REMITTANCE ACTIVITY AMONG BRAZILIANS IN THE U.S. AND CANADA

Introduction

The total amount of remittances emigrants send to their nation of origin frequently surpasses all other sources of foreign exchange, including revenues from exports and foreign aid. Recent trends in remittance growth have continued over the past decade such that in 2007 emigrants remitted in excess of $251 billion to developing nations (Ratha *et al*., 2008). Furthermore, because these figures do not include informal transfers the actual remittance total is likely much higher (Freund and Spatafora, 2005).

These foreign exchange transfers are usually studied at the macro-level. Such studies tend to focus on government policies designed to monitor and direct these flows (Abella, 1992; Chandavarkar, 1980; Gammeltoft, 2002; Karafolas, 1998), their volume (Elbadawi and Rezende Rocha, 1992; Lianos, 1997; Massey and Parrado, 1994; Russell, 1992, 1986; Stahl and Arnold, 1986; Swamy, 1981), or their costs and benefits to origin area development (Appleyard, 1989; Arnold, 1992; Athukorala, 1993; Conway and Cohen, 1998; Koc and Onan, 2004; Taylor, 1999; Wood and McCoy, 1985). Still other studies focus on stratification effects in place of origin (Fawcett and Arnold, 1987; Lundahl, 1985; Reichart, 1982), while others examine whether remittances are primarily used for consumption or productive activities (Amuedo-Dorantes and Pozo, 2006; Itzigsohn, 1995; Keely and Tran, 1989; Sofranko and Idris, 1999). Thus at the macro-level a wealth of knowledge, too large to summarize here, has already been amassed regarding the transfer of resources.

In 1995 Funkhouser wrote that relatively little was known about remittance patterns at the individual-level. Since then a number of important micro-level studies focusing on senders have been published (e.g., Cai, 2003; Durand, *et al.*, 1996; Menjívar, *et al.*, 1998; MIP-IAD, 2001; Orozco, 2006; Orozco, *et al.*, 2005; Sana 2005; Sofranko and Idris, 1999). In general, these case studies attempt to determine why some emigrants remit and others do not. Still, the number of such studies is relatively small and the results somewhat mixed. Because of the inconsistency of these baseline studies, their lack of explanatory power, and their focus on several very specific origin nations, a number of unresolved questions remain.

This article makes various contributions to the study of micro-level remittance behavior by focusing on individual- level determinants of remittance behavior as we examine those factors that determine who remits, how much they remit, and for what purposes. To explore these questions, we analyze remittance activity to a nation where this phenomenon has not often been studied, Brazil. Furthermore, this investigation is cross-national because the data examined were collected with the same survey instrument in both Canada and the US. Such quantitative bi-national comparisons of remittance activity among the same group to different destination countries are few in number. The authors are aware of only two studies of this type (see Orozco, *et al.* 2005 and Orozco, 2006). Such comparative studies provide the opportunity to evaluate the robustness of predictors. They may also indicate the need for methodological and/or theoretical revisions as they highlight the importance of distinct social contexts on remittance behavior. Finally, as will be documented in additional detail below, the data analyzed were collected almost 20 years ago, at a relatively early stage in the movement of Brazilians to North America. As such these results also provide important baseline information for future examinations of Brazilians remittance activity.

The next section discusses the growth of Brazilian immigration to North America and related increases in the flow of remittances to Brazil. We then present our conceptual framework and research hypotheses. This is followed by sections that discuss the data and methods used, study results, and concluding remarks.

BRAZILIAN IMMIGRATION TO THE UNITED STATES AND CANADA

Government statistics reveal that Brazilians continue to travel to the US and Canada in record numbers. Prior to the mid-1980s this movement was but a fraction of what it is in 2008. The main reason for this tremendous increase, which began over 20 years ago, was the worsening Brazilian economy (Goza, 1994; Margolis, 1994). Although the economic situation in Brazil has somewhat stabilized, the social networks now in place facilitate the movement and integration of additional newcomers. Since 1987, the number of Brazilian nationals entering the US with non-immigrant visas has averaged approximately 600,000 per year (see Table 1). During this time Brazil has also often ranked among the top 10 nations in terms of the number of non-immigrant visitors it annually sends to the US. While most of these visa holders spend only a short time in the US, some overstay their visas and work during their US sojourn (Goza, 1994; Margolis, 1998;

Sales, 2003). One important consequence of their US employment is that they send remittances to those who remain in Brazil.

[Table 1 about here.]

Table 1 reveals that the Canadian increase in Brazilian visitors parallels that of the US. Although the absolute numbers are smaller, averaging only 40,000 per year, Brazilians now account for more visitors from South America than any other nation (Statistics Canada, 2005). Until 1987, Brazilians did not need a visa to visit Canada. This requirement began in part because of the large numbers of Brazilian "tourists" who arrived at the Toronto airport that summer (Goza, 1999). Even with the added visa requirement, this movement has continued to increase and likely will do so for the foreseeable future as those legally in the country may serve as sponsors for their relatives. Furthermore, as in the US case, many of those who visit Canada opt to overstay their visas and seek employment, which eventually results in the sending of remittances to Brazil.

The total amount of remittances sent by emigrants is extremely difficult to accurately measure, yet, as witnessed above, is extremely important. The main reason for these computational difficulties are that many funds are sent via informal means, including: checks, cash, money orders, and returning emigrants. Other remittances are sent in-kind, rather than as funds, something which further complicates the measurement process. The World Bank and the International Monetary Fund (IMF) attempt to monitor official transfers, but even these are at best rough measures. As such, some estimate that transfers via informal channels and the black market could add 50% or more to the official figures (e.g., Freund and Spatafora, 2005; Gammeltoft, 2002; Stalker, 1994). Nonetheless, the IMF annually publishes a report that indicates the amount remitted to each nation by workers overseas. In 2006, the last year for which data are available, the amount remitted to Brazil via official channels amounted to nearly 3 billion dollars (IMF, 2007). Table 1 details this extremely rapid increase. Unfortunately, these numbers do not permit one to determine the source country of these funds. This is especially problematic in the case of Brazil as there are many "dekassaguis" (i.e., Brazilians of Japanese origin) who work and remit from Japan, as well as Brazilian expatriates similarly engaged in Portugal, Italy, and various other European nations. Thus although approximately 3 billion dollars were officially remitted to Brazil in 2006, it is virtually impossible to determine the origin of these funds. Nonetheless, the significant amount of funds remitted to Brazil, as well as the strong correlation between the increase in Brazilian visitors

to North America and dollars remitted to Brazil (see Table 1), make this a topic that merits additional examination.

