

# **Gender, Migration, Remittances and Household Expenditures in Nicaragua**

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**Abstract:**

We explore the link between gender, remittances and the expenditures of the household in Nicaragua. Our results suggest that gender implications concerning expenditures seem to relate more to the gender of the household head than to the gender of the migrant. Households with a female head tend to devote a higher share of expenditures to human capital and a lower share to vice goods and food compared to male-headed households. A higher amount of remittances relates to a higher share of food expenditures and a lower share of housing expenditures for female-headed households compared to male-headed households. In the case of migrant gender, this variable only seems to relate significantly with the share of expenditures in human capital (negative for female migrants) and its interaction with remittances is not significant. However, there remain significant statistical challenges related to exploring the role of migrant and household head gender on household expenditures.

**Keywords:** Migration, Remittances, Expenditures, Gender, Latin America, Nicaragua

**JEL Classifications:** F24, F22

## **1. Introduction**

The main change in international migration in recent years has been the increasing number of women who are migrating on their own (Castles and Miller, 2009). In the past, men were more likely to migrate, either as single young men or with the intention of bringing wives and children over at a later date. In the case of undocumented migration, it is easy to imagine that initial migration without wives and children was even more likely due to the increased risks that undocumented immigrants face with respect to successful entry into the host country. Nonetheless, nowadays more women are migrating independently in order to look for better job opportunities (United Nations-INSTRAW, 2007). The increasing role of females as economic migrants may have, as a result, an increase in the independence of women and their influence over household decisions (Beneria, 2008; Taylor, Moran–Taylor and Ruiz, 2006).

The aspect of female migration that we wish to explore concerns remittance transfers. The role of women and men in society in specific cultures may affect the ability and desire of individuals to migrate (de Haas and Fokkema, 2010). Once migration takes place, gender roles assigned by culture might also affect the remitting behaviour of migrants. Females might be selected by households to migrate simply because they are more reliable remitters. They are willing to work harder than males, are less inclined to spend money on themselves in the host country and, therefore, typically remit a higher share of their earnings (Vanwey, 2004). Female immigrants from Latin America in the United States tend to work in the lower paying sectors of the labour market (Joassart-Marcelli, 2009). Yet, female transfers could be on par with male transfers given their higher disposition to remit. We go a step forward and argue that gender may also have an impact on the actual uses of remitted money.

A portion of remittance transfers is typically used for expenditures given that for most households the possibility of saving the totality of the remittance money is not an option. However, studies do not agree on what type of expenditure takes place with remittances or what factors determine the spending patterns. We place special attention on the possibility that female-headed households are using remittances money differently from male-headed households. Gender is a critical source of intra-household tensions that can affect resource allocations (Pfeiffer Richter, Fletcher and Taylor, 2008). For instance, as their husbands migrate abroad, women left at home may experience changes in their role in the household and may have to assume greater responsibilities (de Haas and Van Rooij, 2010). One of these responsibilities could be the administration of the household's budget, including the remittances income. For instance, Garcia (2006) suggests that Dominican female recipient of remittances play a crucial role in managing the monetary transfers received by the household.

Nonetheless, while the gender of the household head is important we also explore the implications of migrant gender on the use of remittances. In some occasions, while the head of the household administers the money, the migrant actually decides on the spending of the money. That is, remittances money is often earmarked for specific purposes. For instance, an opinion survey in Ecuador reflected that in close to 20 percent of the occasions the migrant decides on the expenditure of remittances (Bendixen & Associates, 2003). If the household deviates from the wishes of the migrant, the migrant may penalize the household by decreasing the amount of money transferred in the future. In the case of females, the act of migration and becoming one of the main economic providers (if not the main provider) of the household may increase their household status and enhance their self-confidence and this may translate into an improvement of their bargaining power within the household. Therefore, even if the migrant is a female and the household head is

her male husband we may see an important influence of the female on the expenditure of remitted money. This empowerment may even hold when women return home from abroad (Connelly, Roberts and Zheng, 2010). On the other hand, it is possible that the frequency of “transnational mothering” just results in a continuity of women’s traditional roles even if physically separated from the household (Beneria, 2008).

This study builds on previous research to provide answers to two related questions about the use of remittances money concerning gender. The first question is: Are there important differences in the expenditure patterns of remittances from male migrants and those from female migrants? While there has been a lot of research about differences in remitting patterns between males and females, this inquiry has remained largely unexplored. The second question is: Are the expenditure patterns of male-headed and female-headed households with migrants different? Here, we focus on the gender of the head of the household instead of the gender of the migrant. Given the actual uncertainty about how much influence migrants have on the use of remittances in comparison with the influence of the household head, we feel that these two questions must be answered in order to get a complete picture of the connection between gender, household expenditures, migration and remittances.

We use data from *Encuesta Nacional de Hogares sobre Medición de Nivel de Vida* (Living Standards Measurement Survey or LSMS) of Nicaragua for 1998, 2001 and 2005 in order to conduct the analysis. As we explain further in the next section, Nicaragua has a series of particular characteristics that make it an interesting case study. In general, we find that gender implications concerning expenditures seem to relate more to the gender of the household head than to the gender of the migrant. However, there are significant statistical challenges related to exploring these relationships, in special the role of migrant gender on household expenditures.

## 2. Background

The Nicaraguan experience represents an interesting case for studying the relationship between remittances, migration and gender for several reasons. First, a stock of more than 728,000 emigrants that accounts for 12.5 percent of the population indicates a strong tendency to emigrate among Nicaraguans (World Bank, 2011). This portion of the population abroad is the result of lack of opportunities at home, but also of the Contra War that affected the country during much of the 1980s. In this period, it was common for Nicaraguans to ask for refugee or political asylum status in the United States. During the 1990s, the economic difficulties that resulted from the destruction caused by Hurricane Mitch led to further incentives for emigration from Nicaragua (Funkhouser, 2010).

Two distinct dynamics characterize emigration from Nicaragua. First, a large proportion of emigrants from Nicaragua leave for Costa Rica, where they get the opportunity to visit Nicaragua more often because of the proximity and the type of work (mainly coffee harvest, which is seasonal). The United States is the second preferred destination among Nicaraguans. Overtime the real wage gap between the United States (and Costa Rica) and Nicaragua widened, providing more incentive for migration.

Table 1 employs the data used in our empirical analysis to provide some indication of the split of Nicaraguan emigrants between Costa Rica and the United States concerning gender, using the three rounds of the survey and the 2005 round.<sup>1</sup> First, notice that emigration to Costa Rica is, in general, more common than emigration to the United States. In both cases female emigration seems to be somewhat at the same level of male emigration. However, just looking at the 2005

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<sup>1</sup> Below we provide more a full description of the data.

round, it seems that emigration to Costa Rica is even in terms of gender, while emigration to the United States has become more male dominated.

[Table 1]

It is very common for Nicaraguan emigrants to send a portion of their income back home in the form of remittances. Nicaragua received about US\$ 803 million in remittances during 2010, an increase of about 5 percent from the previous year. As shown in Figure 1, the growth rate of remittances to Nicaragua (red line) turn negative in 2009, most likely due to the global financial crisis. However, with that exception, remittances to Nicaragua have always been on the growth path and the average annual growth rate of remittances is about 32 percent for the 1992-2010 period.<sup>2</sup> This figure for the volume of remittances inflows in Nicaragua, which only includes officially recorded transactions and may underestimate the true amount of flows, accounts for over 10 percent of the country's Gross Domestic Product (about 10.3%).

[Figure 1]

### **3. Literature Review and Theory**

While other social sciences have examined in detail the role of gender in migration, economists have been slow to incorporate gender into economic research (Pfeiffer, Richter, Fletcher and Taylor, 2008). In fact, Boyd and Grieco (2003) suggest that in the past researchers have simply used the “add women, mix and stir” approach, specifically referring to the frequent inclusion of a gender indicator into migration models as a control variable. Certainly, including a gender variable, controls for gender in the estimation, but it is not an exploration of gender dynamics. There are, however, a series of economics studies that have focused on the role of

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<sup>2</sup> Figures were estimated by the authors using data from the World Bank (2011).

gender in migration related topics. We discuss some of those studies below, in addition to several complementary studies from other disciplines.

### **3.1 The Impact of Gender on Remittances**

The studies on remittances and gender have so far focused mostly on the impact of gender on the remitting patterns of migrants. In the 1980s, during the earlier stages of this literature a few studies, using mostly internal remittances data, show that gender does influence remitting behaviour (Lucas and Stark, 1985; Kaufmann and Lindauer, 1986). Research from the 1990s also supported this idea, but these studies have also been able to construct a story of why we may observe these differences between males and females. For instance, Osaki (1999) explains that in Thailand, children are expected to repay their parents for time and money invested in raising them. Under Buddhist traditions, males can earn religious merit for their parents if they become ordained and spend a period of their lives in monkhood. Since this option is not available for females, female migrants are more likely to contribute financially to the household via remittances. Finally, studies during the 2000s have also supported differences in remitting patterns across gender in different countries (e.g. Semyonov and Gordozeisky, 2005).

For Latin America, de la Brière, Sadoulet, de Janvry and Lambert (2002), using data from the Dominican Sierra find that there are structural differences in remittance behavior across gender, reflected in the significance of the interaction terms of gender with other determinants of remittances. Moreover, female migrants act as insurance agents for the original households by increasing the amount remitted due to lost working days, while male migrants do not. Agarwal and Horowitz (2002), using data from Guyana, find that gender matters for the amount remitted (males remit a higher amount), but not for the likelihood of remitting. Sana and Massey (2005) find that in the Dominican Republic, daughters living abroad are stronger predictors of remittances than



sons living abroad. The contrary is true for Mexico, where sons living abroad are stronger predictors of remittances than daughters living abroad. The authors suggest that Mexican sons are expected to be trustworthy remitters, while Dominican men are less reliable remitters. Blue (2004) found that female Cuban migrants are more reliable remitters than male Cuban migrants. Blue hypothesizes that the traditional role of family caretakers of Cuban women may be behind the result. Finally, using data from Nicaragua, Naufal (2008) finds that female migrants behave more altruistically than their male counterparts.

