z] \tag{2}$$

- w_i – The fraction of y that is spent on buying good i

Accordingly, the expenditure function is set as follows;

$$w_{hi} = f(p_h, y_h, z_h) + u_{hi} \tag{3}$$

Where;

- h - Household
- i – Expenditure category
- w_{hi} – Expenditure share on good i
- p_h - Vector of price
- y_h - Household income
- z_h - Variables affecting marginal utilities
- u_{hi} – Error term

Empirical Strategy

This section describes the empirical strategy adopted in estimating the effect of



remittances and gender on the household expenditure pattern of the rural households in Sri Lanka. We closely follow the methodology proposed by Guzman *et al.*, (2008). In developing the methodology, it is the recommendation that we must account for non-random selection into groups of remittance receiving and not receiving households. Here the argument is that if receivers of remittances systematically differ from non-receivers along observable and unobservable dimensions (Acosta, 2006; Adams, 2006; De and Ratha, 2005; Yang and Martinez, 2006 cited by Guzman *et al.*, (2008), we cannot simply compare remittance receiving and non-receiving households due to the fact that it generates bias results. In controlling the issue of non-randomness, we could adopt several methods such as first difference and difference in difference approach, instrumental variable approach, Heckman two step methodology, and propensity score matching. Guzman *et al.*, (2008) provide a brief discussion regarding these approaches and none of these approaches is possible due to various reasons. According to Guzman *et al.*, (2008), an instrumental variable approach is generally used to tackle the problem of endogeneity arising from non-randomness of the sample of interest. However, we are unable to find a better instrument in the data set and the data set is only for one-year time period. As an alternative approach, we could propose propensity score matching technique as the next best solution. However, it also has its limitations. First, when there are several comparison groups, it is difficult to implement matching approach. Second, if there are multiple treatments that demand multinomial approach, the effect of remittances cannot be identified unless an instrument is used. On the other hand, as the HIES data set is for a one-year period, approaches such as first difference and difference in difference cannot be adopted. In order to have better fit to the

model, the best solution is to use standard fractional logit model where it does not demand instruments.

We specify the following functional form in estimating the fractional logit model;

$$w_{hi} = \alpha_i + \beta_i \log T O T E X P + \gamma_i \log n_h + \theta_i z_h + u_{hi} \quad (4)$$

Where;

w_{hi} – Budget share of expenditure category i by household h

TOTEXP – Total household expenditure

n_h – Household size

z_h – Vector of household characteristics that may affect the expenditure behavior

u_{hi} – Error term

When looking at the dependent variable, the value of it lies between 0 and 1. Therefore, we can model the $E(w_{hi}/X)$ as a logistic function;

$$E(w_{hi}/X) = \frac{\exp(X\beta)}{1 + \exp(X\beta)} \quad (5)$$

Where;

w_{hi} – Represents the fraction of total expenditure spent on each expenditure category

X – Matrix of independent and control variables

When the remittances either from internal or international migration are received, the household budget constraint shifts outward by that amount increasing the consumption of goods and services *i.e.* remittances increase the income of the household increasing the utility level of the household. Therefore, the amount of remittances has to be added to the right-hand side of the function as new explanatory variables. However, in practice, rather than including amount of remittances, two dummy variables are added to the right-hand side of the equation to indicate the receipt of internal and international remittances.

$$w_{hij} = \alpha_{ij} + \beta_{0ij} D_{LOCALR} + \beta_{1ij} D_{INTERR} + \beta_{ik} \log T O T E X P + \gamma_{ij} \log n_{jh} + \theta_{ij} z_{hj} + u_{hij} \quad (6)$$

Where;



D_LOCAL_R – Dummy variable (1=receive local/ internal remittances, 0=otherwise)

D_INTER_R – Dummy variable (1=receive international remittances, 0=otherwise)

j – defines the gender of the household head.