To enhance our understanding of this remittance flow, this study begins by first attempting to predict who sends remittances and the amount they remit. The analytical results to these questions are presented below in Tables 4 and 5, respectively. The third and final research question will examine the uses of the funds remitted. At a general level, remittances are directed towards either productive or consumption ends, with most research concluding that remittances are channeled towards meeting basic consumption needs. Nonetheless, a heady debate about the merits of spending remittances on consumption activities has ranged for some time. Some authors argue that remittances spent on consumption do little in the long-term to improve the economic condition of those receiving such funds (Reichart, 1981; Wiest, 1984). Meanwhile, others have observed that so-called *wasteful expenditures* on food, education and medical care (i.e., consumption activities) could have long-term positive effects (Appleyard, 1989; Taylor, 1999). While we tend to agree with the latter statement, almost all researchers agree that productive investments, especially those with significant multiplier effects, have positive consequences for the receiving economy. Without entering into the substance of this debate, the goal of our third model, presented in Table 6, is to determine which measures best predict the likelihood of remitting for productive purposes.

THEORETICAL CONSIDERATIONS

Various authors have noted that there are no theories that adequately explain why people remit (Lianos, 1997; Lucas and Stark, 1985). In an attempt to learn more about why and how much people remit, as well as for what purposes, we will incorporate concepts from prior studies that examined micro- or individual-level predictors. We also incorporate other measures that are theoretically significant and unique to our data. These variables and their relevance are discussed below.

Although this study does not explicitly analyze macro-level contextual variables, we indirectly monitor them as we examine the effects of Canadian and US residence among newcomers who possess extremely similar socio-economic backgrounds. For example, not only do all immigrants come from the same country of origin, but the majority is also from the same Brazilian state, Minas Gerais. Regardless of country of residence, most also arrived in the same year, 1987, and as elaborated below, educational levels, racial composition, and number of children

in Brazil and North America are also very similar for both samples (see Table 3 below for additional contrasts). These pronounced similarities provide a type of control for factors related to the destination countries (Tilly, 1994), one that suggests observed differences in remittance behavior are at least partially attributable to structural effects of country of residence. Reitz (1998, 2003) and Bloemraad (2006) have convincingly argued that the development of any theory related to the immigrant experience can greatly benefit from a comparative perspective. Bloemraad (2006, p.7) further argues that "Most research on traditional immigrant-receiving countries considers one host country at a time and assumes that results in one country are equally applicable in another." This cross-national study of comparable newcomers may reveal important similarities in remittance behavior that are constant across borders, as well as identifying predictors that may be shaped by the institutional context of host societies.

Consistent with the research of Menjívar *et al.* (1998), our first predictive model examines a series of individual-level demographic variables hypothesized to affect remittance behavior. Among the demographic variables contained in this subset are the measures *age* and *age squared*. Because we believe the effect of age on remittance behavior to be nonlinear and related to one's life-cycle stage, we include the quadratic term age squared. The changing needs and requirements of migrants over the life-cycle are well documented (Warnes, 1992); however, they make it difficult to put forth clear hypotheses, as in many cases age is affected by numerous other variables. For instance, on the one hand, young people might be inclined to remit as much as possible if they are married with a spouse and small child(ren) still in Brazil. On the other hand, a similarly aged single immigrant who desires to permanently remain in North America might never remit. Because of the many possible age related options, our only prediction regarding age and age squared is that among those remitting, younger individuals will be more likely to remit for consumption purposes, while older immigrants will be more likely to remit for productive goals. As such, in Table 6 we expect to see a negative coefficient for age and a positive one for age squared.

Education is the next demographic variable included in this subset. Itzigsohn (1995) found mixed results when examining the effect of education on remittance behavior in four Caribbean nations. Lianos (1997) reviewed numerous studies of remittance behavior and also found very mixed results for education. These studies lead us to expect that education will be an insignificant predictor of remittance behavior. The reason for this belief is the lack of skill transferability among upper- and middle-class newcomers, especially given the tenuous legal situation of many. Because

of these difficulties, it is not uncommon to see highly educated, former professionals driving taxis, cleaning homes or washing dishes. On the other hand, construction workers, craftsmen or operators with little formal education might easily find employment in their Brazilian professions and be relatively well paid in North America

The demographic variables race and gender are included in these models to see whether whites are more likely to remit than non-whites and to see if men are more likely to transfer funds than women. We hypothesize that because of the latent racism and sexism existent in North America that both whites and men will be more likely to remit than the comparison groups. Non-whites on average earn less than whites and therefore will have less financial capacity to remit. We also expect that race will be a less significant predictor in Canada than the US because Canada lacks the US history of racial polarization (Reitz, 2003).

The effects of gender on remittance behavior have been mixed. For instance, Semyonov and Gorodzeisky (2005) found, contrary to popular beliefs, that Filipino men were more likely to remit than Filipino women. Similarly, Orozco (2006) and Orozco, *et al.* (2005) found that Haitian and Ghanaian men more likely to remit than their female counterparts. Others have found that the motives for sending remittances can vary across genders, as women sometimes serve as a type of insurance policy for their impoverished parents, while some men are more likely to remit *when* they expect return compensation in the form of an inheritance (De la Brière *et al*., 2002). Because Brazilian men on average earn more than women, and because they are also more integrated into the cultural tradition that expects them to financially care for other family members, we predict men to be more likely to remit than women and when remitting, to send larger amounts.

The final measure included in the first model subset monitors Brazilian state of birth. Some authors (Durand *et al.*, 1996; Massey and Basem, 1992) have demonstrated that one's specific place of origin within a sending nation can be a significant predictor of remittance behavior. Hence we contrast those born in Minas Gerais, the state that sends the most immigrants to North America, with all others in order to monitor this state's place of origin effect. We hypothesize that *Mineiro*s (i.e., those from Minas Gerais) will be more likely to remit, in part due to their desire to maintain links with their origin area communities, and to send more money, when remitting, than their non-*Mineiro* counterparts. We also expect that most of their investments will be geared towards basic consumption.

The second variable subset to be included in the multivariate models monitors the effect of various types of investments (e.g., psychological, educational, etc.) immigrants can make in their host country on remittance behavior. This subset not only monitors newcomer investments in North America, but also the effects of increased stability and familiarity with North America.