### **3.2 Remittances and Household Consumption**

The previous literature has also provided insights on the impact of remittances on household consumption. Airola (2007) finds that remittances induce greater spending (as a share of income) on healthcare and housing in Mexico. Adams and Cuecuechea (2010), using data for Guatemala, find that international remittance-receiving households spend more on education, health, and housing, and less on food than do other households. While these and other studies have explored the differences in household expenditures across remittance receiving and non-receiving households, these studies have not explored in detail the role of gender.

One paper that does address this issue is Rahman and Fee (2009) for the case of Indonesian domestic workers in Hong Kong, Singapore and Malaysia. Their results suggest that the majority of migrants (about 67%) had control over the use of remittances and that female recipients of remittances tend to use the money for human capital acquisition, while males tend to use the money for physical capital acquisition. The results of Rahman and Fee (2009) have an important implication for our study. The desires of the migrant about the use of remittances seem to matter; hence, the gender of the migrant could be of importance. There are, however, three important differences between the study of Rahman and Fee (2009) and the current study. First, they just

report descriptive statistics of the survey but do not conduct any type of econometric analysis. Second, the authors emphasize the use of remittances and the gender of the receiver, but not the gender of the migrant. Third, they focus exclusively on the case of domestic workers that, while interesting, limits the implications of their results for other types of migrants.

We also argue that it is important to look at the overall expenditure distribution of the households. If the households take remittance money and put that money towards food, but then re-direct other sources of income from food to housing, the overall impact of remittances may not be an increase in the demand for food products. Remittances are money that flows to the household and becomes part of the overall household budget. Therefore, the crucial point is to explore how remittances affect the overall household expenditure distribution. For instance, we can compare two households with the same level of income, but with one of the households receiving a share of that income from remittances. This inquiry is strongly related to the literature on the role of gender in household consumption patterns, which we briefly review in the next sub-section.

### **3.3 Role of Gender in Household Consumption Patterns**

The literature on intra-household expenditure patterns rejects the unitary household model and suggests that there are differences in preferences among household members (Guzmán, Morrison, and Sjöblom, 2008). In fact, changes in gender control of income could translate into changes in expenditures and budget shares (Doss, 2006). For instance, Hoddinott and Haddad (1995) find that a larger share of income given to the wife increases the budget share of food and decrease the budget share of alcohol and cigarettes in Côte D'Ivoire. Further, recent evidence suggest that an increase in education spending is the most consistent effect across countries of having a larger share of resources in the hands of females (Guzmán, Morrison, and Sjöblom, 2008).

The literature on the role of gender in the household has mainly focused on the spending impact of increasing the share of income controlled by women.<sup>3</sup> One significant event that can cause such an increase in the monetary role of women is migration (de Haas and Van Rooij, 2010). When men leave the household to work abroad, women may inherit additional tasks and responsibilities, which often involve increased access to income (mainly through remittances received) and the decision on how to spend it. In order to understand the outcomes of such intra-household dynamics, Guzmán, Morrison, and Sjöblom (2008) examine the effects of the gender of the remitter and the head of the remittance-receiving household on household budget allocations. The authors use cross sectional data from Ghana to find that female-headed households have different expenditure patterns than male-headed households. For instance, female-headed households receiving international remittances tend to spend less on food and more on housing. Concerning migrants, they find that households with female remitters in Ghana (i.e. internal remittances) devote a lower share of their budget to food expenditure compared to households with male remitters.

### **3.4 Implications of household expenditure decisions for macroeconomic and microeconomic outcomes**

The exploration of the connection between gender and the use of remittances is not only a contribution to the studies on female migration, but also to the literature on migration and development in general. For instance, at the macro level there has been an extensive debate concerning the impact of remittances on development, poverty reduction and economic growth in the remittance-receiving countries. While some studies suggest that remittances may affect economic growth positively (Giuliano and Ruiz-Arranz, 2009; Mundaca, 2009), other studies

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<sup>3</sup> See Guzmán, Morrison, and Sjöblom (2008) for a review of the role of women on household expenditures.

suggest otherwise that remittances have only minor impacts on economic growth (Catrinescu, Leon-Ledesma, Piracha and Quillin, 2009; Ruiz, Shukralla and Vargas-Silva, 2009; Vargas-Silva, Jha and Sugiyarto, 2009). Although these studies differ in their conclusions, they agree on the fact that the actual use of remittances on the part of households is one of the key factors determining the growth impact of these transfers. For instance, the impact of remittances should be different if remittances are used for household consumption and housing than if remittances are directed towards luxuries.

There has also been much discussion in the literature about the connection between remittances and Dutch Disease (Amuedo-Dorantes and Pozo, 2004; Vargas-Silva, 2009). The main argument is that if remittances encourage more expenditure on non-tradable goods and services then these flows may appreciate the receiving country's real exchange rate, potentially affecting the tradable sector negatively.

At the micro level, remittances may also affect several variables. Among other variables, the impact of remittances on the human capital acquisition of both children and adults has received special attention in the literature (Amuedo-Dorantes, Georges and Pozo, 2008; Bansak and Chezum, 2009; Borraz, 2005; Edwards and Ureta, 2003). The extra-income represented by remittances may allow household members to invest more time in educational activities, may reduce the need for children to be part of the labour force and may ultimately simply allow the expenditure necessary to send household members to school.<sup>4</sup>

Remittances could also be used for housing purposes, either to purchase a home, improve the current one or rent a better one (Obeng-Odoom, 2010; Osili, 2004). The increasing investment

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<sup>4</sup> See Ray (1998) for further discussion of the potential impact of human capital on economic growth.

in housing in developing countries could potentially increase household assets and improve the quality of life.

Finally, the frequent investment of remittances for productive purposes is one of the main points of those attesting that remittances have a positive impact on economic development. Remittances may reduce the liquidity constraint of receiving households and provide the capital necessary to start a small business. This is especially relevant for developing countries where credit markets are not well developed. The option of using remittances as a source of support may also allow the household to enter more profitable and riskier businesses. Furthermore, most small businesses require an initial period of investment without profits from the new venture. Remittances can help support the business during this period. Amuedo-Dorantes and Pozo (2006) using data from the Dominican Republic find that although receiving remittances does not appear to increase the likelihood of business ownership on the part of the household, business owners are more likely to receive remittances suggesting that remittances may help support businesses.

#### **4. Data and Empirical Methodology**

The data used are from the *Encuesta Nacional de Hogares sobre Medición de Nivel de Vida* (Living Standards Measurement Survey or LSMS) of Nicaragua. The Nicaraguan Institute for Statistics and Census administered the survey and it is nationally representative of the Nicaraguan population. The survey includes a module on remittances where a knowledgeable member of the household (usually the head of the household) is asked about other household members who do not live in the household any longer. The question at the start of the migration module that we focused on states: “Is any member of this household living in a different country? (it does not matter if it was recent or a long time ago)”. Therefore, it is focused on international

migration and it includes everyone “living” in another country. For each household with at least one migrant, the LSMS records the total amount of remittances received by that household.

The Nicaragua LSMS has three rounds: 1998, 2001 and 2005, which we use for our analysis. Panel results are typically better than estimates from one round of a survey because it is possible to control for unobserved characteristics in addition to the fact that we have more observations. Nevertheless, there are some important challenges related to using panel data with the Nicaragua LSMS.

First, there is no information module for international migration in the 1998 round. Therefore, we had to use the information provided in 2001 (e.g. year of departure of the migrant) to estimate the number of emigrants and construct the migrant characteristics in 1998. This data construction does not capture all migration dynamics perfectly. For instance, there can be migrants in 1998, which returned home or died before 2001 and do not get recorded as a migrant in the 2001 round.

Second, while constructing the 1998 migration data, we assume that migrants’ years of education in 1998 are as those stated in 2001. Nonetheless, there can be some migrants, who studied between 1998 and 2001 and increased their years of education by 2001. In such case, our construction method will result in an overestimation of years of education in 1998. Since we have the 2001 and 2005 migration data available, we were able to test if a similar construction of migrant characteristics in 2001 from the information provided in 2005 would provide valid estimates. We found that the constructed variables and actual variables of 2001 are somewhat similar, and regression results using constructed variables of 2001 are not significantly different from results using actual variables of 2001.

Finally, there are too many new households in the 2005 round within the migrant household group and this decreases the advantages of using fixed effects. Therefore, we start the analysis with regressions using the whole sample (i.e. migrant and non-migrant households) divided by gender of the household head and using fixed effects. In these estimations, the main variable of interest is a dummy indicating that there is a migrant in the household. Up to this point we do not include any gender variables, but just focus on remittances and the existence of a migrant.

Obviously, we cannot include migrant gender, as this variable is only available for households with migrants. Likewise, the remittances data are available only for households with migrants. Hence, we run a second set of estimations in which we limit the sample to those households with migrants and include time effects. For the migrant sample, in addition to presenting results with the three rounds of the survey, we also present results using just the latest round of 2005.

In general, we envision the impact of gender on the use of remittances as depicted in Figure 2. The migrant and the head of the household can be of the same or different genders. It is possible for the expenditure pattern of remittances to be influenced mainly by migrants and, therefore, the household just administers the money or, alternatively, the money may flow without any strings attached in which case the household has complete autonomy on decisions about money allocation. Obviously, a mixed arrangement between these two extremes is also possible.

[Figure 2]

As shown in Figure 2, we have separated expenditures in 4 categories: vice goods, housing, food and human capital. The vice goods category includes beer, cigarettes, cigars, and other alcoholic beverages. The housing category includes all spending on housing, including rents, mortgages, repairs, etc. The food category includes all food products purchased by the household.

The human capital category includes all expenditures related to the schooling of children and adults. The “other” category includes everything else. This taxonomy of broad spending categories should provide a clear picture of key differences in expenditures patterns, remittances and gender. We include these expenditures in the estimation as a share of expenditures in all the categories.

