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## **Gender-Specific Determinants of Remittances: Differences in Structure and Motivation**

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by

Manuel Orozco, B. Lindsay Lowell, and Johanna Schneider  
Institute for the Study of International Migration  
Georgetown University  
Harris Building Suite 3100  
3300 Whitehaven Street, NW  
Washington, DC 20007  
Tel: (202) 687-2602, -2258  
Fax: (202) 687-2541  
Email: [lowellbl@georgetown.edu](mailto:lowellbl@georgetown.edu)

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## **Abstract**

There is relatively little research that specifically examines differences in female and male migrants' remitting behavior. This research paper explicitly assesses gender and remittances with random surveys of formal remittance senders from 18 different countries— from Latin America, the Caribbean, and West Africa—and residing in the United States, Germany, and the United Kingdom. Firstly, the findings indicate that women remit lesser amounts of monies than men and this characterizes women from most countries. Secondly, women remit more monies than men to distant family members including siblings and others, while men increase the amount of their remittances only when sending to their spouse. Thirdly, both men and women remit more the longer they have been sending remittances (with a decay function), but women remit yet more than men over time. However, the tests made here of simple altruism versus contractual propositions are incomplete because these data lack sufficient information about the characteristics of the receiving household. But what these data lack in addressing this long-debated and controversial line of inquiry, they more than make up for in pointing to important and policy-relevant gender differences.

Migrant remittances to their country of birth are one of the most visible developmental effects of migration. There is evidence that they alleviate poverty at the household level in some countries by helping to fund schooling, reducing child labor, increasing family health and expanding durable goods ownership. Remittances can form a ‘family welfare system’ that can help smooth consumption, alleviate liquidity constraints and provide a form of mutual assistance. Consequently they particularly affect women, as major recipients of remittances and traditional homemakers, but also increasingly as migrant remitters.

While there is evidence that remittance flows and expenditure patterns can be highly gender specific, there is relatively little comparative research on female remitting behavior with respect to the determinants, impacts and process of remitting. Most of it is piecemeal and scattered throughout general studies on remittances. There are two major reasons for this. First, there are remarkably few international databases that include information about individual remitters and so female behavior cannot be readily identified. Secondly, the main focus to date has been on the causes and impacts of remittances generally, without a disaggregated gender focus. So while a few studies suggest that females remit less often or in smaller amounts than males, other research finds no significant differences. And almost nothing is known about how gender differences compare across countries and regions of the world.

This project conducts an assessment of the relationship between gender and remittances by analyzing survey data on remittance senders and recipients. The data are based on random surveys of remittance senders, who send through formal institutions, in the United States, the United Kingdom, and Germany. The migrants include 18 different countries of origin in Latin America, the Caribbean, and West Africa. It is hoped that the recommendations from this analysis will provide useful input for future policy and research agendas that look at the relationship between gender and remittances within the context of economic development.

## MOTIVATIONS AND THE MICRO DETERMINANTS OF REMITTING

The general determinants of remitting are several and include rather obvious expectations such as higher income is associated with a greater propensity to remit and the amount remitted. Yet, the foreign born may not remit equally over time being more likely to remit after immigration, but less likely to remit with time in the host country. Economic and social integration, in other words, especially the reunification with family members, may reduce both the likelihood and/or amount of remittances sent abroad. Education, which facilitates integration, is also expected to reduce remitting behavior. These basic factors condition remitting behavior and are included in most research on the micro determinants of remitting (de la Garza and Lowell, 2002; Meyers 2002). Extensions of the micro-determinants of remitting behavior include an interest in the fungibility between remittances and different sources of income, or the nature of remitting in the context of transnational ties (Taylor 2002; Marcelli and Lowell 2005).

However, there is surprisingly little research that specifically asks about the remitting behavior of women. As the literature review below shows, women are often found to be less likely to engage in remitting than are men, but this finding is not uniform. And reasons for expecting differences in remitting are rarely laid out, rather the extant literature rightly assumes that gender differences should be anticipated but without explaining why. Instead, there appear to be implicit assumptions about women, relative to men, tending to be less likely to be employed, or to earn less, or to have fewer ties to the home country. But it is not clear why these traditional gender differences should translate into differences in the *ceteris paribus* micro determinants of remitting behavior.

A debate that occurs primarily in the economics literature does frame possible explanations for gender differences under the contrasting theories of remitting as “altruism” or as “self interest” (a.k.a. contract). Much of this literature does not focus on gender differences. But there are exceptions that point in the direction of expecting that the determinants of female remitting is driven more by altruism and that of males by self-interest. In both theories the income, or proxies for income, of both the receiving and the

sending household are the crucial determinants for analyzing remittances. Other variables, such as the relationship between the remitter and recipient also play a role. As we shall see, the present research effort lacks income or related data on the receiving household, although data on the sender's relationship with the recipient is available.

Consider first altruism as a motive to remit. In the case of altruism, the remitter cares primarily about the well being of the family in his/her country of birth. Thus, it can be said remitting behavior as "altruism is acting to increase the income, consumption, or standard of living of someone else, even to the detriment of one's own standard of living" (Vanwey, 2004: 740-1). Obviously, there is a strong attachment of the sender to the receiving household underlying the altruistic behavior. This has certain implications from which particular expectations can be derived. Intuitively, the amount remitted should be related to senders and recipients' income—remittances should *covary with both* the sender's income, as well as with the size and income needs of the receiving household. Also, remittances would tend to decline over time as the remitter became less attached to family at home and more attached or integrated into her new home and host country (Lillard and Willis 1997; Agarwal and Horowitz, 2002).