The first two variables in this subset are *months in N.A.* and *months in N.A. squared*. We include the quadratic term because we expect that the effect of North American residence on remittance activity will be nonlinear. In addition, the inclusion of these two variables will allow us to test the "remittance decay hypothesis" (Brown, 1997; Hunte 2004). This hypothesis posits that as immigrants become more acclimated to life in the host society and less likely to return home they also become less likely to remit, and when they do remit, they remit less. Thus, we expect to observe a positive relationship between months in North America and a negative one for the squared term. Regarding the final model, which predicts the likelihood remittances are used for productive purposes, we expect both months in North America and months in North America squared to be negatively related to productive investments. This is because new arrivals will likely be busy paying off debts and addressing other consumption requirements, while those in North America for an extended period who still remit likely do so as a gesture of goodwill to those left behind rather than because they intend to return one day. We also expect these outcomes because we view tenure in North America as an investment in the host society, whereby one learns many of the new society's norms. Such knowledge acquisition can also result in additional economic rewards so that the longer immigrants stay the less likely they are to return and the less likely they are to remit for productive purposes.

In a related vein, the variable *filed an income tax return* is included to see if those who have taken the time to invest in learning a North American tax system well enough to file a tax return are less likely to remit. We expect to observe a negative relationship between this variable and remittance sending, since those who file returns are probably positioning themselves to remain in North America for an extended time. On the other hand, those staying for only a relatively short time usually never bother to learn how to prepare or file a tax return. We also expect that those who file a return will send smaller amounts and that these funds will ultimately be used for consumption purposes.

The next variable in this subset, *stayers* (i.e., those desiring to permanently remain in North America), is viewed as a type of psychological investment in one's host society. We believe that

people who desire to remain in their new country will be less likely to remit, will remit smaller amounts, and generally remit for consumption purposes, as they do not intend to permanently return to Brazil. Consequently, all of their major investments are expected to occur in their new host society and not in Brazil.

The variable *monthly earnings* is also included in this subset because we believe that earnings increase as one becomes more invested in a new host country economy. We expect that those with higher monthly earnings will have a greater propensity to remit and that higher earnings will be positively associated with the amount remitted per month. Although such hypotheses may seem commonsensical, some past research has shown that those with higher incomes actually have a lower propensity to remit (Russell, 1986) or behave no differently than those with lower incomes (Sana, 2005). In our final model, we expect to find that higher earnings will not be a significant predictor of productive remittance usage because we believe that those with high earnings will be more likely to permanently remain in North America and accordingly invest most of their earnings there.

The measure *English fluency* is included in this subset as it clearly monitors another type of investment. In this instance immigrants are attempting to somehow improve upon one of their most important human capital skills, probably in an effort to advance their economic or social condition in North America. As such, we expect that those who speak English well will be less likely to remit, and when they do, will remit less. Furthermore, the intended purposes of any remittances they send are expected to be for consumption.

Another variable included in this subset is *legal status*. Here we expect that those who have taken the time to either normalize their status or to obtain legal immigration documents prior to relocating will have invested a great deal of time, energy, and often money in order to attain this status. As such, we expect to observe a negative relationship between legal status and the likelihood of remitting, a negative relationship with the amount of funds remitted, and when funds are remitted, to see them generally used for consumption rather than productive purposes.

Like others scholars (e.g., Lianos, 1997; Menjívar, *et al.*, 1998), we believe that while the sending of remittances is a rational action on the part of the remitter, this action is also compelled because of commitment and allegiance to one's family. Thus the third and final subset of variables to be examined is family obligations. Here we examine the effects of various types of family members on remittance activity. In keeping with most demographic research (e.g. Sana, 2005;

Sofranko and Idris 1999), we expect that those who leave behind nuclear family members will be the most likely to remit, and to remit larger amounts. We also hypothesize that when they remit, they will remit primarily for consumption purposes. This we expect because we posit that those who leave behind either a spouse and/or minor children are emigrating, at least initially, to meet basic needs rather than to develop a productive investment strategy. Thus with this variable subset we also look at where one's spouse resides and also examine the effect of having left behind minor children (i.e., those less than 21 years of age) in Brazil. The final variable in this subset is number of *relatives in N.A*. We believe that those with more family members in North America will have access to additional financial and emotional support in their host country, ultimately leading to an easier adaptation and permanent resettlement experience. For these reasons, we hypothesize that as number of relatives in North America increases, one will become less likely to remit, remit smaller amounts, and when sent they will more often be used for non-productive purposes.

METHODOLOGY

Data

This cross-national study of the determinants of remittances examines data collected in Toronto and Cidade Congelada, a pseudonym for a mid-sized city located in the northeastern US.[1] The data analyzed herein were collected in Toronto between August and December 1991 and Cidade Congelada between August and December 1990. In each location 195 Brazilian born individuals were interviewed. However, one Canadian observation was discarded because of inconsistencies. Thus our final analyses use a Canadian sample of 194 and a US one of 195.

Because of the non-probabilistic nature of the sampling framework utilized in this study, something that always occurs among populations where many lack proper immigration credentials, it would be inappropriate to attempt to generalize to others not in the framework. Still, the data used herein did represent approximately four percent of each city's estimated Brazilian population and we believe that these results are indicative of general trends and patterns among these newcomers at that time. The initial North American respondents were located on the basis of addresses provided by relatives earlier interviewed in Brazil (CEDEPLAR, 1989). Later a snowball sampling framework was used in each destination area to help locate the additional respondents

[1] We use a pseudonym for the US city in order to protect the identity of undocumented residents of this relatively much smaller city.

required to attain the desired sample size. In an effort to avoid various types of response errors and other types of data collection biases, all interviews were conducted in Portuguese by Brazilian sociologists.

The instruments used in these studies were designed to gather information on immigrants at various life cycle stages. Thus in addition to basic socio-demographic variables, information was also gathered about employment and educational activities prior to departure, as well as the socio-economic status of the migrants' parents. The questionnaires also contained a detailed employment history matrix for North American work activities, questions about social and linguistic adaptation, migration networks, the international travel experience, future plans, and remittances.[2]

Brief descriptions of the variables used and their summary statistics are presented in Tables 2 and 3, respectively. A succinct review of the summary statistics is warranted prior to discussing our multivariate models.

[Tables 2 and 3 about here.]