The key dependent variables used in the analysis are the budget shares of six broad categories as depicted in Table 01. The data for food expenditure have been collected in weekly basis. Foods include raw foods like vegetables, meat, cereals, prepared foods, milk and milk products and beverages (including liquor). The data on education expenses have been included on monthly basis. Expenditure for stationeries, tuition fees, boarding fees, school fees etc. are included in this category. Under the category of housing expenses, rent and taxes are included on the monthly basis. The data for this category have been collected for the previous month. Health expenses include consultant fees, payments for medical laboratories for medical tests, purchase of medical and pharmaceutical products, spectacles etc. Data on this category also have been collected for the previous month. Expenditure for textiles, personal care, durable goods has been collected on monthly basis, six monthly basis or yearly basis depending on the components of this expenditure category. For example, data on textiles have been collected on six-month basis while some data such as chairs, tables (durables) etc. have been collected on yearly basis.

	Non purchased food	vegetables, meat, fats and oils, sugary, fruits, condiments, milk and milk foods, beverages, liquor etc.
Education	Educational expenses	Stationeries, school text books, tuition fees, school fees etc.
Housing	Real estates, rent with related costs	Rent, taxes etc.
Health	Health expenses	Consultant fees, payments to medical laboratories for test analysis, purchased of medical and pharmaceutical products, spectacles etc.
Consumer goods and durables	Consumer goods Household durables	Textiles, personal care, durable goods etc.
Other	Miscellaneous	Ad hoc expenditure, communication, entertainment, non-durables, transport

Table 01: Description of Dependent Variables

Source: Developed by author

Expenditure category	Description	Example
Food	Purchased food	Cereals, prepared foods,

The major challenge faced by researchers is how to find a variable to capture the intra-household decision making power. HIES data lacks these kinds of predetermined exogenous variables typically used to measure the decision-



making power and the women empowerment (for example wealth upon marriage). As the household head is defined as the person who provides most of the needs of the household (Guzman et al., 2008), the gender of the household head is considered to the best proxy available with the assumption that he is in a strong bargaining position within the households. Finally, separate regressions are run for female-headed households and male-headed households to analyze the impact of gender on intra- household decision making of remittance receiving households.

Although the remitter is not present at the household, gender of the remitter could also be assumed to be affecting the in intra-household decision making and expenditure pattern. However, the HIES data do not contain information on migrant demographics. We can only identify the number of migrants in one family and their relationship to the household head. Therefore, we used this information to examine the effect of remitter on the expenditure patterns of the rural households. As a result of nature of data available, we categorize the remitters as spouse remitter, Son/ daughter remitter, parents’ remitter, Other relative remitter, spouse/ son/ daughter remitter, and son/ daughter /other remitter use them in the expenditure analysis.

In specifying the fractional logit model, we included characteristics of household heads, human capital variables and other household characteristics as in the table 02. The standard literature was followed when identifying those characteristics as independent variables. (See Guzman et al., 2008, Göbel, 2013 etc).

Table 02: Variable definitions

Variable	Unit of Measurement
Household Characteristics	

Age of household head	Years
Education level of household head	Years
Gender of household head	dummy where 1= Male, 0=otherwise
Marital status of the household head	dummy where 1= Married, 0=otherwise
Ethnicity of the household head	Sinhala = 1, Sri Lankan Tamil =2 Indian Tamil= 3 Sri Lankan Muslim=4 Malay=5 Burger = 6 Other =9
Total household size	Number
Number of workers over age 15	Number
Number of old dependents	Number
Human Capital Characteristics	
Number of females above 15 years	Number
Number of males above 15 years	Number
Number of males above A/L	Number
Number of females above A/L	Number
Number of male children 6-10 years of education	Number
Number of female children 6-10 years of education	Number
Number of male children less than 5 years	Number
Number of female children less than 5 years	Number
Number of male children 6-15 years of education	Number
Number of female children 6-15 years of education	Number

Source: Developed by author



Results and the Discussion

This section describes the empirical results of study. Firstly, we discuss the summary statistics where independent sample t-test was run and means of selected variables were compared.

Secondly, the results in estimating the impact of remittances on the gendered specific expenditure pattern of rural sector in Sri Lanka are presented and discussed. Lastly, estimated results of the impact of remitters on the expenditure pattern were discussed.

As the fractional logit is run separately for the male headed and female headed households, the Table 03 (Appendix A) provides the summary statistics of selected independent variables of male headed and female headed households.