A second motive to remit is based on an (implicit and generally self-interested) contractual arrangement between the migrant and the remittance-receiving household, e.g., the migrant pays for some prior or future family support by sending remittances. For example, the source-country household initially invests in the education of the potential migrant who, after migration, repays this obligation to the family (Hoddinott 1994; Poirine 1997; Lillard and Willis 1997). The self-interest motivation includes the concept of inheritance, where the migrant anticipates future transfers such as land as compensation for the remittances they have sent (Hoddinott, 1994; Lucas and Stark, 1985; Hoddinott 1994; Regmi and Tisdell 2002). Further, the sending and receiving households interact to contemporaneously coinsure each other. This co-insurance interpretation assumes incomplete insurance and capital markets; and views the migration as the result of a household decision to diversify economic risks, assuming that home and host country risk are not positively correlated. As such, the migrant serves as insurance

for bad times at home, while the family serves as insurance for bad times abroad (Solimano, 2003; de la Brière et al. 2002; Stark 1991). Moreover, as the contract exists between family members enforcement costs will be low and the migrant is likely to prefer retaining a return option (Lucas and Stark, 1985, 1988). Regarding predictions on how incomes and remittances interact, the contractual model suggests that transfers increase (or become more likely) the higher the sender's income. But the *receiving household's* income or composition is *not* thought to affect the sending of remittances (Vanwey, 2004; Stark, 1999).

Thus from a theoretical standpoint the altruism and self-interest approaches differ in that the distribution of consumption between all household members is independent from the distribution of their incomes in the altruistic case, and all members have the same marginal utility of income. On the other hand in the non-altruistic model both parties of the household maximize their own preferences and have different budget constraints (Altonji et.al. 1992).

The research literature has confirmed both theoretical approaches based on empirical evidence from different countries. Most studies examine the probability of remitting, the amount remitted, and/or the share of income spent on remittances. Basem and Massey (1992) find that Mexican international migrants behave altruistically as they respond to the welfare situation of the receiving household, sending less monies the more land is owned by the receiver. Agarwal and Horowitz (2002) corroborate this, finding that Guyanese migrants do not provide insurance for their origin households. They analyze per-migrant remittances based on an altruistic versus an insurance model as part of the contractual approach. They find strong support for the altruistic motive by exploring whether the number of migrants effects the amount of remittances per-migrant (assuming altruism) or not (assuming an insurance model).

Bougha-Hagbe (2004) emphasizes the altruistic motive by incorporating “attachment” to the home country – proxied for by investment in non-financial assets – into the model. In the case of Moroccan migrants, he finds support for altruism and not

for the contractual expectation.<sup>1</sup> He also includes several macroeconomic variables in the sending and receiving country that may affect remittances and shows that under altruistic remitting behavior remittances remain rather stable over time. This is an important addendum to the theory altruism that is echoed in other research.

Vanwey (2004) argues, based on data from Thailand, that the altruistic approach is consistent with the situation of smallholders (who also tend to send fewer migrants), while the contractual approach is consistent with the reality of larger or wealthier households. Altonji et. al. (1992) strongly support the non-altruistic behavior in their analysis of extended family linkages. However, they admit that altruistic motivated transfers also do occur. Lucas and Stark (1985) found support for the coinsurance, education repayment, and inheritance aspects of this theory in an empirical application to data from Botswana. Poirine (1997) and Lillard and Willis (1997) confirm these findings based on data from Nepal and Malaysia respectively. Hoddinott (1994) also finds particular support for the argument that migrants remit in anticipation of future inheritance in Kenya. Regmi and Tisdell (2002) found similar support for the remittances-inheritance connection in Nepal. Park (2001) also rejected the altruistic prediction.

Nevertheless, while most studies favor either altruism or contract, there is good reason to argue that both motives may operate simultaneously. This more moderate conclusion is supported in an earlier study by Lucas and Stark (1985). After comparing the two remitting models with data from Botswana, they theoretically and empirically emphasize the idea of “tempered altruism” and “enlightened self-interest.” This implies that altruistic and contractual motives complement each other and the contractual gains are indeed self-enforcing due to mutual altruism. This is intuitive since the inter-temporal contracts and co-insurance are most favorable among family members (Lucas and Stark, 1988). This notion is supported by Chami and Fisher (1996) who argue that contractual arrangements may not be as self-interested as they may appear from theory and show that altruism can lead to risk-sharing arrangements that are self-enforcing.

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<sup>1</sup> He uses risk diversification as an essential part of contractual agreement on sending remittances.

In summary, from the theoretical and empirical literature there is strong evidence supporting either the motives of altruism and contract. Furthermore, the two motives do not necessarily exclude each and they may well be intertwined.