Table 3 reveals that both samples are extremely similar on many key variables. For instance, approximately 65 percent of each sample graduated from high school, while a similar percentage from each group was born in the state of Minas Gerais. Gender, race and North American tenure were also similar for both samples. Likewise, similar percentages left their spouse in Brazil. Furthermore, the number of minor children in Canada and the US was similar for both samples. Finally, and perhaps most importantly, there were no statistical differences across samples for the three dependent variables (i.e., percent remitting, remittance amounts, and percentage remitted for productive purposes) examined in this study. In both nations approximately 60 percent remitted and when doing so remitted roughly $260 per month. In addition, nearly 70 percent of all remittances were destined for consumption activities, regardless of country of origin.

Despite all of the similarities between samples, several key differences were also observed. Table 3 reveals that only a minority of both samples possessed proper immigration credentials, although the Canadian percentage was significantly higher (36% vs. 17%). The reason for the higher percentage of "legal" residents in Canada was that many there had initiated a refugee claimant process and were awaiting the outcomes of those claims (Goza, 1999). Such claimants received various legal rights and permission to remain in the country until their case was resolved.

[2] For additional discussion of this data see Goza (1994, 1999) or Goza and DeMaris (2003).

Brazilian residents of Canada also earned significantly more than their co-ethnics in the US, even after converting their earnings to US currency. Reitz's (1998) examination of other immigrant and national origin groups found that they also commonly earned more in Canada than in the US. Borjas (1990) suggests that Canadian immigrants earn more because Canada is more positively selective with its immigration policies. However, given the large number of undocumented workers in both samples and their otherwise similar backgrounds, this argument seems unlikely to apply, suggesting instead that Toronto area workers were paid more.

Other sample differences were that those in Canada on average spoke better English, were more likely to have filed an income tax return, were more likely to desire to permanently remain in North America, and were less likely to have left their spouse in Brazil. Bloemraad (2003) suggests these differences may be because in Canada more funds are dispersed for language training and citizenship classes, both of which are part of the nation's multiculturalism program designed to make immigrants feel welcome. If the hypotheses earlier presented were supported, then one would expect that those in Canada sent fewer remittances than their co-ethnics in the US. However, as earlier witnessed, this was not the case. Below we attempt to explain these apparent inconsistencies, as all of these variables and their relationships to our dependent measures are examined in additional detail.

Models

In this study we estimate three research questions: 1) what determines who remits?, 2) what determines how much is remitted? and, 3) once remittances are sent, what determines if they are used for productive purposes? Prior to presenting full models results, we first present and discuss findings for key variable subsets. For every model separate national analyses are undertaken. This is because we, like others (e.g., Bloemraad, 2006; Reitz, 1998), hypothesize that the different social contexts and opportunities found on opposite sides of the US/Canada border will generate distinct remittance behaviors.

Models one and three, presented in Tables 4 and 6, estimate the likelihood of remitting and the likelihood remittances are used for productive purposes. For both of these models we use logistic regression because in each case the dependent variable is binary. The value '1' denotes 'yes' for remitting in model one and 'yes' for productive purposes in model three. The value '0'

denotes 'no' for both models. All survey respondents are included in model one, which analyzes the first order decision, whether to remit or not. Table 4 presents the results from these analyses.

Table 5 models examine the second order decision, the amount remitted per month. Because our samples consist of both remitters and non-remitters our dependent variable is comprised of discrete values clustered at zero (for the non-remitters) and many continuous values above zero (for the remitters). Tobit regression allows us to use all of these observations to estimate our regression line. Furthermore, this technique does not require a normal distribution, as do others (e.g., ordinary least squares regression), and is an ideal option when dealing with censored observations such as those in this study which are clustered at zero (McDonald and Moffitt, 1980).

In order to retain all of the Canadian observations it was necessary to correct for some missing data on the variable amount remitted per month. This occurred because some respondents indicated that they sent varying amounts at varying times. In these cases (N=27) we used the SAS multiple imputation procedure to fill in the missing values for amount remitted per month.

Table 6 presents our estimates of the likelihood that remittances were used for productive purposes. These models are restricted to only those who remitted. Initial codes indicated that remittances were used in 21 distinct ways. Thus recoding was required in order to generate the consumption and productive categories. Given the long-standing debate over where most remittances are ultimately directed (Koc and Onan, 2004; Russell, 1992) and whether or not all consumption should be viewed as non-productive (Chandavarkar, 1980; Glystos, 2002; Stahl and Arnold, 1986) we had numerous points to consider. Ultimately we decided to consider major housing expenses, a common option, as productive investments. We opted to do so because unlike many consumption behaviors, we consider this to be an investment, something that one is able to use and eventually resell for a profit, if desired. In addition, because of the various multiplier effects that occur throughout the economy, directly and indirectly, as construction inputs are purchased and labor contracted, we believe that housing investments are most appropriately considered productive rather than consumption based expenditures.

RESULTS

Model One--Predicting Who Remits

This discussion begins with the Canadian results presented in columns A to D of Table 4. In column A the first variable subset monitors individual characteristics deemed to be important

predictors of remittance activity. This subset produced a significant equation ($p<.01$) as many variables included attained statistical significance. Education was the most powerful predictor of this subset as those with at least a high school degree were more likely to remit ($p<.01$) than those with less education. The measures age and age squared were both modestly significant in the expected directions, suggesting that the young are more likely to remit and that this phenomenon decreases as they get older. Finally, the measure monitoring *Mineiro* status was also modestly significant revealing that those born in Minas Gerais were less likely to remit than other Brazilians.

[Table 4 about here.]

Canadian subset two, investments in North America, was highly significant ($p<.001$). The most powerful predictor among this subset was legal status, as those legally in Canada were significantly more likely to remit ($p<.01$) than those without proper documentation. The variables months in North America and months in North America squared were both significant, but in the positive direction. The latter result calls into question the remittance decay hypothesis which suggests that the longer people live in another country the less likely they are to remit. The variable monthly earnings was also modestly significant in the expected positive direction.

Subset three, family obligations, resulted in a modestly significant model ($p<.05$), however, none of the three predictors were significant. Nonetheless, the complete model, model D, was highly significant ($p<.001$) as monthly earnings and legal status again attained statistical significance. Thus although many measures were powerful when examined as part of a small subset, their importance was reduced when these measures became part of a larger, more comprehensive model. Still the significance of the overall model fit suggests the importance of examining these measures together.

Interestingly, the US results predicting remittance activity were generally very distinct from the Canadian ones. Variable subsets one and two each produced just one significant predictor. Consequently model one was only modestly significant ($p<.1$) while model two was insignificant. The sole individual characteristic to reach significance in model one was race as whites were more likely to remit that non-whites, a result earlier hypothesized. Furthermore, race was hypothesized to be more significant in the US than Canada, and this too was supported. Within the investments in North America variable subset, only English fluency was significant, as those speaking the best

English were most likely to remit. However, in the full model, this variable would become insignificant.