To study potential different patterns in the end use of remittances from male versus female migrants we define a variable to capture the proportion of all migrants who are females. Hence, if there is only one migrant, who happens to be a female then this variable is equal to 1; if there are two migrants and only one is female this variable is equal to .5 and so on. We call this variable the Female Migrant Influence (FMI). We include this variable on its own and as an interaction term with remittances.

In an ideal world, we would have an exogenous source of variation in migration that is gender neutral (e.g. a lottery that selects migrant without taking gender into consideration), but unfortunately we do not have that. There are other types of exogenous shocks that have been used for the case of Nicaragua. For instance, Macours and Vakis (2010) used exogenous shocks such as plagues to study the impact of seasonal migration in Nicaragua on early childhood development. However, as the authors indicate, the region of the study was specifically selected because of its “high levels of rural poverty and its susceptibility to weather and agricultural shocks.” Hence, it is a region that is ideal for that type of instrumentation. This will not work with a sample that is representative of the whole country (i.e. including urban areas). Therefore, we refrain in this paper from making any strong claims on causality, as we do not have an exogenous source of variation for migrant gender.

The main equations of interest are, for the fixed effects estimation (separate for each household head gender):



$$e_{it} = \alpha_i + x'_{it}\beta + \phi MIG_{it} + u_{it} \quad (1)$$

And for the time effects estimation:

$$e_{it} = \alpha_t + x'_{it}\beta + \delta GH_{it} + \gamma FMI_{it} + \theta R_{it} + \mu FMI_{it} * R_{it} + u_{it} \quad (2)$$

$$e_{it} = \alpha_t + x'_{it}\beta + \delta GH_{it} + \gamma FMI_{it} + \theta R_{it} + \tau GH_{it} * R_{it} + u_{it} \quad (3)$$

Where  $e_{it}$  is the share of expenditures on a certain category in total expenditures on all categories for household  $i$  at time  $t$ ,  $\alpha_i$  is the individual specific effect,  $\alpha_t$  is a year specific effect,  $x_{it}$  are a series of control variables explained below,  $GH_{it}$  is the gender of the head of the household,  $FMI_{it}$  is the female migrant influence,  $R_{it}$  is the total amount of remittances per migrant received annually in Nicaraguan Córdoba,  $MIG_{it}$  indicates that there is a migrant in the household and  $u_{it}$  is the error term.<sup>5</sup>

The control variables included in the estimation are the head of the household's age (in years), marital status (married = 1), and years of education, average years of education of the migrants, average years since migration, annual household income per household size in Nicaraguan Córdoba, the indicator of household location (urban = 1) and household size. Household size is included a la Citro and Michael (1995) where instead of using a regular head count, a formula is used to highlight the difference between children and adults, and allow economies of scale within the family. The general formula is:  $family\ size = (A + PK)^F$ , where  $A$  is the number of adults,  $K$  is the number of children, and  $P$  and  $F$  are parameters lying between 0 and 1. We follow Citro and Michael (1995) and select  $P$  and  $F$  as .75. Again, the migrant characteristics are not included in the fixed-effects estimation with the overall sample.

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<sup>5</sup> In order to verify that households were not consistently identifying a migrant as the household head, we conducted a series of exercises such as comparing the information on migrants, with the information of household heads. For the large majority of the households the person identified as the household head has characteristics that are consistently different from the migrant members. However, this remains a possibility for some households.

We start the analysis by providing preliminary evidence on the relation between gender (migrant and household head) and expenditures by showing the mean expenditure on each category for male and female-headed households using the whole sample. Then we include remittances in the analysis by reporting the mean expenditure on each category for six types of households with migrants: those with a male head and a male remitter, those with male head and a female remitter, those with male head and no remitter, those with a female head and a male remitter, those with a female head and a female remitter and, finally, those with a female head that do not receive remittances. Given that the households may have multiple migrants of different gender, we include households with FMI of less than .5 (migrants are mostly male) under the categories with a male remitter, and households with an FMI of over .5 (migrants are mostly female) under the categories with a female remitter.

## **5. Results**

### **5.1 Descriptive Statistics**

Table 2 shows the descriptive statistics for the variables used in the estimation, along with mean expenditure on each category for male and female-headed households and for the whole sample. It seems that the share of expenditures in food (64%) is much higher than the share of expenditures in the other categories. Expenditures in housing are in second place with about 28%, followed by human capital expenditures (12%). Only about 1% of the expenditures go to vice goods. About half of the migrants are female (46%) and the total annual amount of remittances per migrant is about 8,416 Cordobas. In January 2005, the Cordoba/US dollar exchange rate was about 1 US dollar per 16 Cordobas, hence that was equivalent to about US\$520 at that time.<sup>6</sup>

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<sup>6</sup> Note that this is not a perfect conversion given that the survey also includes information for 1998 and 2001.

In regards to household head gender, it seems that female-headed households devote a somewhat larger share of their expenditures to housing, while male-headed households tend to put more weight on food items. In both cases, the share placed on vice goods is small, but it is higher for male-headed households. The share of educational expenditures is similar across the genders of the household heads, but tends to be somewhat higher for female-headed households. There are no major differences in these relationships if we use the three rounds of the survey or just focus on the 2005 round.

[Table 2]

An interesting finding from Table 2 is the small proportion of female heads of households that are married (in both the migrant and full sample). About half of male household heads are married, while this number decreases to just 6 percent for female household heads. In order to explore this result further, we present in Table 3 the number of household heads that are married and not married, according to gender. In addition, we present the gender of the migrant (i.e. FMI over .5 is female and FMI below .5 is male). It seems that using the three rounds of the survey for both, female-headed and male-headed households, the share of migrants that is female is higher in households where the head is not married in comparison with households where the head is married. However, the gap is very small for male headed-households and large for female-headed-households. For the 2005 round, the dynamics are similar, but the shares of male and female migrants are similar for male-headed households. Next, we present the results for the six types of households described above and we limit the sample to households with migrants.<sup>7</sup>

[Table 3]

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<sup>7</sup>Given that the focus of the paper is on the FMI we can only conduct the estimations with this variable for those households with migrants. Therefore, the results including that variable may not be representative of the whole Nicaraguan population.

In Table 4 we show the mean expenditure on each category for the six types of households. Focusing in the combined data for the three rounds (i.e. “All” panel), the Table suggests that for female headed households having a male remitter (versus a female remitter) decreases the share of expenditures going to vices, housing and food, but increases the share in human capital. Meanwhile, for male headed households having a female remitter (versus a male remitter) decreases the share of expenditures in vice goods and food, while it increases the share of expenditures going to housing and human capital. However, in all cases the changes due to differences in the gender of the migrant are small and it seems that the major differences are related to the gender of the household head. Male-headed households seem to devote a higher share of expenditure to vice goods and food, while female-headed households put a higher share of expenditures in housing and human capital. In the next sub-sections, we use regression analysis to explore if these relationships hold once we control for a standard set of variables.

[Table 4]

## **5.2 Fixed Effects Estimations for the Whole Sample Divided by Household Head Gender**

The primary intent of this paper is to determine whether gender has an impact on household expenditures and the end-use of remittances once we have accounted for differences in the overall characteristics of households and migrants. There are different approaches that we could take to explore the influence of gender. For the migrant sample estimation below, we allow for differences in the intercept for males and females by including a gender dummy in the estimation. The drawback to this approach is that the coefficients on each of the other conditioning variables are constrained to be the same. An alternative approach is to estimate separate regressions according to gender. We conduct that estimation in this sub-section for the whole sample including a dummy

for the existence of a migrant in the household, in addition to a series of control variables. We repeat these estimations below for the migrant sample.

The results of estimating the determinants of expenditures using the whole sample and a migrant dummy are reported in Table 5. Interestingly, the presence of a migrant in the household only has an impact on expenditures of female-headed households. The presence of a migrant is related to a higher share of expenditure in vice goods and human capital and a smaller share of expenditures on food. Other differences in coefficient significance include the fact that household age has an impact (negative) on vice goods expenditures for male-headed households, but not for female-headed households.

In the next sub-sections, we limit the sample to households with migrants and explore the impact of migrant characteristics, household head gender and remittances on the expenditure shares of the household.

[Table 5]

### **5.3 Time Effect Estimations for the Migrant Sample with Interaction Terms**

In the estimations in Table 6 we include an interaction term between the gender of the household head and remittances (amount), while in Table 7 we include an interaction term between FMI and remittances. The results from Table 6 suggest that, in line with the results from the descriptive statistics, compared with male-headed households, female-headed households devote a smaller share of expenditure to vice goods and food and a higher share to human capital. The result for vice goods is significant for both, the combined sample and the 2005 round, while the other two results are only significant for the combined sample. Having a female household head does not relate significantly with housing expenditure.

The results also suggest that remittances only have a significant impact on food expenditure (negative). However, the interaction term between remittances and household gender (female = 1), comes out negative for housing and positive for food expenditures. Hence, while female headed households tend to spend less on food (as a share) compared to male headed households, receiving remittances increases the share of expenditures devoted to food for these households. Also, while household gender does not relate significantly with housing expenditures, receiving remittances is related with a smaller share of expenditures in housing for female headed households compared with male headed households.

Finally, it seems that a higher FMI tends to be associated with a smaller share of expenditure being devoted to human capital. This result is significant for the combined sample and the 2005 sample. However, FMI is not significant for any of the other expenditure shares. We explore these last results further in Table 7 by including an interaction term between FMI and remittances received.

[Table 6]

Table 7 shows somewhat similar results for the relationship between the gender of the household head (i.e. female) and expenditures: a positive relation with the share of expenditures going to human capital and a negative relation with the share of expenditures in vice goods and food. It also seems to be the case that there is a negative relation between FMI and human capital expenditures, although in this case the coefficient is only significant for the 2005 round. The interaction term between FMI and remittances is not significant for any of the categories.

[Table 7]

#### **5.4 Time Effects Estimations for the Migrant Sample Divided by Household Gender**

The evidence discussed above suggests that gender implications concerning the end-use of remittances relate more to the gender of the household head than to the gender of the migrant. For this reason, we also conduct separate estimations by household head gender for the migrant sample. We can now see whether male and female-headed household expenditure ratios are just as responsive to, for example, the amount of remittances received.