## **GENDER DIFFERENCES IN THE RESEARCH LITERATURE**

There is rather little research explicitly focused on gender differences in remitting, albeit there are studies that include gender in their analysis. Results, however, seem to be contradictory in many cases. The basic questions explored are whether men and women act differently in terms of their motives, or whether they remit a different amount. While research often finds that women are less likely and/or tend to remit less than men when they do remit, this is not a uniform finding. What is more, some of the available research finds that women remit more both overall and as a percentage of income than do men—and women tend to have stronger networks with their families that is associated with greater remitting behaviors (Richter and Havanon 1995; Pongpaichit, 1993; Chant and Radcliffe, 1992; Tacoli, 1999).

Chant and Radcliffe (1992) argue that women attach more importance to the family than men do, or face greater expectations to fulfill obligations within the general framework of kinship. Hence, despite their relatively low earnings, female migrants are often more reliable sources of remittances than male migrants (Rodenburg, 1993). Using survey data for Bangkok Metropolis, Pongpaichit (1993) shows that the proportion of female migrants sending remittances was higher than that of males, and female migrants were likely to send remittances more frequently than male migrants. She argues that this was because most of these female migrants were single and tended to have stronger ties with their families of origin than the men did.

Curran (1995, 1996) looks at children who remit in Thailand and the role that birth order plays, finding that daughters and especially middle daughters tend to remit the most while middle sons remit the least. Moreover, within rural Filipino households



younger women members are preferred migrants because they are more likely to remit from their earnings (Lauby and Stark 1988). Further, Hoddinott (1992) finds that sons remit more than daughters if there are inheritable assets, especially when there are multiple migrants from the household. Osaki (1999, 2003) also finds gender differences in Thailand which she argues are based on Buddhist traditions. She argues that these differences could either be caused by general differences in the propensity to remit or by differences in how male and female migrants follow altruistic or contractual patterns of behavior.

Contrary to these studies, Basem and Massey's (1992) work on Mexico reveals that men migrate more and remit a larger portion of their wages. Although not explicitly looking for gender differences, Agarwal and Horowitz (2002) show in their data that men remit higher amounts. Semyonoy and Gorodzeisky (2005) find that men send more money back home than do women, even when taking into consideration earnings differentials between men and women. Their further analysis demonstrates that the income of households with men working overseas is significantly higher than the income of households with women working overseas. This difference can be fully attributed to gender earnings disparities and to differences in the amount of remittances sent home by overseas workers. This line of inquiry places remitting against a backdrop of gender roles and gender inequalities (Ramirez et. Al. 2005; Sorensen, 2005).

For example, a recent study by Vanwey (2004) examines the propensity of men and women to remit using data from Thailand. He suggests that differences in gender roles may play a role in determining the remitting behavior. Women in Thailand are often the land inheriting gender which may result in their lesser remitting for "contractual" motives. On the other hand, women have to invest more to gain the same level of education as men, so remittances for the repayment of education support may be stronger. Besides these observations, Vanwey (2004) concludes from his data that women may be more likely to follow the altruistic model and his results show that women respond more strongly to the needs of their household of birth and that they are much less likely to remit when they marry.

Based on data from rural Mexico, De La Cruz (1995) also found that women remit to insure and assist their family/siblings; while men remit to invest. Ahmed (2000) confirms that closer sender-recipient family relationships are associated with greater remittances for Somali women where the pattern of migrant wives supporting their husbands is on the rise. De la Brière et al. (2002) examine migration from the Dominican Sierra and look at the determinants of contractual behavior by developing two models for insurance and investment motives. They find that migrant behavior differs based on gender and destination. Female migrants to the United States provide remittances as part of an insurance contract with the origin household, while both male and female U.S. migrants remit in anticipation of a future bequest.<sup>2</sup> Already in previous research de la Briere (1997) finds that women tend to maintain more regular contacts, e.g., they visit home more often than men with resulting remittance differences.

Summarizing the literature on men and women remitting, it can be said that detailed information on what influences their behavior is indeed rare. There are contradicting findings regarding the amount that women remit compared to men. However, as lower income and labor market participation of women is present in practically all countries, it can be doubted that women actually remit more overall. What seems to be agreed on is the finding that women keep closer ties to their families and act more altruistically than men.

## **DESCRIPTION OF THE DATA**

The data for this analysis are based on unique samples of remitters that use similar questionnaires for multiple countries. The sample is taken in major metropolitan areas and is based on random interviews of migrant remitters leaving pre-identified remittance-sending shops. The shops are a purposive sample of the formal vendors in the city as identified by the non-bank financial institutions themselves (such as Western Union or

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<sup>2</sup> It should be noted that de la Briere (2002) explicitly points out that the insurance motive may originate from both the altruistic and the contractual approach.

Vigo), e.g., these shops manage the greatest volume of remittances from the metropolitan population. So these are a random sample of individuals who are known to remit and who remit through formal channels. The samples do not include information about migrants who do not remit and the questionnaire asks no questions about the remittance-receiving households (other than the sender-recipient relationship). No does this sample include individuals who remit through informal channels, but then other random samples suggest that informal remitters are less than one-fifth of today’s remitting population (Orozco et al. 2005a; Orozco et al. 2005b).

There are at least two great advantages of these data. First, they include a range of variables not typically found on many data sets. There are 3,566 observations and 64 variables in the data set. Secondly, the data exist for migrants from Latin America (Ecuador, Dominican Republic, Guyana, Jamaica, El Salvador, Mexico, Colombia, Nicaragua, Cuba, Honduras, Guatemala) and West Africa (Ghanaian migrants in the US, UK and Germany). The data from these different surveys have been compiled into unified databases on international migrants with common variable names, values and country/case identifiers.