The third variable subset, family obligations, produced a very significant model ($p<.001$). In this grouping the measures number of minor children in Brazil and number of relatives in North America were both significant in the predicted directions. These family obligation predictors not only maintained their significance levels in the full model, but in the case of minor children in Brazil, became even more significant. Note, however, that the variable spouse in Brazil was not a significant predictor in either of these models. The complete US model for predicting remittance behavior was also very significant ($p<.001$), but the only non-family obligation variable to attain significance in the full model was race, as English fluency ceased to be significant.

Thus although our model predicting remittance behavior worked equally well for both samples ($p<.001$), there was no consistency regarding individual predictors. Subsets results were very different as the family obligation grouping was very significant only for the US data while in the Canadian case the investments in North America subset yielded the strongest results. These findings raise additional questions besides the just noted group differences. For instance, why did income have no effect on US remittance behavior? Although other studies have also found this to be the case (e.g., Durand, *et al.*, 1996; Massey and Basem, 1992; Sana 2005), common sense suggests there should be a significant relationship.

Model Two--Predicting How Much is Remitted

Table 5 presents the results for models predicting the amount remitted per month.[3] Column A reveals that the first Canadian subset, individual characteristics, fit moderately well ($p<.05$). Of the two significant predictors, the first revealed that *Mineiro* status was positively associated with the amount remitted, as these individuals on average sent approximately $200 more per month than non-*Mineiros*. The second, those in possession of at least a high school degree, sent back approximately $170 less than those without this degree. When combined with the Table 4 outcomes, these findings suggest that *Mineiros* are less likely to remit but when they do, they send more. These results also suggest that those who are relatively more educated tend to remit more often, but in smaller amounts.

[Table 5 about here.]

[3] Note that Canadian dollars were converted to US dollars so that all comparisons are comparable.

Canadian subset two, investments in North America, produced a very strong model ($p<.001$) with two significant predictors. Monthly earnings, as hypothesized, reveals that the more money someone earns the higher their monthly remittances are likely to be. The negative coefficient for North American residence squared also corresponds to expectations suggesting that the longer someone is away the lower their monthly remittances will likely be; a result that provides some support for the remittance decay hypothesis.

Subset three, family obligations, yielded an insignificant model without a single significant measure. The complete Canadian model, however, was significant ($p<.01$). Still, the only significant predictor in the full model was monthly earnings ($p<.001$).

The first two variable subsets for the US data produced two insignificant models. Not one individual characteristic was significant and under the subheading investments in North America only two measures attained significance. The first, monthly earnings, was positive as expected. Note that thus far this is the first and only variable to be statistically significant for both samples. The other significant measure, English fluency, documents that those who speak English better tend to send fewer remittances. This result was earlier hypothesized.

The third US subset, family obligations, was very significant ($p<.001$). As predicted, the presence of a spouse in Brazil was associated with greater monthly remittances ($p<.01$). Also as predicted, more relatives in North America meant that fewer remittances were sent.

The full US model was very significant ($p<.001$) and several key results conformed to our hypotheses. More specifically, in the full model the coefficient for spouse in Brazil fell to $323 per month, but increased to $84 per month for each minor child in Brazil. Meanwhile, each additional relative in the US resulted in 23 fewer dollars remitted per month. Thus in the US case we see that even when controlling for all other model variables, the location of one's family members remains very important in determining how much is remitted. Although all three family obligation measures were again significant in the full model, monthly earnings and English ability now became insignificant.

Table 5, much like Table 4, reveals divergent findings for the US and Canadian samples. Although both full models were statistically significant, there were few similarities. Thus in models one and two, we observe that the variables attaining statistical significance, with one exception, were different from country to country. Furthermore, many predictors hypothesized to be significant were not.

Model Three--Predicting when Remittances are used for Productive Purposes

In the four Canadian versions of model three only two predictors attained significance (see Table 6). Neither of the first two variable subsets examined produced a chi-square model that was statistically significant. Furthermore, only the variable significant in either of these models was legal status. This revealed that those legally in Canada were more likely to remit for consumption rather than productive purposes. This result conformed to our expectation that those who made the effort to acquire legal documentation would probably only send gifts and other similar items (i.e., all unproductive transfers) back to Brazil since it is unlikely that they would return permanently. Model one earlier revealed that those legally in Canada are more likely to remit than those lacking proper documentation. Model three now reveals that this is because those legally present send funds to those left behind to be used for consumption purposes.

[Table 6 about here.]

Subset three, family obligations, finally yielded a significant result ($p<.01$) for the Canadian sample. This finding indicates that the number of minor children in Brazil was negatively related to the usage of remittances for productive activities. In other words, when young children were left behind the remittances sent by their parents were most likely destined to be spent on consumption activities. In the full model this statistical significance is also retained, reinforcing the importance of this finding. Legal status also remained significant in the full Canadian model.

The US findings presented in Table 6 again diverge from the Canadian results. More specifically, the individual characteristics subset shows that both age and age squared were modestly significant ($p<.1$) in the predicted directions. That is, the young who remitted were more likely to invest in consumption activities, while older individuals who remitted were more likely to remit for productive motives. In addition, *Mineiro* status was significant as these individuals were more likely to remit for non-productive purposes. The chi-square result for this model was also modestly significant ($p<.1$).

Subset two, investments in North America, failed to generate a significant chi-square statistic. However, both months in North America and months in North America squared were significant in the positive direction. In other words, irrespective of length of US residence

remitters were more likely to remit for productive reasons. Furthermore, those who filed an income tax return were also somewhat more likely to remit for productive than consumption purposes.

Subset three, family obligations, resulted in a modestly significant chi-square ($p<.05$) but only number of minor children in Brazil was a significant predictor ($p<.05$). As hypothesized, the more minor children in Brazil, the more likely one's remittances were directed towards consumption activities. This is also only the second time that the same predictor was significant for both samples. The consistency of this result across samples underlines how important it is to Brazilian parents to care for their children regardless of where they are, and to assist them whenever possible in meeting their day-to-day consumption requirements.

The complete US model also resulted in a modestly significant fit ($p<.05$). In the full model the investments in North America subset retained its prior significance, as three of its six variables, months in North America, months in North America squared, and filed an income tax return were significant ($p<.05$). The significance of the variable filed an income tax return suggests that those who take the time to file an IRS return were also more likely to send money back to Brazil for productive purposes, contrary to our earlier hypothesis. The other variables that were significant in the partial US models, *Mineiro* status and number of minor children in Brazil, were also significant in the full model.