The results of this exercise are presented in Table 8 (female-headed households) and Table 9 (male-headed households). The results point to a few interesting differences in the coefficients and significance levels for male and female-headed households. For instance, for male headed households the characteristics of the migrants (i.e. education and time since migration) tend to have a significant impact on housing expenditures (both positive), human capital (positive but only education is significant) and food expenditure (negative). In the case of female headed households, other migrant characteristics have no impact on the share of housing expenditures, while migrant education impacts food expenditures (negative) and human capital (positive). Hence, even if the gender of the migrant is not having a significant impact on expenditure shares, other characteristics of the migrants may have an impact on expenditure shares. Remittances are significant determinants of human capital expenditures (positive) for female headed households, while for male headed households remittances are significant determinants of the share of food expenditures (negative).

[Table 8]

[Table 9]

## 6. Conclusion

Gender is one of the factors affecting the possibility to migrate, the causes of migration and the impact of migration on families, receiving countries and migrants (Omelaniuk, 2005). For instance, once migration takes place, migrant women may experience discrimination in receiving countries for their role as immigrants, but also as women (Martin, 2004). Often migrant women are stigmatized as “bad mothers” in their local communities and have to negotiate their loyalties with the household and community via remittances (Boccagni, 2011). While the previous literature has provided these, and other interesting insights, there is no complete agreement about the actual nature of the relation between gender and migration. This paper explores an element of this relationship, the influence of women (as migrants or as household heads) on household expenditures in the context of migration.

Using data from Nicaragua, we focus first on the possibility that female-headed households are using remittances money in different ways than male-headed households. Next, we turn to the gender of the migrant given that in some occasions while the head of the household administers the money, the migrant decides the actual expenditure of the money. We use the term “household head” with great caution as households are sites of competing demands and power struggles (Chant, 2008) and it is not completely clear that the person named as the household head is totally in charge of household expenditures. Yet, even with this caveat, we think that the exploration of the implications of migrant and household head gender for household expenditures provides interesting insights.

Our results suggest that gender implications concerning expenditures, relate more to the gender of the household head than to the gender of the migrant. Overall, female-headed households tend to devote a larger share of expenditures to human capital and a smaller share to vice goods



and food. An interaction term of household head gender (female = 1) with received remittances is positive for food expenditures and negative for housing expenditures. Migrant gender only relates significantly with the share of expenditures in human capital (negative relation) and the interaction terms with remittances are not significant.

We also conduct the analysis separately for male and female-headed households. For male-headed households migrant education and time since migration have a positive impact on housing expenditures and human capital expenditures (only education is significant) and a negative impact on food expenditures. In the case of female-headed households, these migrant characteristics have no impact on the share of housing expenditures, but migrant education impacts food expenditures negatively and human capital positively. Therefore, the fact that migrant gender is not significant in most of our estimations does not necessarily imply that other migrant characteristics are not relevant for expenditure shares.

Our findings are important because any development policy directed towards the household without taking into consideration gender differences might have unintended consequences and could potentially fail. Our results show, for instance, that compared to male headed households, in female-headed households, remittances are related with lower expenditures on housing and higher expenditures on food. This difference in expenditures could have implications for development policies. For instance, there has been extensive debate concerning the impact of remittances on development and economic growth in the remittance-receiving countries (e.g. Catrinescu, Leon-Ledesma, Piracha and Quillin, 2009; Ruiz, Shukralla and Vargas-Silva, 2009; Vargas-Silva, Jha and Sugiyarto, 2009). Although the findings in the literature are not conclusive, studies agree on the fact that the actual use of remittances on the part of households is one of the key factors determining the development impact of remittances. The impact of remittances would be different

if there are important discrepancies in the use of remittances by different gender groups. Therefore, it is impossible to analyze the interaction of remittances and development without also focusing on the role of gender.

The results also have important implications for gender relations. We are not able to find strong evidence that the gender of the migrant affects the expenditure of female-headed households for most categories. This result fits well with the theory of greater autonomy of women when men migrate. This result is not unique to Nicaragua and has been found in other countries. For instance, Massey (2009) reports that in India and Bangladesh there was a strong correlation between staying behind in the migration process and increased autonomy for women as a result of short-term migration of the husbands. It is also reported that longer-term migration increased women's decision-making powers further, especially regarding food consumption. In our sample, the average number of years since migration is 7 to 8 years, therefore, it is not surprising that the evidence points towards increasing independence of female-headed households. However, this conclusion is tentative as there are several other potential explanations for the lack of significance of the gender of the migrant in most of our estimations.

For instance, we have several households with migrants from different gender, hence, we use a continuous gender variable that goes from zero (no female migrant) to one (all migrants are female). Results with a dichotomous gender variable in the context of households with just one migrant may provide different results. The characteristics of the migrant and the position of the migrant within the household before migration are also important. Among these characteristics, the possibility of remitters to scrutinize household expenditures is likely to play a big role. Datasets with detailed information about the migrant may provide a great source of information in this regard. Finally, our study has limitations in regards to the possibility of endogenous relations, for

which we cannot control, and that may affect the results one-way or the other. In this regard, the possibility of using natural experiments of situations that may lead specifically to the migration of females versus males may provide additional insights.

Further exploration of this topic in other countries and different contexts is necessary to facilitate cross-country comparisons and ultimately establish stylized facts about this relationship. Among other possibilities, it would be interesting to explore differences in consumption within each category (e.g. food spending) as there is likely to be a lot of heterogeneity in consumption within each category. It could be possible to inquire, for instance, if the gender of the household head and the migrant are relevant factors in decisions such as using remittances to consume food with high sugar content versus low sugar content. Unfortunately, many of the datasets that are currently available do not provide the level of detail that would be necessary to explore these issues. Therefore, future efforts of data collecting that aim to provide insights on the role of gender in the migration context should try to collect detailed information on the products and items consumed by individuals, the pre-migration role of the migrants in the household and the level of involvement of the migrant in household affairs. Finally, Yabiku, Agadjanian and Sevoyan (2010) in a study for Mozambique found that men's migration is associated with women's autonomy, even after the men's return. Therefore, it is important not only to collect data on the current migration status of individuals in the household, but also their complete migration histories.

## References

Adams, Richard H. Jr. and Cuecuechea, Alfredo. 2010. "Remittances, Household Expenditures and Investment in Guatemala" *World Development* 38(11): 1626 – 164.

Agarwal, Reena, and Horowitz, Andrew. 2002. "Are International Remittances Altruism or Insurance? Evidence from Guyana Using Multiple-Migrant Households" *World Development* 30(11): 2033 – 2044.

Amuedo-Dorantes, Catalina and Pozo, Susan. 2004. "Worker's Remittances and the Real Exchange Rate: A Paradox of Gifts" *World Development* 32(8): 1407 – 1417.

Amuedo-Dorantes, Catalina and Pozo, Susan. 2006. "Remittance Receipt and Business Ownership in the Dominican Republic" *The World Economy* 29(7): 939 – 956.

Amuedo-Dorantes, Catalina, Georges, Annie and Pozo, Susan. 2008. "Migration, Remittances and Children's Schooling in Haiti" IZA Discussion Paper No 3657.

Airola, Jim. 2007. "The Use of Remittance Income in Mexico" *International Migration Review* 41(4): 850 – 850.

Bansak, Cynthia and Chezum, Brian. 2009. "How Do Remittances Affect Human Capital Formation of School-Age Boys and Girls?" *American Economic Review* 99(2): 145 – 148.

Benería, Lourdes. 2008. "The Crisis of Care, International Migration, and Public Policy" *Feminist Economics* 14(3): 1 – 21

Bendixen & Associates. 2003. "Remittance Recipients in Ecuador: A Public Opinion Research Study." Available at: [http://www.migracion-remesas.ln/html/op\\_migracion.htm](http://www.migracion-remesas.ln/html/op_migracion.htm). (accessed January 2011).

Blue, Sarah. 2004. "State Policy, Economic Crisis, Gender, and Family Ties: Determinants of Family Remittances to Cuba" *Economic Geography* 80(1): 63 – 82.

Boccagni, Paolo. 2011. "Caring for migrant careworkers: from private obligations to transnational social welfare? Insights from Ecuadorian migrants" paper presented at Making Connections: Migration, Gender and Care Labour in Transnational Context, 14 – 15 April, 2011; University of Oxford,  
[http://www.compas.ox.ac.uk/fileadmin/files/pdfs/Isabel\\_Shutes/Boccagni.pdf](http://www.compas.ox.ac.uk/fileadmin/files/pdfs/Isabel_Shutes/Boccagni.pdf) (accessed April 2011)

Borraz, Fernando. 2005. "Assessing the Impact of Remittances on Schooling: the Mexican Experience" *Global Economy Journal* 5(1): 1 – 30.

Boyd, Monica and Grieco, Elizabeth. 2003. "Women and Migration: Incorporating Gender into International Migration Theory" Migration Policy Institute, Migration Information Source, <http://www.migrationinformation.org/feature/display.cfm?ID=106> (accessed December 2010).

Castles, Stephen and Miller, Mark. 2009. *The Age of Migration: International Population Movements in the Modern World* Hampshire, UK. Fourth Edition. Palgrave.

Catrinescu, Natalia, Leon-Ledesma, Miguel, Piracha, Matloob, and Quillin, Bryce. 2009. "Remittances, Institutions, and Economic Growth" *World Development* 37(1): 81 – 92.

Chant, Sylvia. 2008. "Dangerous equations? How female-headed households became the poorest of the poor: causes, consequences and cautions." in Momsen, Janet, (ed.) *Gender and development: critical concepts in development studies*, pp. 397 – 409. Routledge, London, UK.

Citro, Constance and Michael, Robert. 1995. *Measuring Poverty: A New Approach*. Washington, DC: National Academy Press.