Table 1 provides some basic information regarding the number of observations in the data set broken out by gender, remitting country and remittance-receiving region (or the migrants’ country of birth).

**Table 1. Total number of observations in data set by gender, sending country and receiving region.**

Sending Country	Gender	Receiving Region				Total
		South America	Central America	Caribbean	Africa	
Germany	Male				148	148
	Female				93	93
United Kingdom	Male				184	184
	Female				92	92
United States	Male	326	828	434	268	1,856
	Female	322	398	291	182	1,193
Total		648	1,226	725	967	3,566

Regarding the remittance-receiving regions, Table 1 shows that all observations from the UK and Germany included in the data set have Africa as the receiving region, whereas the data for the US is more evenly divided across all four regions with the higher proportion of observations being remittances sent to Central America. Regarding gender, females represent 38 percent of total observations in the data set and that proportion tends to hold across remitting country and receiving region.

**Table 2. Total number of income reported observations in data set by gender, sending country and receiving region.**

Sending Country	Gender	Receiving Region				Total
		South America	Central America	Caribbean	Africa	
Germany	Male				99	99
	Female				35	35
United Kingdom	Male				168	168
	Female				85	85
United States	Male	280	764	411	226	1,681
	Female	267	367	271	144	1,049
Total		547	1,131	682	757	3,117

As shown in Table 2, the total number of observations for which individual income is available is 3,117. With the exception of Germany, that is proportionally more affected by missing data, the 439 missing observations tend to be evenly split across regions and remitting countries.

Remittances are measured in U.S. dollars at prevailing exchange rates. Table 3 shows how the average amount of remittances varies substantially across remitting countries with the U.S. exhibiting the highest average, followed by the UK and finally Germany. Significant differences also exist across recipient region and gender, with Africa receiving from the U.S. nearly twice as much as Caribbean countries; and males sending, on average, a larger sum than females.

**Table 3: Average Remittances send by males and females per year by sending country and receiving region.**

Sending Country	Gender	Receiving Region				Total
		South America	Central America	Caribbean	Africa	
Germany	Male				1,793.2	1,793.2
	Female				1,391.4	1,391.4
United Kingdom	Male				2,458.5	2,458.5
	Female				2,138.8	2,138.8
United States	Male	3,756.4	3,750.8	2,583.3	4,781.2	3,630.0
	Female	2,744.1	2,475.6	2,986.7	4,487.1	2,983.6
Total		3,251.8	3,333.6	2,744.9	3,259.5	3,179.0

### ANALYSIS OF ANNUAL REMITTANCES

We begin with an analysis of the amount of remittances sent and regression analysis of several basic explanatory variables, selected variables which may identify important gender differences in remitting motivations, and gender interactions. Appendix table 1 shows the means and standard deviations for the variables to be analyzed in the following regressions. First, there are several variables that are basic to most analyses, i.e., the individual sender's sex (-), age (+), education (-), years since migration (-), personal income (+), and the number of persons in the sender's household (-). These basic variables are, per the literature, expected to covary with the amount of remittances as shown. Additionally, dummy variables are included for the relationship of the recipient, as well as commitment to remitting as measured by the number of years that the individual has been sending remittances.

Because we wish to know more than whether or not women send more or less remittances than male, a second equation estimated for the interaction between gender (female = 1, else = 0) and the foregoing variables. Once again, it is not possible to directly evaluate the proposition that women are more altruistic than men as the data lack detailed information about the economic ties or wealth of the receiving household. At the same time, there is an independent interest in whether or not the remittances equation for women is structurally different from that for men. Further, the relationship of the sender/recipient relationship is a weak test of the altruism motivation for remitting, in so

far as more distant relationships require a greater altruistic motive. The literature clearly argues that immediate family relationships (parents, spouse, and children) conflate altruistic and contractual motivations, but more distant interpersonal relationships (siblings or non-family) incur less reciprocity and exert a weaker contractual influence. The addition of time remitting, e.g., a commitment to remit, is another measure of important female differences in remitting behavior and possible altruism. Significant female interactions flag systematic female differences from male remitting behavior.

Table 4 shows the results of an Ordinary Least Squares regression of the natural log of the amount of annual remittances on the variables just described. Annual remittances are estimated from the data by annualizing average remitted amount by the number of times an individual sends remittances during the year.<sup>3</sup> Three equations are estimated, the first includes only first-order effects for all the variables. Not all of the basic explanatory variables are statistically significant, but those that are have the expected sign, i.e., women remit a lesser amount than males, and years since migration and number of persons in the sender's household also reduce remittances. Personal income is positively related with remitted amount, albeit the magnitude of the effect is trivial. Familial relationships are important, with spouses receiving larger amounts than parents or children; and the sibling relationship is insignificant (non-family relationships are the omitted category). And years of commitment to remitting is positively associated with the remitted amount, while its squared term indicates that, in line with years since migration, there is a decay effect nevertheless.