Thus in model 3, as in both earlier models, we observe that the statistically significant variables were consistently different from country to country—with one exception. In both samples those who had minor children in Brazil were more likely to remit for consumption purposes. Otherwise, in each and every case all significant predictors varied from sample to sample even though final models were usually very significant for each sample.

CONCLUSIONS

This study used data collected during the early 1990s to analyze remittance activity among Brazilian immigrants, a group then newly arrived in Canada and the United States. Multivariate analyses of three dependent variables were designed to identify those measures that best predict who remits, the amount remitted, and remittance usage. However, the newness of this immigrant group also made it possible to determine if measures considered to be theoretically important would be statistically significant for immigrants soon after their arrival in a new host society. While it is possible and perhaps probable that the results indentified herein have evolved since the

time of data collection, they nonetheless serve to document those predictors that best explained these three dependent variables among immigrants who on average had been in North America 4.3 years. As such, they provide a clear baseline from which to monitor similar future studies. In addition to modeling the three aforementioned dependent variables, this study also contrasted Canadian and US sample results.

The descriptive portion of this project documented the rapid increase of Brazilian immigration to Canada and the US over the past two decades and the corresponding significant increase in remittances sent to Brazil. It also documented similar patterns of remittance activity, amount remitted and remittance usage among men and women in Canada and the US. Next, T-tests were used to reveal the high degree of socio-demographic similarity between these cross-national samples (see Table 3). Thus to this point, groups in both destination areas clearly resembled one another on almost all key measures.

However, multivariate analyses used to predict the dependent variables exposed very different cross-national results. Perhaps the main finding to emerge from this research was that even among highly similar groups it is possible to observe very distinct results when individual-level predictors are compared and contrasted across nations. Because we controlled for numerous background characteristics, this study highlights the importance of country of residence structural effects on remittance activity and reinforces the arguments of those calling for more comparative research within the area of immigration studies (e.g., Bloemraad 2006; Reitz 1998, 2003).

Although some cross-national similarities were found, there were far fewer than expected. Rather, it was the aforementioned differences among predictors that were the most numerous and noticeable. Some of these differences are interpretable. For example, Table 3 revealed that Brazilians in Canada are more likely to earn more, be legal residents, be more fluent in English, to have filed an income tax return, and to desire to permanently settle in North America. Because at time of arrival this group was so similar to the US sample, these results highlight the important impacts that a host society and its institutions can have on immigrant outcomes. Bloemraad (2006) suggests that these specific differences are due to the Canadian government taking a more active role, directly and in-directly, to incorporate newcomers into that society. Seen in this light, all of the above differences become linked to one another in a meaningful way. Multivariate results further reinforce the descriptive findings just mentioned by showing that those legally in Canada, and with higher earnings are the most likely to remit, and that when they remit they also send more,

but primarily for consumption purposes. These results correspond to expectations since legal residents are also more likely to permanently remain in Canada, and consequently make their productive investments in that nation.

However, multivariate results from the US sample revealed that there family obligation measures were the driving force behind remittance activity as these variables were always significant predictors of who remitted, the amounts sent, and their uses. When combined with Table 3 results, another pattern was revealed. Namely, US residents were more likely to be target earners who planned to return to Brazil and presumably, the family members left behind. Consequently, they did their best to make certain those left behind were able to meet their basic needs, regardless of their US earnings level.

Overall, the models predicting the productive usage of remittances were weaker than those estimating remittance activity and amount remitted. Specifically, in Table 6 there were no significant positive predictors for the Canadian sample and only a few modestly significant ones for the US. Perhaps because of their relatively recent arrival in North America some of these immigrants were more focused on getting established and meeting their immediate needs, making it difficult if not impossible at that time to remit for productive reasons. Nonetheless, follow-up data might reveal that as North American tenure increases so to does the propensity to remit for productive purposes. Lastly, the results presented in Tables 4, 5 and 6 serve to highlight the need to develop distinct models for the estimation of remittance activity, remittance amount, and remittance usage.

Although we produced some models that fit very well, additional work remains. The first need is to improve upon our conceptual framework so that we can better predict all of the remittance outcomes studied herein. Recall, our results did not always conform to hypotheses and occasionally ran counter to expectations. Second, we need to understand why some theoretically important variables such as the presence of a spouse in Brazil were rarely significant, while others (e.g., the desire to permanently settle in North America) were never significant for any model in either country. This study also documented the need for new conceptual frameworks that allow for possible inter-societal differences in remittance behaviors rather than assuming that one size fits all. For instance, results revealed that in the US sample family obligation variables were consistently significant, but almost never so in the Canadian case. On the other hand, the investment in North America variable subset was usually very significant for the Canadian sample but never for the US

one. Why does this occur when these theoretically important variables should be equally important to both groups? Clearly, these results indicate the need for additional study in this area. Perhaps the answers to these questions will require the incorporation of additional macro- and micro-level factors that were not included in the present study. To further advance these findings, it is also recommended that additional waves of data collection be undertaken. Because the data examined herein were collected after only a relatively brief period of North American residence, it is possible that periodic updates would provide additional insights into remittance behavior, its evolution over time, and perhaps even reveal that the behaviors of long-term residents better conform to remittance theory than the activities of recent immigrants. They may also reveal that in the long-term there are fewer inter-societal differences in remittance behaviors than in the short-term. Nonetheless, it is our hope that this baseline study provides insights to future researchers who wish to pursue these questions in additional detail.

References

Abella, M.
1992 "Contemporary Labor Migration from Asia: Policies and Perspectives of Sending countries." In *International Migration Systems: A Global Approach*. Ed. M. M. Kritz, et.al. Oxford: Oxford University Press. Pp. 263-278.

Amuedo-Dorantes, C., and S. Pozo.
2006 "Remittance Receipt and Business Ownership in the Dominican Republic." *The World Economy,* 29:939-956.

Appleyard, R.
1989 "Migration and Development: Myths and Reality." *International Migration Review*, 23:486-499.

Arnold, F.
1992 "The Contribution of Remittances to Economic and Social Development." In *International Migration Systems: A Global Approach*. Edited by M. M. Kritz, et.al. Oxford: Oxford University Press. Pp. 205-220.

Athukorala, P.
1993 "Improving the Contribution of Migrant Remittances to Development: The Experience of Asian Labour-Exporting Countries." *International Migration*, 31:103-121.