Table 03 (Appendix A), further shows significant differences between female headed and male headed households. When the household head is a male, average household size is greater than that of female households. Interestingly, the female household heads are younger than the male household heads in rural sector of Sri Lanka. The results further highlight that members of a female headed households are more educated in contrast to the members of a male headed household. It is also evident from the findings that number of females in the family are significantly higher in female headed households than in male headed households. Moreover, number of males in the family are higher in male headed households than in female headed households. When the household head is a male, number of workers are found to be higher in those households. However, the case is different with respect to female headed households. Accordingly, when the head of the household is a female, the

number of people who are engaged in employment are less. Male headed households have more old dependent people whereas female headed households have more children below age five. There is no statistically significant difference between the total expenditure in both types of households.

Impact of Remittances on Expenditure Pattern in Female Headed Households and Male Headed Households

Table 04 (Appendix B) Exhibits the resulted coefficients of fractional logit regression estimated to examine the expenditure patterns of the households with contrast to the gender of the household head.

In general, there are strong impacts of log of total per capita expenditure and its square on the expenditure on food, education, health, consumer and durable goods and housing. We have incorporated a square term to test for possible quadratic effects. Household size also matters on food, education and housing expenditures. Larger households tend to spend a larger share on education in both females headed and male headed households and health in male headed households.

An increase in household size will increase the probability of male headed households to allocate more on education in contrast to their female counterparts, this may be due to the presence of more school aged dependents in the female headed households in comparison to the male headed households.

The probability of male headed households to allocate more on health rises with a possible increase of the household size as well. Internal remittances show a significant impact on gender-based expenditure on certain



categories rather than international remittances where it does not exhibit any significance on gender-based expenditure pattern in the rural sector households. Female headed households which receive internal remittances show increased probability to spend more on food whereas male headed households show lesser probability of spending on education and higher odds on other expenditures such as transport, communication etc.

Number of females over age 15 is negatively associated with the education expenditure. Hence, the higher the number of females over age 15, the lower will be the probability of spending for education. As the results reveals, females who completed A/L and males who completed A/L increase expenditure of the consumer and durable goods in a significant amount. In female headed households, number of males who completed education up to A/L is negatively associated on food and health expenditure categories and positively associated with housing expenditure. Female household head devoted less amount on food and health expenditure, when a family have more males who have completed education up to A/L. In contrast, female household head shows higher propensity to allocate more share for housing when family have males who have completed education up to A/L. The reason for this result may be the males who have completed education up to A/L have higher chances of being employed thus it is possible for them to contribute significant amount for the family income. Therefore, after allocating money for consumption they can allocate money for investment purposes like housing. As expected, having a large proportion of children under age five decreases the share of education and increases the share of expenditures devoted to food in female headed households. However, number of

female and male children between 6 to 15 years of age is negatively significant for health expenditure under male headed households.

There is strong impact of the number of workers in a family on the expenditures on education, housing, health and other categories. Results reveal that as the number of workers in a family increases, household head show less tendency to allocate expenditures on education, housing and health categories but show a higher probability of spending more on another category. But the tendency to allocate less on health is significant only for male headed households. As the number of workers increases the household income also increases thus the results can be justifiable but again it raises a question on the secondary education of those within the household. It seems that the tendency to spend on secondary education is less so it is vital to address whether this is due to the job security or any other influencing factors.

Number of old dependent people significantly decreases the probability of expenditure share on food and education and increase the share on health and other categories. But the increased probability of spending more on health is significant only for female headed households. This exhibits that when a family has old dependent people, household head is more concerned on health condition on old people and he has to allocate more share on other expenses like transport and other utilities. Age of household head is positively significant on housing expenditure. This discloses when household head become old, he has a higher propensity to spend more on housing. In other words, the propensity of young people towards spending on housing is less than the old. Education



level of male household head is negatively associated with the food expenditure. This expresses that when the male household heads get matured, they are less likely to spend more on food but their focus lies with spending more on education and housing categories. The results imply that educated male household head allocate less on food expenditure thus they have more to spend on education and housing. This may be due to the head of the household's expectation towards more education for the individual or for children. Positive coefficients in education and housing expenditure of male household head implies that more educated male household heads allocate more on education and housing expenditures. On the other hand, more educated male household heads allocate more on investment goods rather than private goods. According to above table, there's a positive impact of ethnicity type of household head for rural household food expenditure. Marital status of household head negatively effects on housing expenditure and expenditure on education. This may be due to the female household head is widowed or divorced. The regional dummies are consistently significant.