The second equation in Table 4 includes gender interactions which result in relatively little change in the first-order (male) effects (as just described). Interestingly, the interaction effects reveal important female/male differences in remitting by sender/recipient relationship. Males remit significantly more to especially spouses and children, but to no one else. Women, on the other hand, are no different from men in the amount that they remit to spouses, but they remit more than males to parents and

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<sup>3</sup> All pooled regressions include purchasing power parity (ppp) corrections for remittances and income in Germany and the United Kingdom relative to the United States.

**Table 4. Annual Amount Remitted (OLS, Natural Log of Remittances)**

	(1)		(2)		(3)	
	Coef.	Std. Error	Coef.	Std. Error	Coef.	Std. Error
C	7.157	0.154 ***	7.509	0.189 ***	7.568	0.188 ***
Sex (female)	-0.127	0.034 ***	-1.133	0.313 ***	-0.670	0.300 **
Age	-0.003	0.002	-0.003	0.003	0.005	0.003 *
Education	-0.003	0.007	-0.014	0.009 *	-0.010	0.009
YSM	-0.017	0.006 ***	-0.018	0.007 **	-0.022	0.007 ***
Householdsize	-0.024	0.010 **	-0.025	0.013 *	-0.015	0.013
Personal income	0.00001	0.000 ***	0.00001	0.000 ***	0.00001	0.000 **
Spouse	0.626	0.113 ***	0.489	0.135 ***	0.421	0.138 ***
Parent	0.338	0.111 ***	0.171	0.133	0.105	0.137
Child	0.486	0.115 ***	0.254	0.141 *	0.203	0.140
Sibling	0.074	0.121	-0.158	0.146	-0.140	0.148
Other family	0.003	0.123	-0.167	0.152	-0.210	0.152
Yrs Rem sent	0.113	0.013 ***	0.092	0.017 ***	0.066	0.016 ***
Yrs Rem sent**2	-0.005	0.001 ***	-0.003	0.001 ***	-0.002	0.001 **
Age*sex	--	--	0.002	0.005	-0.001	0.005
Education*sex	--	--	0.031	0.013 **	0.013	0.013
YSM*sex	--	--	0.003	0.012	-0.003	0.012
Householdsize*sex	--	--	0.004	0.020	0.018	0.019
Personal income*sex	--	--	0.000	0.000	0.000	0.000
Spouse*sex	--	--	0.258	0.236	0.148	0.227
Parent*sex	--	--	0.421	0.228 *	0.331	0.221
Child*sex	--	--	0.576	0.236 **	0.428	0.227 *
Sibling*sex	--	--	0.597	0.248 **	0.473	0.237 *
Other family*sex	--	--	0.415	0.250 *	0.426	0.238 *
Yrs Rem sent*sex	--	--	0.054	0.028 *	0.070	0.026 ***
Yrs Rem sent**2*sex	--	--	-0.004	0.002 ***	-0.005	0.002 ***
Adj. R-squared	0.148		0.153		0.275	
F-Statistic	32.883		19.458		24.755	
Sample Size (N)	2758		2758		2758	

## Notes:

1. All equations include dummies for the country of sender (USA, UK, Germany).
2. Equation three includes dummies for country of migrant birth / remittance recipient.
3. Level of significance: \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10

children, as well as to more distant siblings and other family members. So women demonstrate a greater relationship reach in their remitting behavior suggestive of more altruistic motivations. Women also remit more than men for each year that they have already been remitting money abroad, demonstrating that commitment is important to both genders, though being yet more important for women.

The third equation in Table 4 replicates the second with interactions and includes dummy variables (Mexico is omitted) for all 18 countries of migrant origin. This more stringent test of the explanatory variables and interaction terms reveals little different from equation two. Rather, the effects just describe hold, albeit the level of statistical significance on some of the gender and relationship interaction terms is lowered.

Table 5 shows the same set of three equations as just discussed, but the dependent variable is now annual remittances as a percentage of annual personal income. The results on the sender/receiver relationship are much the same with improved levels of statistical significance which reinforces the findings that males remit more to spouses and no one else, while women remit no more to spouses than men. But women remit more to all other family members than males. Time spend remitting retains the same effect and is positive for men and yet more so for women.<sup>4</sup>

The results thus far pool the 18 country samples and constrain the estimated coefficients to be the same across countries. There is little reason to think that this pooled approach yields misleading results because the estimates on the included explanatory variables change rather little from equation two to equation three (with and without country dummies). Still, there may well be differences in remitting behavior by gender within country samples and so Table 6 shows regression results for the microdata pooled by migrants' region of origin.

The variance explained ( $R^2$ ) for the regressions for the regional samples are about the same as for the pooled regressions, as are the general pattern of variable-by-variable results just described. The major exception to this generalization is remittance senders from Africa for whom the variance explained is more than twice that of other regions. Unfortunately, the regional samples are much smaller than the pooled sample and, unsurprisingly, levels of statistical significance for most regional regression are reduced

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<sup>4</sup> Equation two of both Tables 4 and 5 suggest that education is statistically significant and inversely related with the amount remitted as is expected. And there is the suggestion that this inverse relationship is less in the female-education interaction. However, education and its gender interaction do not remain statistically significant in equation three that controls for country of origin.