Bloemraad, I.
2006 *Becoming a Citizen: Incorporating Immigrants and Refugees in the United States and Canada*. Berkeley: University of California Press.

------.
2003 "Institutions, Ethnic Leaders, and the Political Incorporation of Immigrants: Comparison of Canada and the United States." In *Host societies and the Reception of Immigrants*. Edited by J. Reitz. La Jolla, CA: Center for Comparative Immigration Studies. Pp. 361-401.

Borjas, G.
1990 *Friends or Strangers: The impact of Immigrants on the U.S. Economy*. New York: Basic Books.

Brown, R.
1997 "Estimating remittance functions for Pacific Island Migrants." *World Development,* 25: 613-626.

Cai, Q.
2003 "Migrant Remittances and Family Ties: A Case Study in China." *International Journal of Population and Geography,* 9:471-483.

CEDEPLAR
1989 "Relatório de pesquisa de campo realizado em Governador Valadares: os destinos dos imigrantes ilegais", Belo Horizonte, Brazil, unpublished manuscript.

Chandavarkar, A.
1980 "Use of Migrants' Remittances in Labor-Exporting Countries." *Finance and Development*, 17:36-39.

Conway, D., and J. Cohen.
1998 "Consequences of Migration and Remittances for Mexican Transnational Communities." *Economic Geography*, 74:26-44.

De la Brière, B., E. Sadoulet, A. de Janvry, and S. Lambert.
2002. "The Roles of Destination, Gender, and Household Composition in Explaining Remittances: An Analysis for the Dominican Sierra." *Journal of Development Economics* 68:309-28.

Durand, J., W. Kandel, E. Parrado, and D. Massey.
1996 "International Migration and Development in Mexican Communities." *Demography*, 33:249-264.

Elbadawi, I., and R. de Rezende Rocha.
1992 *Determinants of Expatriate Workers' Remittances in North Africa and Europe*. Washington, D.C.: The World Bank.

Fawcett, J., and F. Arnold.
1987 "The Role of Surveys in the Study of International Migration: An Appraisal." *International Migration Review*, 21:1523-40.

Freund, C. and N. Spatafora.
2005 "Remittances: Transaction Costs Determinants, and Informal Flows." World Bank Policy Research Working Paper no. 3704. Washington, D.C.: World Bank.

Funkhouser, E.
1995 "Remittances from International Migration: A Comparison of El Salvador and Nicaragua." *The Review of Economics and Statistics*, 77:137-146.

Gammeltoft, P.
2002 "Remittances and Other Financial Flows to Developing Countries." *International Migration,* 40:181-211**.**

Goza, F.
1994 "Brazilian Immigration to North America." *International Migration Review*, 28:136-152.

Goza, F.
1999 "Brazilian Immigration to Ontario." *International Migration,* 37:765-789**.**

Goza, F. and A. DeMaris
2003 "Unemployment Transitions among Brazilians in the United States and Canada." *International Migration*, 41:127-152.

Glystos, N.
2002 "The Role of Migrant Remittances in Development: Evidence from Mediterranean Countries." *International Migration,* 40:5-27**.**

Hunte, C.
2004 "Workers' Remittances, Remittance Decay and Financial Deepening in Developing Countries," *American Economist* 48: 82–94.

International Monetary Fund.
2007 *Balance of Payments Statistics Yearbook, Volume 58, Part 1: Country Tables*. Washington, D.C.: International Monetary Fund.

Itzigsohn, J.
1995 "Migrant Remittances, Labor Markets, and Household Strategies: A Comparative Analysis of Low-Income Household Strategies in the Caribbean Basin." *Social Forces*, 74:633-655.

Karafolas, S.
1998 "Migrant Remittances in Greece and Portugal: Distribution by Country of Provenance and the Role of the Banking Presence." *International Migration,* 3:357-381.

Keely, C., and B. Tran.
1989 "Remittances from Labor Migration: Evaluations, Performances and Implications. *International Migration Review*, 23:500-525.

Koc, I., and Onan, I.
2004 "International Migrants' Remittances and Welfare Status of the Left-Behind Families in Turkey." *International Migration Review,* 38:78-112.

Lianos, T.
1997 "Factors Determining Migrant Remittances: The Case of Greece." *International Migration Review*, 31:72-87.

Lucas, R., and O. Stark.
1985 "Motivation to Remit: Evidence from Botswana*." Journal of Political Economy*, 93:901-918.

Lundahl, M.
1985 "International Migration, Remittances and Real Incomes: Effects on the Source Country*." Scandinavian Journal of Economics*, 87:647-657.

Massey, D., and L. Basem.

1992 "Determinants of Savings, Remittances and Spending Patterns among Mexican Migrants to the United States." *Sociological Inquiry*, 62:186-207.

Massey, D., and E. Parrado.
1994 "Migradollars: The Remittances and Savings of Mexican Migrants to the USA." *Population Research and Policy Review*, 12:3-30.

Margolis, M.
1994 *Little Brazil*. Princeton: Princeton University Press.

-----.
1998 *An Invisible Minority: Brazilians in New York City*. Needham Heights, MA: Allyn & Bacon.

Menjívar, C., J. Da Vanzo and L. Greenwell.
1998 "Remittance Behavior among Salvadoran and Filipino Immigrants in Los Angeles." *International Migration Review*, 32:97-126.

McDonald, J., and R. Moffitt.
1980 "The Uses of Tobit Analysis." *The Review of Economics and Statistics*, 62,:318-321.

Multilateral Investment Fund of the Inter-American Development Bank (MIP-IAD)
2001 Survey of Remittance Senders: U.S. to Latin America. Report by Bendixen & Associates. Washington, DC: Multilateral Investment Fund.

Orozco, M.
2006 "Understanding the remittances economy in Haiti." Inter-American Dialogue paper commissioned by the World Bank.

Orozco, M., M. Bump, R. Fedewa and K. Sienkiewicz
2005 Diasporas, Development and Transnational integration: Ghanaians in the U.S., U.K. and Germany. Washington, DC: Institute for the Study of International Migration and the Inter-American Dialogue.

Ratha, D., S. Mohapatra, K. Vijayalakshmi, and Z. Xu.
2008 Migration and Development Brief 5: Revision to Remittance Trends 2007. Washington, D.C.: World Bank.

Reichart, J.
1981 "The Migration Syndrome: Seasonal US Wage Labor and Rural Development in Central Mexico." *Human Organization,* 40: 56–66.