Connelly, Rachel, Roberts, Kenneth, and Zheng, Zhenzhen. 2010. "The Impact of Circular Migration on the Position of Married Women in Rural China" *Feminist Economics*, 16(1): 3 – 41.

de la Brière, Benedicte, Sadoulet, Elizabeth, de Janvry, Alain and Lambert, Sylvie. 2002. "The Role of Destination, Gender, and Household Composition in Explaining Remittances: An Analysis for the Dominican Sierra" *Journal of Development Economics* 68(2): 309 – 328.

De Haas, Hein and Fokkema, Tineke. 2010. "Intra-Household Conflicts in Migration Decision Making: Return and Pendulum Migration in Morocco" *Population and Development Review* 36(3): 541 – 556.

De Haas, Hein and Van Rooij, Aleida. 2010. "Migration as Emancipation? The Impact of Internal and International Migration on the Position of Women in Rural Morocco" *Oxford Development Studies* 38(1): 43 – 62.

Doss, Cheryl. 2006. "The Effects of Intra-household Property Ownership on Expenditures Patterns in Ghana" *Journal of African Economies* 15(1): 149 – 180.

Edwards, Alejandra Cox and Ureta, Manuelita. 2003. "International Migration, Remittances, and Schooling: evidence from El Salvador" *Journal of Development Economics* 72(2): 429 – 461.

Funkhouser, Edward. 2010. "The Choice of Migration Destination: A Longitudinal Approach using Pre-Migration Outcomes" *Review of Development Economics* 13(4): 626 – 640.

Garcia, Sandra. 2006. "Migration, Remittances and Gender in the Dominican Republic: Women's Contribution to Development" United Nations International Research and Training Institute for the Advancement of Women <http://www.un-instraw.org/view-document-details/390-migration->

remittances-and-gender-in-the-dominican-republic-womens-contribution-to-development.html  
(accessed December 2010).

Giuliano, Paola and Ruiz-Arranz, Marta. 2009. "Remittances, Financial Development, and Growth" *Journal of Development Economics* 90(1): 144 – 152.

Guzmán, Juan Carlos, Morrison, Andrew and Sjöblom, Mirja. 2008. "The Impact of Remittances and Gender on Household Expenditure Patterns: Evidence from Ghana" in *The International Migration of Women* edited by Andrew R. Morrison, Maurice Schiff and Mirja Sjöblom, pp. 125–152. The World Bank: Palgrave Macmillan.

Hoddinott, John and Haddad, Lawrence. 1995. "Does Female Income Share Influence Household Expenditure Patterns? Evidence from Côte D'Ivoire" *Oxford Bulletin of Economics and Statistics* 57(1): 77 – 96.

Joassart-Marcelli, Pascale 2009. "The Spatial Determinants of Wage Inequality: Evidence from Recent Latina Immigrants in Southern California" *Feminist Economics* 15(2): 33 – 72.

Kaufmann, Daniel and Lindauer, David. 1986. "Income Transfers within Extended Families to meet Basic Needs: The Evidence from El Salvador" *Journal of Development Economics* 22(2): 337 – 350.



Lucas, Robert and Stark, Oded. 1985. "Motivations to Remit: Evidence from Botswana" *Journal of Political Economy* 93(5): 901 – 918.

Macours, Karen, and Vakis, Renos 2010. "Seasonal Migration and Early Childhood Development" *World Development* 38(6): 857 – 869

Martin, Susan. 2004. "Women and Migration" paper presented at Consultative Meetings on Migration and Mobility and How this Movement Affects Women, United Nations Division for the Advancement of Women, 2 – 4 December 2003

<http://www.un.org/womenwatch/daw/meetings/consult/CM-Dec03-WP1.pdf> (accessed April 2011).

Massey, Deeptima. 2009. "Staying Behind When Husbands Move: Women's Experiences in India and Bangladesh" Briefing No. 18 March 2009, Development Research Center on Migration, Globalisation and Poverty

[http://www.migrationdrc.org/publications/briefing\\_papers/BP18.pdf](http://www.migrationdrc.org/publications/briefing_papers/BP18.pdf) (accessed April 2011)

Mundaca, Gabriela. 2009. "Remittances, Financial Markets Development and Economic Growth: the Case of Latin America and Caribbean" *Review of Development Economics* 13(2): 288 – 303.

Naufal, George. 2008. "Why Remit? The Case of Nicaragua" IZA Discussion Paper No. 3276.

Obeng-Odoom, Franklin. 2010. "Urban Real Estate in Ghana: A Study of Housing-related Remittances from Australia" *Housing Studies* 25(3): 357 – 373.

Omelandiuk, Irena. 2005. "Gender, Poverty Reduction and Migration" paper presented at the International Conference for Women Leaders, in Haifa, September, 2005 <http://siteresources.worldbank.org/EXTABOUTUS/Resources/Gender.pdf> (accessed April 2011).

Osaki, Keiko. 1999. "Economic Interactions of Migrants and Their Households of Origin: Are Women More Reliable Supporters?" *Asian and Pacific Migration Journal* 8(4): 447 – 471.

Osili, Una. 2004. "Migrants and Housing Investments: Theory and Evidence from Nigeria" *Economic Development and Cultural Change* 52(4): 821 – 849.

Pfeiffer, Lisa, Richter, Susan, Fletcher, Peri and Taylor, Edward. 2008. "Gender in Economic Research on International Migration and Its Impacts: A Critical Review" in *The International Migration of Women* edited by Andrew R. Morrison, Maurice Schiff and Mirja Sjöblom pp. 11–49. The World Bank: Palgrave Macmillan.

Ray, Debraj. 1998. *Development Economics*. Princeton University Press: New Jersey.

Rahman, Mizanur and Fee, Lian. 2009. "Gender and The Remittances Process: Indonesian domestic workers in Hong Kong, Singapore and Malaysia" *Asian Population Studies* 5(2): 103 – 125.

Ruiz, Isabel, Shukralla, Elias and Vargas-Silva, Carlos. 2009. "Remittances, Institutions and Growth: A Semiparametric Study" *International Economic Journal* 23(1): 111 – 119.

Sana, Mariano and Massey, Douglas. 2005. "Household Composition, Family Migration, and Community Context: Migrant Remittances in Four Countries" *Social Science Quarterly* 86(2): 509 – 528.

Semyonov, Moshe and Gorodzeisky, Anastasia. 2005. "Labor Migration, Remittances and Household Income: A Comparison between Filipino and Filipina Overseas Workers" *International Migration Review* 39(1): 45 – 68.

Taylor, Matthew, Moran-Taylor, Michelle and Ruiz, Debra. 2006. "Land, ethnic, and gender change: transnational migration and its effects on Guatemalan lives and landscapes" *Geoforum*, 37(1): 41– 61.

United Nations (2007) The Feminization of International Labor Migration,

[http://www.wunrn.com/news/2009/05\\_09/05\\_18\\_09/051809\\_feminization\\_files/Feminization%20of%20Migration-INSTRAW.pdf](http://www.wunrn.com/news/2009/05_09/05_18_09/051809_feminization_files/Feminization%20of%20Migration-INSTRAW.pdf) (accessed January 2011).

VanWey, Leah. 2004. "Altruistic and Contractual Remittances Between Male and Female Migrants and Households in Rural Thailand" *Demography* 41(4): 739 – 756.

Vargas-Silva, Carlos. 2009. "The Tale of Three Amigos: Remittances, Exchange Rates and Money Demand in Mexico" *Review of Development Economics* 13(1): 1 – 14.

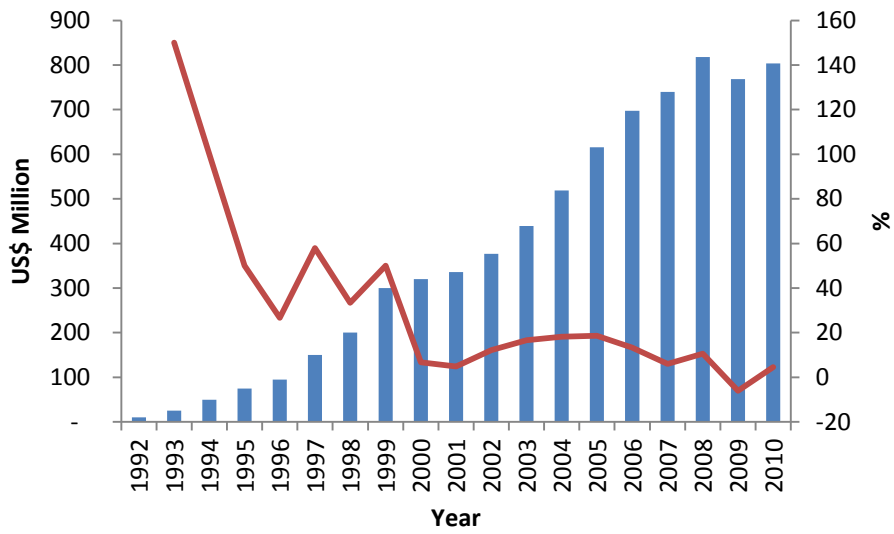
Vargas-Silva, Carlos, Shikka, Jha, and Sugiyarto, Guntur. 2009. "Remittances in Asia: Implications for the Fight against Poverty and the Pursue of Economic Growth," *Asian Development Bank Working Paper*, 182.

World Bank 2011. *Migration and remittances factbook 2011*. Washington, D.C.:

World Bank.