(again, Africa excepted).<sup>5</sup> Nevertheless, women remit less than men for most regional samples (but not Mexico and the Caribbean). And men remit more to spouses but not other family members (except for Africans for which all sender/recipient relationships are statistically significant). The gender-relationship interactions repeat the foregoing greater amount sent by women to all family members and particularly so for African women. However, the regional samples also suggest that women from Latin America and Africa also send more to spouses than their male counterparts. Small sample sizes and a lack of marked differences by region in ultimate conclusions, suggests that the results for these regional samples be taken as exploratory.

Finally, and in the spirit of exploring variables that may shed light on gender differences, Table 7 shows the results of a regression of annual remittances on the basic explanatory variables and how remittances are expended (as reported by the sender). The types of expenditures in the survey include obvious “necessities” such as food or clothing, along with obvious “investments” such as business or loans. These mark out an extreme of “altruistic” as contrasted with “contractual” or self-interested expenditures. Other expenditures such as housing and education are somewhat intermediate and encompass both altruistic and self-interested purposes.<sup>6</sup> The results on the first-order (male) effects show that the amount of remittances sent is statistically significant for all expenditure types. However, the female-expenditure interaction shows that women remit more money than males when remittances are expended on food or clothing, while they remit less than men when remittances are expended for businesses purposes or to pay off loans. This supports the notion that women remit with the intent that their remittances will be spent for more altruistic than self-interested reasons.

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<sup>5</sup> The magnitude of the interacted coefficients for Central Americans and Africans also appear unusually large, which may be in part to small cell sizes, although actual point values would have to be calculated to evaluate how abnormal they really are (note the magnitude of the grand intercepts).

<sup>6</sup> These are not mutually exclusive categories as a sender may report sending monies for any or all of these purposes. However, cross-tabulation of the responses found that there is relatively little overlap (less than 5 percent of cases) between food/clothing and business/loans, but substantial overlaps between housing or education with food/clothing (one third of cases or more).

**Table 5. Percent of Annual Income Remitted (OLS, Natural Log of Percent of Income Remitted)**

	( 1 )		( 2 )		( 3 )	
	Coef.	Std. Error	Coef.	Std. Error	Coef.	Std. Error
C	-1766069	0.151 ***	-1401870	0.191 ***	-1261123	0.190 ***
Sex - Female	-0.048	0.036	-1.103	0.301 ***	-0.538	0.291 *
Age	-0.005	0.002 **	-0.007	0.003 ***	0.002	0.003
Education	-0.051	0.007 ***	-0.058	0.009 ***	-0.039	0.009 ***
YSM	-0.032	0.006 ***	-0.036	0.007 ***	-0.040	0.007 ***
Householdsize	-0.004	0.011	-0.006	0.013	-0.005	0.013
Spouse	0.646	0.104 ***	0.516	0.130 ***	0.271	0.136 **
Parent	0.409	0.102 ***	0.255	0.129 **	0.010	0.134
Child	0.505	0.105 ***	0.329	0.136 **	0.148	0.138
Sibling	0.133	0.112	-0.057	0.141	-0.199	0.145
Other family	0.088	0.114	-0.030	0.149	-0.224	0.150
Yrs Rem sent	0.076	0.014 ***	0.061	0.017 ***	0.042	0.016 ***
Yrs Rem sent*2	-0.003	0.001 ***	-0.002	0.001 *	-0.001	0.001
Age*sex	--	--	0.007	0.005	0.000	0.005
Education*sex	--	--	0.020	0.013 **	-0.003	0.013
YSM*sex	--	--	0.006	0.021	0.019	0.020
Householdsize*sex	--	--	0.011	0.013	0.007	0.013
Spouse*sex	--	--	0.274	0.215	0.257	0.211
Parent*sex	--	--	0.386	0.205	0.399	0.201 **
Child*sex	--	--	0.440	0.211 *	0.373	0.207 *
Sibling*sex	--	--	0.479	0.227 **	0.458	0.221 **
Other family*sex	--	--	0.288	0.229	0.389	0.223 *
Yrs Rem sent*sex	--	--	0.042	0.029 **	0.057	0.027 **
Yrs Rem sent**2*se)	--	--	-0.003	0.002 *	-0.004	0.002 **
Adj. R-squared	0.148		0.153		0.275	
F-Statistic	2449981		1455106		2013942	
Sample Size (N)	2575		2575		2575	

Notes:

1. All equations include dummies for the country of sender (USA, UK, Germany).
2. Equation three includes dummies for country of migrant birth / remittance recipient.
3. Level of significance: \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10