The main purpose of this analysis was to assess whether remittances have a differential impact on expenditure patterns in male headed households and female headed households. This table has two dummy variables that implies remittance effect for internal remittance receiving households and international remittance receiving households. We dropped the households that receive both type of remittances to have a clear understanding of the remittance effect and due to the smaller number of observations (23) in the dataset. With the receipt of internal remittances, male household head

allocate less on education and more on other expenditure whereas female household head allocate more on food expenditure. But there's no such significant effect of international remittances on any expenditure category either male or female headed households. Pajaron (2013) examines whether the individual bargaining power within the household affects how remittances are allocated or spent. Accordingly, female heads allocate remittances more on food and other expenditures and less on medical services, alcohol, tobacco and household operations than male counterpart. The findings with respect to impact of internal remittances are consistent with the results from the intra-household bargaining literature. Literature reveals that male household head prefer to allocate less on education and more on other expenditure. However, the results with respect to female household head rather differ from the literature, that is, women prefer to spend more on food expenditure. Throughout the literature on gender role and remittances in resource allocation, women have been given the priority and many authors emphasize that, when resources are controlled by women, household expenditure on children's education, health and nutrition increases (Thomas, 1990; Haddad et al., 1997; Hallman 2000; Quisumbing and Maluccio 2000; Quisumbing, 2003). Guzman et al. (2008) find that remittances consistently affect expenditure shares of all types of goods that they use in female headed households but not in the male headed households.

In allocating the remittances among the different preferences of the household members, basic assumption is that the women have more bargaining power over the use of remittances in female headed households while males have the more



bargaining power in male headed households (Guzman et al., 2008). Apart from this assumption, it is assumed that all the migrant remittances are received and controlled by household head. The reason for this is that the head of a household is considered as a proxy for household decision making to maximize the welfare of the entire household. Although we consider the household head as the controller of remittances, it ignores that male headed households' control over remittances could have an impact on women's bargaining power and the ability of the women to influence the resource allocation within. Generally, literature suggests that women prefer their remittances to be spent on food, clothing, education and health while men direct their remittances towards housing and purchase of consumer durables. This implies that women seem to function as an insurer for their families (Guzman et al., 2008). The main reason highlighted in the literature for influence of women is that they gain bargaining power over the allocation of household resources due to increased income via their earnings abroad. Many studies have been focused on international migration and the studies to estimate the impact of internal migration on expenditure patterns are lacking.

To assess the responsiveness of percentage change in probability of expenditure in each category of expenditure due to percentage change in income, the income elasticities were estimated.

Elasticities for each expenditure category in male headed households and female headed households are computed and results are reported in the table 05 (Appendix C). These elasticity values are calculated based on the total per capita

expenditure values. The signs of elasticity values between male headed households and female headed households are positive. The results suggest that 1 percent increase in total per capita expenditure of the household leads to 5.5193 and 2.9006 percent increase in food expenditure share in male headed and female headed households respectively. When expenditure increases by 1 percent, male household heads has a propensity to spend approximately 2.619 percent higher on food expenditure. It is also observed that female headed households devote more on education than male headed households. For the both type of households, food, education, housing, health, and consumer and durable goods behave similar to luxurious goods, while other expenditure is in the form of a necessity good. That means 1% increase in total per capita expenditure causes rise in demand for food, education, housing, health and consumer and durable goods, and fall in demand for other expenditure category. This other category includes ad hoc expenditure, communication, entertainment, non-durables and transport expenditures. On the other hand, food is more vulnerable in male headed households because as per the results a small percentage change in income will cause a higher percentage change fall in expenditure on food than any other category.