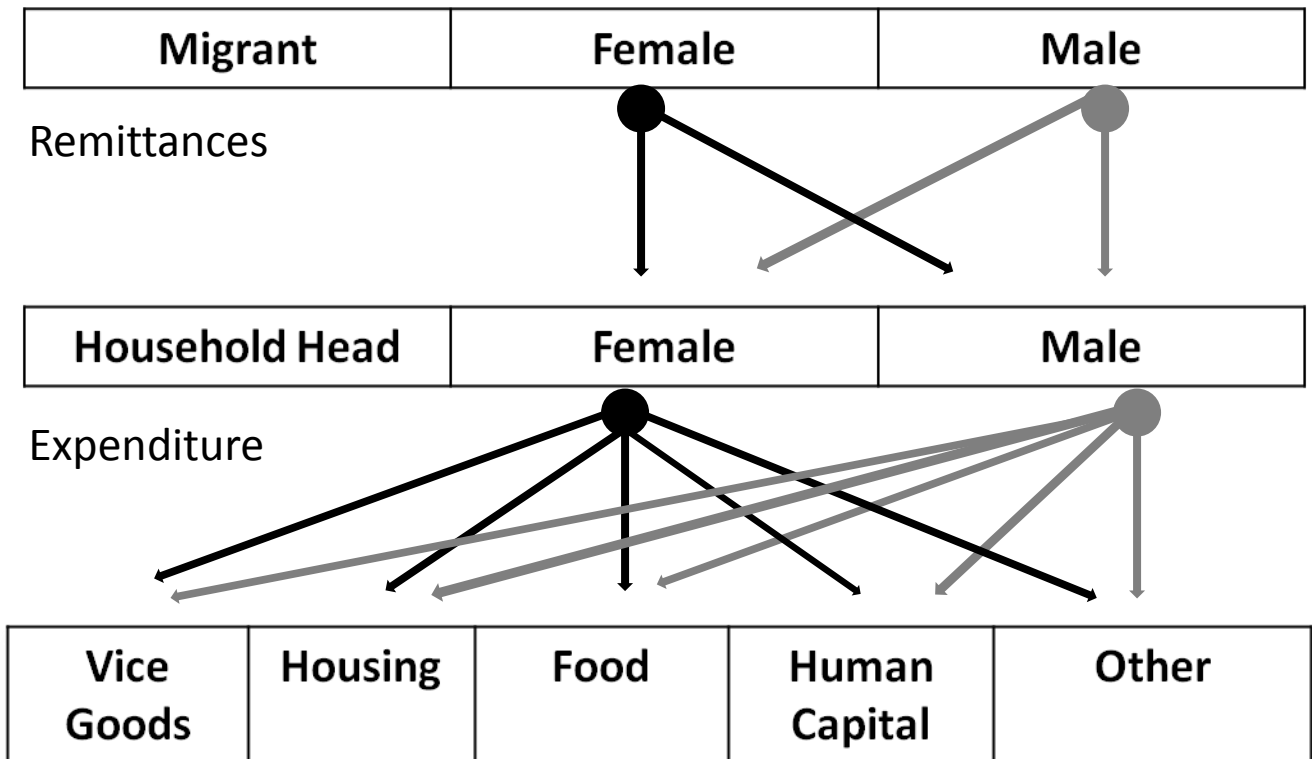
Yabiku, Scott, Agadjanian, Victor, and Sevoyan, Arusyak. 2010. "Husbands' Labour Migration and Wives' Autonomy, Mozambique 2000 – 2006" *Population Studies* 64(3): 293 – 306.

**Figure 1 – Volume and Growth Rate of Remittances to Nicaragua.**



Note: Estimates for 2010 are still preliminary. The bars represent the volume of remittances, measured in the left-axis, while the line represents the annual growth rate, measured in the right-axis. Source is the World Bank (2011).

**Figure 2 – Possible Combinations of Migrant and Household Head Gender, along with Implications for Expenditures.**



**Table 1 - Number of Emigrants by International Destination**

		All		2005 Round	
		Female	Male	Female	Male
Costa Rica	Number	774	854	427	437
	(Share)	(29)	(32)	(30)	(30)
USA	Number	330	417	169	247
	(Share)	(12)	(15)	(12)	(17)
Other	Number	161	158	83	78
	(Share)	(6)	(6)	(6)	(5)

Note: "All" provides information using the 1998, 2001 and 2005 rounds. Share reflects the percentage of the total emigrant sample. Other important international destinations include Canada, Cuba, El Salvador, Guatemala, Honduras, Mexico, Panama, and Spain.

**Table 2 – Descriptive Statistics**

	Households with no Migrant				Households with Migrant(s)				Whole
	Female Head		Male Head		Female Head		Male Head		
	All	2005	All	2005	All	2005	All	2005	
Share of Vice Good Expenditures in Total Expenditures	0.006	0.007	0.011	0.010	0.007	0.005	0.010	0.009	0.010
Share of Housing Expenditures in Total Expenditures	0.299	0.294	0.267	0.267	0.329	0.336	0.298	0.307	0.279
Share of Food Expenditures in Total Expenditures	0.616	0.613	0.658	0.652	0.548	0.559	0.602	0.597	0.640
Share of Human Capital Expenditures in Total Expenditures	0.123	0.121	0.111	0.108	0.158	0.135	0.129	0.124	0.117
Head's Age	50.970	51.251	44.742	45.271	53.795	54.320	54.958	55.073	47.169
Head's Marital Status (married = 1)	0.059	0.060	0.506	0.515	0.070	0.062	0.550	0.548	0.385
Education of Head	4.545	4.752	4.964	4.887	5.763	5.453	4.916	4.854	4.906
FMI					0.430	0.425	0.487	0.494	0.459
Remittance per Migrant					11,132	15,400	5,928	7,908	8,416
Average Education of Migrants					8.785	8.449	7.954	7.986	8.354
Average Years of Migration					7.953	8.000	7.006	7.350	7.460
Household Size	3.032	3.017	3.213	3.179	3.040	2.923	3.318	3.268	3.173
Income per Size of Household	1,866	2,138	2,110	2,224	2,147	2,286	2,391	2,094	2,071
Household Location (urban = 1)	0.663	0.644	0.458	0.423	0.803	0.780	0.600	0.578	0.529
Number of Observations	3,449	1,530	10,195	4,464	761	419	825	465	15,273

Note: The columns titled "All" provide information using the 1998, 2001 and 2005 rounds, while the columns titled "2005" provide information from just the 2005 round. The column titled "Whole" provides information using all of the data (i.e. migrant and non-migrant for the three rounds). The number of observations of each variable may be less than the number of observations presented in each column due to some unbalanced (i.e. not-available) observations. FMI is female migrant influence and is defined as the proportion of female migrants in the household.



**Table 3 – Number of Households According to Marital Status, Household Head Gender and Migrant Status.**

<b>All</b>								
<b>Households with no Migrant</b>								
	Female Head				Male Head			
	Head is married		Head is not married		Head is married		Head is not married	
Number	203		3,260		5,175		5,045	
(Share)	(1.5)		(23.8)		(37.8)		(36.9)	
<b>Households with Migrant(s)</b>								
	Female Head				Male Head			
	Head is married		Head is not married		Head is married		Head is not married	
	Female Migrant	Male Migrant	Female Migrant	Male Migrant	Female Migrant	Male Migrant	Female Migrant	Male Migrant
Number	12	33	281	362	174	225	175	150
(Share)	(0.8)	(2.3)	(19.9)	(25.6)	(12.3)	(15.9)	(12.4)	(10.6)
<b>2005 Round</b>								
<b>Households with no Migrant</b>								
	Female Head				Male Head			
	Head is married		Head is not married		Head is married		Head is not married	
Number	92		1,438		2,299		2,165	
(Share)	(1.5)		(24.0)		(38.4)		(36.1)	
<b>Households with Migrant(s)</b>								
	Female Head				Male Head			
	Head is married		Head is not married		Head is married		Head is not married	
	Female Migrant	Male Migrant	Female Migrant	Male Migrant	Female Migrant	Male Migrant	Female Migrant	Male Migrant
Number	8	13	153	203	101	123	101	84
(Share)	(1.0)	(1.7)	(19.5)	(25.8)	(12.8)	(15.6)	(12.8)	(10.7)

Note: The top panel “All” provides information using the 1998, 2001 and 2005 rounds. The bottom panel just provides information for the 2005 round. Female migrant means FMI > 0.5, and male migrant means FMI < 0.5. Share reflects the percentage of the total household sample.

**Table 4 - Share of Expenditures on the Different Categories for Different Gender of Household Heads/Remitters.**

Household head/Remitter	Shares in Total Expenditures				Remittance per Migrant	Number of Observations
	Vice Goods	Housing	Food	Human Capital		
<b>All</b>						
Female head/Female remitter	0.009	0.337	0.545	0.146	10,211	279
Female head/Male remitter	0.006	0.324	0.539	0.170	12,572	380
Female head/No remittances	0.009	0.337	0.546	0.157	0	157
Male head/Female remitter	0.009	0.301	0.601	0.135	6,371	333
Male head/Male remitter	0.010	0.287	0.612	0.130	5,613	361
Male head/No remittances	0.011	0.287	0.619	0.129	0	265
<b>2005 Round</b>						
Female head/Female remitter	0.008	0.354	0.557	0.114	12,801	159
Female head/Male remitter	0.003	0.322	0.554	0.154	18,480	216
Female head/No remittances	0.002	0.339	0.579	0.114	0	79
Male head/Female remitter	0.009	0.309	0.605	0.116	7,914	202
Male head/Male remitter	0.010	0.303	0.596	0.131	7,814	204
Male head/No remittances	0.012	0.284	0.630	0.113	0	151

Note: The top panel “All” provides information using the 1998, 2001 and 2005 rounds. The bottom panel just provides information for the 2005 round. Female remitter means FMI > 0.5, and male remitter means FMI < 0.5. The descriptive statistics for the Female head/No remittances and the Male head/No remittances are provided for households with migrants that do not receive remittances. The number of observations of each variable may be less than the number of observations presented in each row due to some unbalanced (i.e. not-available) observations. This table only reports the information for the households with migrants.