**Table 6. Annual Remittances by Region of Origin of Sender (OLS, Natural Log of Remittances)**

	Mexico	Central America	South America	Caribbean	Africa
C	7.571 ***	7.352 ***	8.434 ***	6.935 ***	7.952 ***
Sex - Female	1.113	-2.152 **	-2.311 ***	-0.961	-2.958 ***
Age	0.000	-0.002	-0.006	0.000	0.007
Education	0.019	-0.009	-0.041	-0.007	0.010
YSM	-0.046 ***	-0.010	-0.050 **	0.010	-0.021
Householdsize	-0.033	-0.020	-0.052	-0.033	0.000
Personal income	0.00002 ***	0.00001 *	0.00000	0.00003 ***	0.00002 ***
Spouse	0.490 ***	0.661 ***	0.435 *	0.080	-0.760 **
Parent	-0.029	0.297 *	0.237	-0.254	-0.960 ***
Child	0.300	0.337 *	0.278	-0.111	-0.866 ***
Sibling	-0.208	0.205	-0.307	-0.387 **	-1.414 ***
Other family	--	-0.371	-0.544 *	-0.223	-1.085 ***
Yrs Rem sent	0.075 *	0.026	0.063	0.042	0.130 ***
Yrs Rem sent*2	-0.001	0.000	0.004	-0.003	-0.006 ***
Age*sex	-0.026 *	0.000	0.017 *	0.000	-0.005
Education*sex	-0.117 **	-0.010	0.086 **	0.062	0.029
YSM*sex	0.136 ***	-0.036	0.064	-0.017	-0.002
Householdsize*sex	-0.025	0.031	0.014	-0.001	0.030
Personal income*sex	-0.00004 ***	0.000	0.000	0.000	0.000
Spouse*sex	1.158 *	1.779 **	0.107 **	0.250	2.333 ***
Parent*sex	0.955 *	1.959 **	0.323	0.612 *	2.422 ***
Child*sex	0.489	2.317 **	0.449	0.549	2.414 ***
Sibling*sex	0.906 ***	2.077 **	0.312	0.761 **	3.530 ***
Other family*sex	--	2.219 ***	0.679 ***	0.290 ***	2.458 ***
Yrs Rem sent*sex	-0.086 ***	0.114 **	0.007	0.079	0.110 ***
Yrs Rem sent*2*sex	0.002	-0.005 ***	-0.007 ***	-0.006 ***	-0.006 **
Adj. R-squared	0.179	0.134	0.169	0.116	0.417
F-Statistic	5.047	4.702	4.823	4.185	18.182
Sample size (N)	427	600	472	610	649

Notes:

1. Equation for Africans only includes dummies for the country of sender (USA, UK, Germany).
2. Level of significance: \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10

**Table 7. Annual Amount Remitted and Expenditure of Remittance (OLS, Natural log of Annual Remittances)**

	Coef.	Std. Error
C	7.329	0.134 ***
Sex - Female	-0.280	0.118 **
Age	-0.001	0.002
Education	-0.009	0.007
YSM	0.007	0.004
Householdsize	-0.036	0.010 ***
Income	0.00001	0.000 ***
Sp: Food/Cloth	0.241	0.079 ***
Sp: Education	0.400	0.044 ***
Sp: Housing	0.159	0.044 ***
Sp: business/loan	0.329	0.063 ***
Sp: Food/Cloth*sex	0.205	0.119 *
Sp: Education*sex	-0.064	0.072
Sp: Housing*sex	-0.061	0.070
Sp: business/loan*sex	-0.237	0.101 **
Adj. R-squared	0.135	
F-Statistic	26.940	
Sample size (N)	2788	

Notes:

1. Equation includes dummies for the country of sender (USA, UK, Germany), no country of origin dummies are included.
2. Level of significance: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.10$

## SENDING MONEY HOME FOR SELF AND OTHERS

The data permit one more way to differentiate gender differences in motivations for sending money home. The survey asks respondents about their “economic activities” in their home country on their own behalf, e.g., for such things as paying off their own educational loans or running a business, etc. Clearly, this question taps self-interested economic expenditures and not monies spent on anyone other than one’s self. The survey also asks respondents whether or not they send money home “other than remittances” to “help family members with their economic obligations.” This question captures monetary help for the purpose of paying of loans or investments, etc., and clearly asks about

monies spent on behalf of others. Of course, if these are unrequited transfers they fall within the definition of remittances despite being framed as monies sent “other than remittances.” Nevertheless, these two questions neatly frame opposite economic transfers, one for the purpose of self-interest narrowly defined and one for the purpose of explicitly helping others.

Table 8 shows logistic regression results for the log odds that an individual reports economic activity on their own behalf or to help others. For each outcome the regression are run without the senders’ country of origin (equation 1) and with all dummies for the senders’ country of origin (equation 2). There is no statistically significant difference between men and women in the likelihood that they maintain economic activity on their own behalf in their home country. However in equation 1, women are more likely to send money home to help meet others’ economic obligations, albeit there is no significant gender difference after including country of origin dummies. Thus, this test of gender differences is highly suggestive but not conclusive as the statistical significance of the gender differences may vary due to unspecified variables and/or country of origin differences.

**Table 8. Economic Ties to Homecountry Other than Remittances (Binary Logistic Regression)**

	Maintains Economic Activites Abroad				Assists in Other's Obligations			
	( 1 )		( 2 )		( 1 )		( 2 )	
	Coef.	Std. Error	Coef.	Std. Error	Coef.	Std. Error	Coef.	Std. Error
C	-4.E+06	0.293 ***	-3.E+06	0.337 ***	-4.E+06	0.304 ***	-3.E+06	0.346 ***
Sex - Female	0.081	0.083	-0.083	0.091	0.208	0.092 **	0.099	0.099
Age	0.021	0.005 ***	0.018	0.005 ***	0.025	0.005 ***	0.020	0.006 ***
Education	0.171	0.019 ***	0.113	0.022 ***	0.060	0.020 ***	-0.012	0.023
YSM	-0.008	0.010	-0.002	0.011	-0.022	0.011 **	-0.003	0.012
Householdsize	0.005	0.025	-0.055	0.029 **	0.114	0.026 ***	0.031	0.030
Income	0.00002	0.000 ***	0.00002	0.000 ***	0.00004	0.000 ***	0.00004	0.000 ***
Log Likelihood	-1785686		-1633522		-1546061		-1453655	
Sample Size (N)	2830		2830		2828		2828	

Notes:

1. All equations include dummies for the country of sender (USA, UK, Germany).
2. Only equation two includes dummies for senders' country of origin.
3. Level of significance: \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.10
4. Coefficients are logistic and not "log odds."