Impact of the Remitter on Household Expenditure Pattern

Up to now the analysis was focused on the impact of remittances and intra household expenditure pattern in female headed and male headed households by using rural sector migrant data. Thereafter, separated rural sector remittance receiving households including several dummy variables was analyzed in order to capture



the relationship between the remitter and the household expenditure pattern. Due to the limitation of HIES data, the study identified the relationship of migrant to the household head, indicating whether the remitter is a spouse, son/daughter, parent or other relative of household head. But major problem of HIES data set was, it does not provide information on who the remitter is. Moreover, it is impossible to distinguish the gender of the remitter. To examine the effect from female household head on expenditure pattern, gender of the household head was included as a dummy variable. The table 06 (Appendix D) exhibits the fractional logit outcome related only to remittance receiving households.

Results unravel, when the migrant is a son/daughter/other relative, the contribution by them for the household food and housing expenditures decrease while their presence as a migrant to the household head. Remitter is being spouse, son/daughter or other relative of household head significantly increase the other expenditure category. Remitter is son/daughter/other relative is positively significant in health and other expenditure whereas negatively significant in food, education and consumer goods and durables expenditure categories. While remitter is the spouse, of household head will increase the household expenditure on other categories. If the remitter is child of the household head health share increases. Both internal and international migrants are less keen on allocating more on food but internal migrants show a greater propensity of spending more on other expenditure category. This finding indicates that remitters have different impacts on household budgets depending on their relation to the household head. As expected, most of the results from the previous analysis carry over to this

analysis. Results of total per capita expenditure, household size, number of female and male above 15 years, number of female and male children below 5 years, number of workers in a family, number of old dependent people in a family, age and education level of household head are quite consistent with those in the previous section.

Migrant is not physically present in the household. As she or he sends remittances she/ he may have preferences as to how her/his remittances should be spent on. However, she/he cannot control household behavior. This is akin to a Principal Agent Problem. According to de la Cruz (1995), Mexican migrants in the US direct their remittances towards personal investments in land, housing, agricultural production and cattle. Particularly, female migrants send remittances to pay for cost of education of other household members. In a study carried out in Moldova, IOM (2005) highlights that female migrants send for current consumption expenditure while male migrants send remittances for housing and other consumer durables. In contrast to this finding, Pfeiffer and Taylor (2008) reveal that household with a female remitter invest a smaller share of total expenditure on education than household with a male remitter. They conclude that this result may be due to the intra-household bargaining power. Since women cannot monitor the education of their children, female migration leads to smaller expenses on education although remittances should affect education expenditure.

Conclusion

The effect of remittances on rural household expenditure pattern and the impact of gender of the household head



and remitter on expenditure pattern were estimated by using HIES data. Intra household bargaining literature predict that female household head allocate more on education and health categories while male household head allocate more on housing expenditure. The results estimated in this study disclose that with the increasing remittance driven income, household head prefer to allocate more on food, education, housing, health and consumer and durable goods expenditure categories. Fractional logit results find that female headed households receiving remittances seem to have different expenditure pattern than the male headed households. With the receipt of internal remittances, male household head allocate less on education and more on other expenditure, while female household head allocate more on food expenditure.

As the findings of the study express, the international remittances do not provide significant impact on household expenditure pattern in the rural sector households in Sri Lanka. But internal remittances have a positive impact on food and other expenditures. The limitations of the data permit not to significantly convey that the insignificance of international remittances on expenditure pattern in the rural sector due to the fact that the study was largely based on the cross-sectional data which was collected during 12 months period. Receipt of internal remittances significantly impact on education and other expenditures. Therefore, when comparing internal and international remittances, internal remittances have strong impact on rural household expenditure pattern than international remittances. The number of households that receive internal remittances and number of households that receive international remittances are approximately similar. Due to the

limitation on details of the remitter recorded in HIES data, performing a comprehensive analysis was found challenging. Therefore, the remitter's relationship to household head and location of the remitter were primary focus of the study. On average, all dummy variables that indicate remitter's relationship to the household head show significant results for other expenditure category and variables of remitter's location negatively significant for food expenditure. Overall, the study concludes that remittances are not directed towards the productive investments or human capital formation with the receipt of remittances in male headed or female headed households of rural sector of Sri Lanka.