**Table 5 – Fixed Effects Estimations for the Whole Sample Divided by Household Head Gender**

	Female Head				Male Head			
	Shares in Total Expenditures				Shares in Total Expenditures			
	Vice Goods	Housing	Food	Human Capital	Vice Goods	Housing	Food	Human Capital
Head's Age	-0.000 (2.195e-04)	0.006*** (1.200e-03)	-0.008*** (1.209e-03)	0.002** (9.746e-04)	-0.001*** (1.569e-04)	0.004*** (7.250e-04)	-0.008*** (7.633e-04)	0.005*** (5.813e-04)
Head's Marital Status	0.003 (4.737e-03)	-0.048* (2.576e-02)	0.018 (2.611e-02)	-0.006 (2.024e-02)	-0.003 (1.887e-03)	0.004 (8.670e-03)	-0.007 (9.180e-03)	0.002 (6.904e-03)
Education of Head	-0.000 (4.785e-04)	0.005* (2.616e-03)	-0.002 (2.637e-03)	-0.002 (2.100e-03)	-0.000 (3.166e-04)	-0.001 (1.453e-03)	-0.000 (1.540e-03)	0.002 (1.151e-03)
Household Size	0.003*** (1.002e-03)	-0.028*** (5.443e-03)	0.006 (5.520e-03)	0.008 (4.656e-03)	-0.001 (8.279e-04)	-0.031*** (3.816e-03)	0.014*** (4.027e-03)	0.008** (3.229e-03)
Income per Size of Household	0.000 (1.440e-07)	0.000 (7.795e-07)	-0.000 (7.936e-07)	0.000** (6.116e-07)	0.000 (6.928e-08)	-0.000 (3.166e-07)	-0.000 (3.370e-07)	0.000 (3.137e-07)
Household Location	0.003 (4.588e-03)	0.011 (2.499e-02)	-0.035 (2.529e-02)	0.024 (2.199e-02)	-0.001 (3.110e-03)	0.000 (1.421e-02)	-0.000 (1.513e-02)	0.005 (1.103e-02)
Migrant in the household?	0.004* (2.401e-03)	-0.012 (1.302e-02)	-0.023* (1.323e-02)	0.028*** (1.050e-02)	0.003 (2.341e-03)	0.003 (1.078e-02)	-0.002 (1.139e-02)	0.003 (8.478e-03)
Constant	0.003 (1.247e-02)	0.064 (6.788e-02)	1.040*** (6.870e-02)	-0.004 (5.392e-02)	0.041*** (7.862e-03)	0.212*** (3.623e-02)	0.978*** (3.825e-02)	-0.139*** (2.908e-02)
Number of Observations	4,192	4,147	4,192	3,113	10,934	10,790	10,934	7,580
Number of Groups	2,671	2,652	2,671	2,078	6,985	6,936	6,985	5,010
R-squared	0.01	0.04	0.04	0.02	0.00	0.02	0.03	0.03

Note: \*\*\* indicates significance at 1 % level, \*\* indicates significance at 5 % level and \* indicates significance at 10 % level. Standard errors are in parentheses. The columns provide results using all of the data.

**Table 6 – Time Effect Estimations for the Migrant Sample with Interaction Term with Household Head Gender**

	Shares in Total Expenditures							
	Vice Goods		Housing		Food		Human Capital	
	All	2005	All	2005	All	2005	All	2005
Female Head	-0.006*** (2.193e-03)	-0.006** (2.516e-03)	0.012 (1.155e-02)	0.015 (1.571e-02)	-0.033*** (1.226e-02)	-0.022 (1.607e-02)	0.023** (9.206e-03)	0.003 (1.107e-02)
Female Head * Remittance per Migrant	-0.000 (1.153e-07)	0.000 (1.089e-07)	-0.000* (6.059e-07)	-0.000** (6.769e-07)	0.000** (6.449e-07)	0.000** (6.959e-07)	-0.000 (4.447e-07)	-0.000 (4.303e-07)
Head's Age	-0.000* (6.703e-05)	-0.000* (7.480e-05)	0.002*** (3.531e-04)	0.003*** (4.667e-04)	-0.002*** (3.748e-04)	-0.002*** (4.778e-04)	0.000 (2.892e-04)	0.000 (3.314e-04)
Head's Marital Status	-0.005** (2.158e-03)	-0.003 (2.423e-03)	0.011 (1.135e-02)	0.003 (1.509e-02)	-0.015 (1.207e-02)	-0.002 (1.548e-02)	0.008 (8.865e-03)	-0.004 (1.039e-02)
Education of Head	-0.000 (2.295e-04)	-0.001*** (2.555e-04)	0.006*** (1.207e-03)	0.009*** (1.593e-03)	-0.010*** (1.283e-03)	-0.010*** (1.632e-03)	0.004*** (9.276e-04)	0.003** (1.068e-03)
FMI	0.000 (1.920e-03)	0.001 (2.143e-03)	0.005 (1.012e-02)	0.005 (1.337e-02)	0.007 (1.074e-02)	0.015 (1.369e-02)	-0.013* (7.892e-03)	-0.029*** (9.130e-03)
Remittance per Migrant	-0.000 (1.030e-07)	-0.000 (9.668e-08)	0.000 (5.416e-07)	0.000 (6.008e-07)	-0.000** (5.758e-07)	-0.000** (6.176e-07)	0.000 (4.010e-07)	0.000 (3.863e-07)
Average Education of Migrants	0.000 (2.414e-04)	0.000 (2.631e-04)	0.003*** (1.270e-03)	0.004** (1.637e-03)	-0.006*** (1.350e-03)	-0.006*** (1.681e-03)	0.004*** (1.001e-03)	0.003** (1.124e-03)
Average Years of Migration	-0.000 (1.417e-04)	-0.000 (1.541e-04)	0.002*** (7.444e-04)	0.003*** (9.592e-04)	-0.002** (7.924e-04)	-0.003*** (9.844e-04)	0.001 (6.204e-04)	0.001 (6.913e-04)
Household Size	0.001 (7.359e-04)	-0.000 (8.348e-04)	-0.038*** (3.873e-03)	-0.031*** (5.195e-03)	0.009** (4.115e-03)	0.006 (5.333e-03)	0.009*** (3.329e-03)	0.007* (3.907e-03)
Income per Size of Household	0.000*** (1.346e-07)	0.000** (1.599e-07)	0.000 (7.048e-07)	0.000 (9.934e-07)	-0.000 (7.526e-07)	-0.000 (1.022e-06)	-0.000 (5.166e-07)	-0.000 (6.500e-07)
Household Location	0.000 (2.061e-03)	-0.001 (2.283e-03)	0.071*** (1.087e-02)	0.065*** (1.424e-02)	-0.096*** (1.152e-02)	-0.076*** (1.458e-02)	0.018** (8.569e-03)	0.007 (9.661e-03)
Constant	0.017*** (4.908e-03)	0.020*** (5.511e-03)	0.163*** (2.585e-02)	0.112*** (3.437e-02)	0.854*** (2.744e-02)	0.865*** (3.520e-02)	0.022 (2.078e-02)	0.066*** (2.419e-02)
Number of Observations	1,508	875	1,484	866	1,508	875	1,150	654
R-squared	0.02	0.03	0.21	0.22	0.22	0.23	0.09	0.07

Note: \*\*\* indicates significance at 1 % level, \*\* indicates significance at 5 % level and \* indicates significance at 10 % level. Standard errors are in parentheses. The columns titled "All" provide results using the 1998, 2001 and 2005 rounds, while the columns titled "2005" provide results with the 2005 data. FMI is female migrant influence and is defined as the proportion of female migrants in the household. These estimations include households with migrants only.

**Table 7 – Time Effect Estimations for the Migrant Sample with Interaction Term with Migrant Gender**

	Shares in Total Expenditures							
	Vice Goods		Housing		Food		Human Capital	
	All	2005	All	2005	All	2005	All	2005
Female Head	-0.006*** (2.036e-03)	-0.005** (2.300e-03)	0.005 (1.073e-02)	0.002 (1.439e-02)	-0.024** (1.140e-02)	-0.009 (1.473e-02)	0.020** (8.579e-03)	0.002 (1.018e-02)
FMI * Remittance per Migrant	0.000 (1.091e-07)	0.000 (1.066e-07)	0.000 (5.722e-07)	0.000 (6.644e-07)	-0.000 (6.108e-07)	-0.000 (6.831e-07)	-0.000 (4.228e-07)	-0.000 (4.164e-07)
Head's Age	-0.000** (6.701e-05)	-0.000* (7.490e-05)	0.002*** (3.532e-04)	0.003*** (4.686e-04)	-0.002*** (3.752e-04)	-0.002*** (4.798e-04)	0.000 (2.890e-04)	0.000 (3.320e-04)
Head's Marital Status	-0.005** (2.158e-03)	-0.003 (2.420e-03)	0.011 (1.136e-02)	0.004 (1.511e-02)	-0.016 (1.208e-02)	-0.003 (1.550e-02)	0.008 (8.863e-03)	-0.004 (1.039e-02)
Education of Head	-0.000 (2.295e-04)	-0.001*** (2.555e-04)	0.006*** (1.208e-03)	0.009*** (1.597e-03)	-0.010*** (1.285e-03)	-0.010*** (1.637e-03)	0.004*** (9.274e-04)	0.003** (1.069e-03)
FMI	-0.000 (2.138e-03)	-0.000 (2.446e-03)	0.001 (1.128e-02)	0.001 (1.532e-02)	0.007 (1.197e-02)	0.019 (1.567e-02)	-0.008 (8.784e-03)	-0.027*** (1.044e-02)
Remittance per Migrant	-0.000 (6.031e-08)	-0.000 (5.452e-08)	-0.000 (3.166e-07)	-0.000 (3.398e-07)	-0.000 (3.377e-07)	-0.000 (3.492e-07)	0.000** (2.225e-07)	0.000* (2.064e-07)
Average Education of Migrants	0.000 (2.412e-04)	0.000 (2.630e-04)	0.004*** (1.270e-03)	0.004** (1.640e-03)	-0.007*** (1.351e-03)	-0.007*** (1.685e-03)	0.004*** (9.994e-04)	0.003** (1.125e-03)
Average Years of Migration	-0.000 (1.418e-04)	-0.000 (1.544e-04)	0.002*** (7.454e-04)	0.003*** (9.632e-04)	-0.002** (7.942e-04)	-0.003*** (9.888e-04)	0.001 (6.213e-04)	0.000 (6.928e-04)
Household Size	0.001 (7.357e-04)	-0.000 (8.342e-04)	-0.039*** (3.875e-03)	-0.032*** (5.205e-03)	0.009** (4.120e-03)	0.007 (5.344e-03)	0.009*** (3.327e-03)	0.007* (3.905e-03)
Income per Size of Household	0.000*** (1.346e-07)	0.000** (1.599e-07)	0.000 (7.055e-07)	0.000 (9.959e-07)	-0.000 (7.539e-07)	-0.000 (1.024e-06)	-0.000 (5.167e-07)	-0.000 (6.503e-07)
Household Location	0.000 (2.061e-03)	-0.001 (2.281e-03)	0.071*** (1.088e-02)	0.066*** (1.427e-02)	-0.097*** (1.154e-02)	-0.076*** (1.461e-02)	0.018** (8.567e-03)	0.007 (9.661e-03)
Constant	0.018*** (4.953e-03)	0.021*** (5.585e-03)	0.167*** (2.611e-02)	0.119*** (3.495e-02)	0.852*** (2.774e-02)	0.858*** (3.578e-02)	0.019 (2.090e-02)	0.065*** (2.443e-02)
Number of Observations	1,508	875	1,484	866	1,508	875	1,150	654
R-squared	0.02	0.03	0.20	0.22	0.22	0.22	0.09	0.07