## CONCLUSIONS

The result of this analysis of random samples of remittance senders, pooled across different countries of origin, suggests several differences between men and women migrants. Firstly, women appear to remit lesser amounts of monies than men and this characterizes women from most countries. Secondly, women remit more monies than men to other than their spouse, especially to more distant family members including siblings and others, while men increase the amount of the remittances only when sending to their spouse. Thirdly, both men and women remit more the longer they have been sending remittances (with a decay function), but women remit yet more than men over time. These findings on sender/recipient relationships constitute a weak test of the altruism proposition.

The finding that men send more to their spouses and not others, but women send more than men to distant family members, suggests that women indeed act more altruistically. But the spouse effect also supports a somewhat simpler version of a gender roles proposition, e.g., typically lone-migrant men remit to sustain their unemployed wife who, in turn, spends those monies on the household. Women migrants, on the other hand, are likely to migrate with their husbands or if they are lone-migrants their husbands back home are likely to be employed and do not require much assistance. Yet, the finding that women remit more to distant family members is not so clearly explained by a gender roles proposition and is, indeed, well in line with altruistic motives. Yet; a stronger test of either altruism or gender roles (or spouse remittances) would require either information about the receiving household's economic conditions and/or a marital status identifier.

At the same time, the fact that women remit more money than men for each additional year that they have been sending remittances indicates that women are more committed to sending remittances over the long run. This suggests an altruistic motive in so far as there is no reason to suspect that women have stronger contractual or self-interested motivations to remit over time than men. Indeed, if anything women from

these origins may well be less likely than men to need to pay off education loans, co-invest in a business, or to benefit from helping family.

The additional tests of the purposes for which the sender remitted, e.g., their report on how the monies are expended, corroborates an altruistic or needs-based difference in gender remitting. Women remit more than men for expenditures on food or clothing, but less than men for expenditures on business or loans. Food/clothing expenditures surely meet the definition of a base level of a hierarchy of needs for which any returns to the sender are less quantifiable than are contractual-type expenditures to meet economic investments/obligations.

In sum, these findings indicate that Latino and African women migrants are more altruistic in their remitting behavior than men. However, the tests made here of the simple altruism versus contractual propositions are incomplete because these data lack sufficient information about the characteristics of the receiving household. But what these data lack in addressing this long-debated and controversial line of thought, they more than make up for in pointing to important and policy-relevant gender differences. Women may remit less than men, but when they do remit they prioritize the basics, tend to stick to their guns, and they are more willing to remit to distant family members. So it is that women's remittances may be a greater part of the "non-productive" or consumption-based remittances that have long been criticized as non-developmental, even as those remittances more effectively target the raising of families above the poverty line. And surely, these behaviors also imply that women are a greater resource during times of crisis and for distributing remittances across the sending community, e.g., their remittances may be more counter-cyclical than men's, more critical after natural or manmade calamities, and they may generate less inequality between households in their home country communities.

**Appendix Table 1. Descriptive Statistics**

	Mean	Std. Deviation
Remit sent, total year	3168.7	3756.3
Remit sent, total log	7.658	0.920
Female	0.386	0.487
Age	36.700	9.478
Education, years	12.354	2.600
Years Since Migration (YSM)	7.483	4.786
Number of persons in household	3.362	1.614
Personal income	21740.1	11380.7
Spouse	0.191	0.393
Parent	0.390	0.488
Child	0.161	0.368
Sibling	0.117	0.321
Other family	0.102	0.303
Remit sent, number of years	3.238	1.474
Remit sent, years squared	50.117	65.296
Female * Age	13.587	18.194
Female * Years of Education	4.811	6.262
Females * YSM	2.829	4.605
Females * # person in Household	1.270	1.897
Females * Income	6906.6	10914.0
Females * Spouse	0.037	0.190
Females * Parent	0.159	0.366
Females * Child	0.072	0.259
Females * Sibling	0.052	0.222
Females * # years remit	2.140	3.756
Females * # years remit squared	18.685	46.478
Germany	0.067	0.250
United Kingdom	0.082	0.275
United States	0.851	0.356
Colombia	0.070	0.254
Cuba	0.049	0.215
Ecuador	0.028	0.165
El Salvador	0.114	0.318
Guatemala	0.030	0.172
Guyana	0.066	0.248
Honduras	0.021	0.143
Mexico	0.134	0.341
Nicaragua	0.042	0.200
Dom Rep	0.042	0.200
Bolivia	0.019	0.138
Jamaica	0.056	0.229
Haiti	0.056	0.229
Ghana	0.234	0.424
Nigeria	0.036	0.187
Burkina Faso	0.001	0.037
Cote D'Ivoire	0.001	0.024
Togo	0.002	0.044



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