Furthermore, the findings of this study suggest that future research should be based on data that comprises more comprehensive details on remitter or the migrant. It is better to use panel data that consists three to five years of data set. Therefore, those will have improved capacity to determine more precious expenditure pattern for rural sector households in Sri Lanka.

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Appendices

Appendix A

Table 03: Summary Statistics of Selected Variables

Variable	Female headed household	Male headed household	t – test
Household Size	4.599	5.188	-8.287***
Age of the household head	45.379	54.670	-16.911***
Education level of the household head	9.382	8.093	7.951***
Total household expenditure	343548.1	357057.1	-0.984
Number of females over age 15	1.994	1.863	2.901***
Number of males over age 15	1.383	2.544	-26.245***
Number of males with above A/L education	0.004	0.032	-4.46***
Number of females with above A/L education	0.034	0.033	0.051***
Number of females 6-10 years of education	0.746	0.658	2.855***
Number of males 6-10 years of education	0.248	0.780	-18.858
Number of female children less than 5 years of age.	0.197	0.137	3.492***
Number of male children less than 5 years of age.	0.238	0.151	4.718***
Number of female children 6-15 years of age.	0.379	0.244	5.651***
Number of male children 6-15 years of age.	0.407	0.248	6.361***
Number of workers in a family	0.666	1.432	-20.738***
Number of old dependent people	1.455	1.616	-4.750***

*, **, *** Significant at 10%, 5% and 1% probability level

Source: Author's calculation

Appendix B

Table 04: Fractional Logit Outputs by Gender and Expenditure Category

Variable	Food		Education		Housing	
	Male Headed Households	Female Headed Households	Male Headed Households	Female Headed Households	Male Headed Households	Female Headed Households
Log total expenditure per capita	2.137***	1.118	7.721**	6.719***	3.005***	4.556***
Log household size	-0.312	-0.326**	3.458***	3.568***	-0.451	-0.630**
Log total expenditure per capita square	-0.135***	-0.089***	-0.319**	-0.285***	-0.143***	-0.214***
Receive international remittances	-0.013	0.049	-0.219	0.063	0.055	0.064
Receive internal remittances	-0.029	0.071**	-0.521***	-0.076	-0.068	0.064
Number of females over age 15	0.047	0.028	-0.376*	-0.447*	0.078	0.075
Number of males over age 15	0.015	0.005	-0.178	-0.392	0.024	0.017
Number of males with above A/L education	0.102	-0.227**	0.074	-0.677	0.075	0.456**
Number of females with above A/L education	0.129**	-0.049	-0.087	0.069	0.097	0.047
Females 6-10 years of education	0.008	-0.024	-0.208**	-0.146**	-0.081**	-0.002
Males 6-10 years of education	0.021	0.076**	-0.249**	-0.119	-0.017	-0.091

*, **, *** Significant at 10%, 5% and 1% probability level



Number of female children less than 5 years of age.	0.074	0.025	-0.778***	-0.757***	0.030	-0.017
Number of male children less than 5 years of age.	0.051	0.089**	-0.927***	-0.889***	0.004	-0.098
Number of female children 6-15 years of age.	0.023	0.055	0.013	-0.368	-0.075	-0.042
Number of male children 6-15 years of age.	0.036	0.017	-0.183	-0.303	-0.076	-0.007
Number of workers in a family	-0.032*	-0.007	-0.318***	-0.271***	-0.114***	-0.143***
Number of old dependent people	-0.103***	-0.087***	-0.307***	-0.257**	0.037	0.031
Age of household head	-0.013	-0.009	0.107**	0.065*	0.044***	0.045***
Education of household head	-0.013***	0.003	0.041***	0.020	0.026***	-0.003
Age squared of household head	0.001**	8.04E-05	-0.001**	-0.001	-0.003**	-0.0003***
Ethnicity of household head	0.053***	0.059***	-0.056	-0.036	0.026	0.026
Marital status of household head	0.023	0.049	-0.028	-0.271*	-0.044	-0.176***
Region 1 Western province	0.015	-0.037	-0.120	0.113	0.272***	0.378***
Region 2 Central province	0.091**	-0.017	-0.338**	-0.177	0.112	0.144**
Region 3 Southern province	0.020	-0.025	-0.130	0.189	0.040	0.016
Region 4 North Western province	0.491	0.437***	-1.990***	-0.758*	-1.069***	-0.861**