Note: \*\*\* indicates significance at 1 % level, \*\* indicates significance at 5 % level and \* indicates significance at 10 % level. Standard errors are in parentheses. The columns titled "All" provide results using the 1998, 2001 and 2005 rounds, while the columns titled "2005" provide results with the 2005 data. FMI is female migrant influence and is defined as the proportion of female migrants in the household. These estimations include households with migrants only.

**Table 8 – Time Effects Estimations for the Migrant Sample for Female-Headed Households**

	Shares in Total Expenditures							
	Vice Goods		Housing		Food		Human Capital	
	All	2005	All	2005	All	2005	All	2005
FMI * Remittance per Migrant	0.000 (1.216e-07)	0.000 (1.038e-07)	0.000 (7.335e-07)	0.000 (8.977e-07)	0.000 (7.686e-07)	-0.000 (9.096e-07)	-0.000 (5.574e-07)	-0.000 (5.447e-07)
Head's Age	-0.000 (8.763e-05)	-0.000 (8.428e-05)	0.003*** (5.292e-04)	0.003*** (7.283e-04)	-0.002*** (5.541e-04)	-0.003*** (7.385e-04)	0.001 (4.349e-04)	0.000 (5.015e-04)
Head's Marital Status	-0.003 (4.414e-03)	-0.005 (4.325e-03)	0.019 (2.661e-02)	0.017 (3.732e-02)	-0.027 (2.791e-02)	-0.005 (3.790e-02)	0.004 (2.011e-02)	-0.002 (2.419e-02)
Education of Head	-0.000 (2.915e-04)	-0.000 (2.785e-04)	0.004** (1.763e-03)	0.008*** (2.413e-03)	-0.009*** (1.843e-03)	-0.012*** (2.440e-03)	0.006*** (1.372e-03)	0.004** (1.583e-03)
FMI	0.001 (2.809e-03)	0.003 (2.793e-03)	-0.002 (1.704e-02)	0.005 (2.430e-02)	0.010 (1.776e-02)	0.017 (2.447e-02)	-0.015 (1.337e-02)	-0.034** (1.586e-02)
Remittance per Migrant	-0.000 (6.041e-08)	-0.000 (4.613e-08)	-0.000 (3.644e-07)	-0.000 (3.983e-07)	-0.000 (3.820e-07)	-0.000 (4.042e-07)	0.000* (2.586e-07)	0.000 (2.346e-07)
Average Education of Migrants	0.000 (3.126e-04)	0.000 (2.887e-04)	0.003 (1.894e-03)	0.001 (2.500e-03)	-0.005** (1.977e-03)	-0.004 (2.529e-03)	0.003* (1.523e-03)	0.003* (1.679e-03)
Average Years of Migration	-0.000 (1.810e-04)	-0.000 (1.765e-04)	0.002 (1.094e-03)	0.002 (1.525e-03)	-0.002 (1.144e-03)	-0.003* (1.547e-03)	0.002 (9.120e-04)	0.001 (1.066e-03)
Household Size	0.003*** (9.596e-04)	0.001 (9.867e-04)	-0.040*** (5.828e-03)	-0.029*** (8.549e-03)	0.010* (6.067e-03)	0.006 (8.646e-03)	0.005 (4.903e-03)	0.006 (6.013e-03)
Income per Size of Household	0.000** (1.799e-07)	0.000 (1.510e-07)	0.000* (1.085e-06)	0.000* (1.304e-06)	-0.000 (1.137e-06)	-0.000 (1.323e-06)	-0.000** (8.095e-07)	-0.000* (8.167e-07)
Household Location	0.004 (2.917e-03)	0.003 (2.698e-03)	0.067*** (1.780e-02)	0.065*** (2.354e-02)	-0.094*** (1.845e-02)	-0.071*** (2.364e-02)	0.008 (1.425e-02)	-0.008 (1.547e-02)
Constant	-0.000 (6.225e-03)	0.002 (5.957e-03)	0.194*** (3.775e-02)	0.128** (5.167e-02)	0.824*** (3.936e-02)	0.855*** (5.220e-02)	0.045 (2.967e-02)	0.064* (3.392e-02)
Number of Observations	726	417	713	411	726	417	578	326
R-squared	0.04	0.03	0.16	0.16	0.17	0.18	0.09	0.10

Note: \*\*\* indicates significance at 1 % level, \*\* indicates significance at 5 % level and \* indicates significance at 10 % level. Standard errors are in parentheses. The columns titled "All" provide results using the 1998, 2001 and 2005 rounds, while the column titled "2005" provides results with the 2005 data. FMI is female migrant influence and is defined as the proportion of female migrants in the household. These estimations include households with migrants only.

**Table 9 – Time Effects Estimations for the Migrant Sample for Male-Headed Households**

	Shares in Total Expenditures							
	Vice Goods		Housing		Food		Human Capital	
	All	2005	All	2005	All	2005	All	2005
FMI * Remittance per Migrant	0.000 (2.278e-07)	0.000 (2.336e-07)	-0.000 (1.070e-06)	-0.000 (1.172e-06)	0.000 (1.165e-06)	0.000 (1.232e-06)	0.000 (7.723e-07)	0.000 (7.817e-07)
Head's Age	-0.000 (1.023e-04)	-0.000** (1.231e-04)	0.002*** (4.847e-04)	0.002*** (6.221e-04)	-0.002*** (5.232e-04)	-0.002** (6.489e-04)	0.000 (3.904e-04)	0.000 (4.591e-04)
Head's Marital Status	-0.005* (2.657e-03)	-0.002 (3.204e-03)	0.010 (1.252e-02)	0.003 (1.612e-02)	-0.014 (1.359e-02)	-0.004 (1.689e-02)	0.009 (9.541e-03)	-0.004 (1.150e-02)
Education of Head	-0.000 (3.539e-04)	-0.001** (4.214e-04)	0.008*** (1.669e-03)	0.010*** (2.121e-03)	-0.010*** (1.810e-03)	-0.009*** (2.222e-03)	0.003** (1.251e-03)	0.001 (1.463e-03)
FMI	-0.001 (3.254e-03)	-0.003 (3.991e-03)	0.005 (1.537e-02)	-0.002 (2.011e-02)	0.005 (1.664e-02)	0.020 (2.104e-02)	-0.003 (1.173e-02)	-0.021 (1.429e-02)
Remittance per Migrant	-0.000 (1.621e-07)	-0.000 (1.609e-07)	0.000 (7.638e-07)	0.000 (8.078e-07)	-0.000 (8.291e-07)	-0.000* (8.481e-07)	0.000 (5.468e-07)	0.000 (5.312e-07)
Average Education of Migrants	0.000 (3.692e-04)	0.000 (4.356e-04)	0.004** (1.737e-03)	0.007*** (2.183e-03)	-0.007*** (1.888e-03)	-0.009*** (2.297e-03)	0.004*** (1.333e-03)	0.002 (1.559e-03)
Average Years of Migration	-0.000 (2.180e-04)	0.000 (2.450e-04)	0.002** (1.026e-03)	0.003** (1.232e-03)	-0.002 (1.115e-03)	-0.003** (1.292e-03)	0.000 (8.511e-04)	0.000 (9.282e-04)
Household Size	-0.002 (1.109e-03)	-0.001 (1.287e-03)	-0.036*** (5.220e-03)	-0.032*** (6.459e-03)	0.008 (5.672e-03)	0.006 (6.785e-03)	0.012*** (4.537e-03)	0.008 (5.149e-03)
Income per Size of Household	0.000** (1.982e-07)	0.000** (3.192e-07)	-0.000 (9.292e-07)	-0.000 (1.601e-06)	-0.000 (1.014e-06)	0.000 (1.683e-06)	0.000 (6.613e-07)	0.000 (1.134e-06)
Household Location	-0.003 (2.924e-03)	-0.003 (3.543e-03)	0.070*** (1.379e-02)	0.061*** (1.778e-02)	-0.097*** (1.495e-02)	-0.078*** (1.868e-02)	0.027** (1.052e-02)	0.020 (1.248e-02)
Constant	0.029*** (7.452e-03)	0.033*** (9.021e-03)	0.156*** (3.523e-02)	0.120*** (4.551e-02)	0.848*** (3.811e-02)	0.850*** (4.756e-02)	0.018 (2.791e-02)	0.068** (3.318e-02)
Number of Observations	782	458	771	455	782	458	572	328
R-squared	0.02	0.04	0.25	0.29	0.25	0.27	0.09	0.06

Note: \*\*\* indicates significance at 1 % level, \*\* indicates significance at 5 % level and \* indicates significance at 10 % level. Standard errors are in parentheses. The columns titled "All" provide results using the 1998, 2002 and 2005 rounds, while the columns titled "2005" provide results with the 2005 data. FMI is female migrant influence and is defined as the proportion of female migrants in the household. These estimations include households with migrants only.