Region 5 Uva province	0.028	-0.023	0.119	-0.189	-0.099	-0.110
Proportion of durable goods utilized	-0.001	-0.001	0.004	0.003	0.001	-0.001
Constant	-6.421*	-0.945	-55.610***	-46.605***	-18.826***	-26.327***
Number of observations	1229	977	1229	977	1229	977
Significance	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo R ²	0.042	0.044	0.066	0.045	0.013	0.017

Source: Author's calculation

Table 4: Fractional Logit Outputs by Gender and Expenditure Category (Continued)

Variable	Health		Consumer and Durable Goods		Other	
	Male Headed Households	Female Headed Households	Male Headed Households	Female Headed Households	Male Headed Households	Female Headed Households
Log total expenditure per capita	3.926*	5.419	4.428***	3.356***	-0.819	-0.255
Log household size	1.382**	-0.475	0.276	-0.194	0.198	0.710***
Log total expenditure per capita square	-0.157*	-0.220	-0.209***	-0.157***	0.082*	0.060
Receive international remittances	-0.013	-0.150	-0.021	0.016	-0.012	-0.093
Receive internal remittances	0.036	-0.237	0.023	0.001	0.132***	-0.074
Number of females over age 15	-0.317**	0.024	-0.012	0.023	-0.010	-0.101*
Number of males over age 15	-0.298**	-0.074	0.004	0.137**	-0.002	-0.086
Number of males with above A/L education	-0.264	-16.734**	0.236***	0.056	-0.223**	0.064



Number of females with above A/L education	-0.393**	0.229	0.053	0.349**	-0.068	-0.137*
Females 6-10 years of education	0.171**	0.040	0.050*	0.024	0.005	0.060*
Males 6-10 years of education	-0.003	0.276	-0.038	-0.044	0.015	-0.077
Number of female children less than 5 years of age.	-0.1742	0.1323	0.002	0.015	-0.013	0.005
Number of male children less than 5 years of age.	-0.022	0.452***	-0.093*	0.036	0.021	-0.103
Number of female children 6-15 years of age.	-0.270*	-0.059	-0.009	0.031	-0.058	-0.094
Number of male children 6-15 years of age.	-0.356**	0.214	-0.022	0.078	0.027	-0.112*
Number of workers in a family	-0.224***	-0.032	0.025	0.023	0.133***	0.108***
Number of old dependent people	0.101	0.243**	-0.025	-0.044	0.133***	0.129***
Age of household head	0.010	0.036	-0.010	-0.028***	-0.020*	-0.013
Education of household head	0.005	-0.021	-0.007	0.004	0.004	-0.001
Age squared of household head	3.43E-05	-0.003	0.001	0.001**	0.001	0.001
Ethnicity of household head	0.062	0.103	0.007	-0.027	-0.073**	-0.081***
Marital status of household head	-0.179	-0.013	0.020	0.005	0.041	0.058
Region 1 Western province	0.230	0.205	-0.239***	-0.210***	-0.090	-0.141***
Region 2 Central province	-0.218	-0.350	9.66E-05	0.046	-0.100*	0.025
Region 3 Southern province	0.193	0.027	-0.118**	-0.002	0.035	0.024

*, **, *** Significant at 10%, 5% and 1% probability level



Region 4 North Western province	-0.945***	-4.902***	-0.476**	-0.137	0.154	-0.064
Region 5 Uva province	-0.201	-0.040	-0.021	0.025	0.089	0.102
Proportion of durable goods utilized	-5.8E-05	0.005	-0.0007	-0.000	-0.000	0.000
Constant	-28.706***	-37.384**	-25.912***	-19.547***	-2.113	-6.111
Number of observations	1229	977	1229	977	1229	977
Significance	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo R ²	0.026	0.023	0.006	0.007	0.058	0.061

Source: Author's calculation

Appendix C

Table 05: Income elasticities by expenditure type and gender of household head

Expenditure Category	Male headed household	Female headed household
Food	5.519	2.900
Education	2.270	2.357
Housing	3.074	4.926
Health	1.198	1.525
Consumer goods and durables	2.718	2.248
Other	-1.625	-0.536

Source: Author's calculation

Appendix D



Table 06: Fractional Logit Outputs Including Remitters by Expenditure Category

Variable	Food	Education	Housing	Health	Consumer and durable goods	Other
Remitter is the spouse of household head	-0.296	0.223	-0.138	0.421	0.013	0.707***
Remitter is a son or daughter of household head	0.009	1.284	-0.042	0.209	0.628	0.319***
Remitter is a parent of household head	-0.107	-0.719	-0.036	0.993	0.207	0.254
Remitter is other relative of household head	0.022	1.336	-0.047	-0.147	0.685	0.366***
Remitter is a son/daughter or other relative	-0.307***	-1.169***	-0.080	0.645**	-0.691***	0.375***
Internal migrant household	-0.157**	0.028	-0.113	0.013	-0.004	0.222*
International migrant household	-0.137*	0.318	-0.008	0.076	-0.122	0.112
Gender of the household head (Female=1)	-0.037	0.356	0.095	-0.049	0.038	0.009
Log total expenditure per capita	1.019	4.548	4.599***	3.666	5.248	-0.710
Log household size	-0.525***	3.203***	-0.56**	0.188	-0.099	0.836**
Log total expenditure per capita square	-0.084***	-0.190	-0.217***	-0.141	-0.243	0.079*
Number of females over age 15	0.076**	-0.391**	0.113**	-0.071	0.077	-0.138***
Number of males over age 15	0.059	-0.144	0.080	-0.112	0.082	-0.150***
Number of males with above A/L education	-0.041	-2.049*	0.641***	-0.804	-0.185	-0.015
Number of females with above A/L education	0.042	0.349	0.028	0.006	0.259	-0.142
Females 6-10 years of education	0.035	-0.149	-0.039**	0.112	0.036	-0.041
Males 6-10 years of education	0.027	-0.304*	-0.096	0.068	-0.060	0.018
Number of female children less than 5 years of age.	0.116**	-0.542*	-0.003	0.070	0.005	-0.104
Number of male children less than 5 years of age.	0.061	-0.884***	-0.054	0.423***	-0.031	-0.058
Number of female children 6-15 years of age.	0.083*	-0.070	-0.048	-0.172	0.001	-0.114**
Number of male children 6-15 years of age.	0.059	-0.213	-0.031	0.099	0.057	-0.123**
Number of workers in a family	-0.045**	-0.325***	-0.170***	-0.186**	0.075	0.156***
Number of old dependent people	-0.089***	-0.315**	-0.025	0.254	-0.034	0.131***
Age of household head	-0.021***	0.080**	0.049***	0.034	-0.029	-0.005



Education of household head	-0.007	0.039**	0.023***	0.006	-0.001	-0.005
Age squared of household head	0.000***	-0.000	-0.000***	-0.000**	0.000	-6.36E-06
Ethnicity of household head	0.062***	-0.044	-0.012	0.034	-0.006	-0.062
Marital status of household head	0.010	-0.126	-0.164***	-0.288	-0.069	0.141**
Region 1 Western province	-0.052	0.218	0.412***	0.078	-0.288	-0.136**
Region 2 Central province	-0.006	-0.135	0.211***	-0.588***	0.001	-0.023
Region 3 Southern province	0.010	0.191	0.038	-0.172	-0.074	0.040
Region 4 North Western province	0.562	-0.418	-1.304***	-3.002***	-0.435*	-0.220
Region 5 Uva province	-0.022	0.277*	-0.048	-0.100	-0.063	0.059
Proportion of durable goods utilized	-0.001	0.007**	0.000	0.002	-0.000	0.000
Constant	0.538	-36.14**	-26.76***	-28.38***	-29.83	-4.649
Number of observations	1018	1018	1018	1018	1018	1018
Significance	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo R ²	0.043	0.060	0.018	0.036	0.009	0.060

*, **, *** Significant at 10%, 5% and 1% probability level