Reichart, J.
1982 "Social Stratification in a Mexican Sending Community: The Effect of Migration to the United States." *Social Problems*, 29:422-33.

Reitz, J.

2003 "Host societies and the Reception of Immigrants: Research Themes, Emerging Theories, and Methodological Issues." In *Host societies and the Reception of Immigrants*. Edited by J. Reitz. La Jolla, CA: Center for Comparative Immigration Studies. Pp. 1-18.

-----.
1998 *Warmth of the Welcome: The Social Causes of Economic Success for Immigrants in Different Nations and Cities*. Boulder, CO: Westview Press.

Russell, S.
1992 "Migrant Remittances and Development." *International Migration*, 30:267-287.

-----.
1986 "Remittances from International Migration: A Review in Perspective." *World Development*, 14:677-696.

Sana, M.
2005 "Buying Membership in the Transnational Community: Migrant Remittances, Social Status, and Assimilation." *Population Research and Policy Review,* 24:231-261.

Sales, T.
2003 *Brazilians Away from Home*. New York: CMS Press.

Semyonov, M., and A. Gorodzeisky.
2005 "Labor Migration, Remittances and Household Income: A Comparison between Filipino and Filipina Overseas Workers." *International Migration Review*, 39:45-68.

Sofranko, A., and K. Idris.
1999 "Use of Overseas Migrants' Remittances to the Extended Family for Business Investment: A Research Note." *Rural Sociology,* 64(3):464-481.

Stahl, C., and F. Arnold.
1986 "Overseas Worker's Remittances in Asian Development." *International Migration Review*, 20:899-925.

Stalker, P.
1994 *The Work of Strangers: A Survey of International Labour Migration*. Geneva: International Labour Office.

Statistics Canada.
1986-2005 *Touriscope - International Travel Between Canada, the United States and Other Countries*. Ottawa: Statistics Canada.

Swamy, G.
1981 International Migrant Workers' Remittances: Issues and Prospects. *World Bank Staff Working Paper No. 481*. Washington, D.C.: The World Bank.

Taylor, J.
1999 "The New Economics of Labour Migration and the Role of Remittances in the Migration Process." *International Migration,* 37(1):63-88.

Tilly, C.
1994 "The Weight of the Past on North American Immigration." *Research Paper #189*. Toronto: University of Toronto, Centre for Urban and Community Studies.

Warnes, T.
1992 "Migration and the Life Course." *In Migration Processes and Patterns Systems: A Global Approach, Vol. 1, Research Progress and Prospects*. Edited by T. Champion and T. Fielding. London: Bellhaven Press. Pp. 175-187.

Wiest, R
1984 "External Dependency and the Perpetuation of Temporary Migration to the United States." *In Patterns of Undocumented Migration: Mexico and the United States*. Edited by R. Jones Totowa, NJ: Rowman and Littlefield. Pp. 110–35.

Wood, C., and T. McCoy.
1985 "Migration, Remittances and Development: A Study of Caribbean Cane Cutters in Florida. *International Migration Review*, 19:251-277.

TABLE 1
Remittances Sent to Brazil per Year and the Number
of U.S. and Canadian Non-Immigrant Visas Issued to Brazilians

Year	Remittances in Millions of Dollars[a]	Annual Percentage Increase in Remittances	Number of Non-Immigrant Visas Issued for USA[b]	Annual Percentage Increase in USA Visas	World Rank for US Non-Immig. Visas	Number Tourist Enterin Canada
1987	NA	NA	244,472	NA	6	23,495
1988	19	NA	289,629	18.47	9	31,511
1989	88	363.16	332,617	14.84	8	33,986
1990	527	498.86	377,284	13.43	8	35,475
1991	1,057	100.57	495,043	31.21	7	36,335
1992	1,719	62.63	486,241	-1.78	7	28,599
1993	1,123	-34.67	548,978	12.90	8	29,033
1994	1,834	63.31	622,220	13.34	6	35,330
1995	2,891	57.63	829,198	33.26	6	49,359
1996	1,866	-35.45	882,952	6.48	6	40,600
1997	1,324	-29.05	NA	NA	NA	55,200
1998	963	-27.27	934,675	NA	6	55,900
1999	1,190	23.57	801,665	-14.23	7	58,800
2000	1,112	-6.55	762,559	-4.88	9	45,500
2001	1,178	5.94	733,941	-3.75	9	50,100
2002	1,711	45.25	576,442	-21.46	9	37,000
2003	2,018	17.94	497,024	-13.78	9	35,300
2004	2,459	21.85	512,992	3.21	11	42,900

Sources: (a) Balance of Payments Statistics Yearbook, Country Tables, various years and volumes, International Monetary Fund, Washington, D.C.; (b) Report of the Visa Office, various years, United States Department of State, Bureau of Consular Affairs, Washington, D.C.; (c) Touriscope - International Travel Between Canada, the United States and Other Countries, various years, Statistics Canada, Ottawa.

TABLE 2

Description of Variables Used in Analyses of
Remittances to Brazil from North America

Independent Variables	*VARIABLE DEFINITION*
Age	Age in complete years.
Age Squared	Age in complete years squared.
Race	1 = white; 0 = nonwhite.
High School Grad.	1 = high school graduate or beyond; 0 = otherwise.
Male	1 = male; 0 = female.
Minas Gerais Native	1 = born in Minas Gerais; 0 = born elsewhere in Brazil.
Months in North America	Number of complete months in North America.
Months in North America Squared	Number of complete months in North America squared.
Income Tax Return Files	1 = Federal income tax return filed; 0 = otherwise.
Desires to Permanently Remain in North America	1 = Desired to stay; 0 = otherwise.
English Fluency	1 = if speaks English well or better; 0 = otherwise.
Monthly Earnings	Computed as monthly earnings/100
Legal Status	1 = legal; 0 = otherwise.
Spouse in Brazil	1 = if spouse in Brazil; 0 = otherwise.
No. of Minor Children in Brazil	Number of children less than 21 years of age in Brazil.
No. of Relatives in North America	Number of relatives who reside in the same North American nation as the respondent.
Dependent Variables	*VARIABLE DEFINITION*
Remit	1 = if remits; 0 = otherwise.
Amount Remitted	Amounted remitted per month in U.S. dollars
Remits for Investment Purposes	1 = if remits for productive purposes; 0 = otherwise.

TABLE 3

DESCRIPTIVE STATISTICS FOR VARIABLES USED IN ANALYSES OF REMITTANCES TO BRAZIL FROM NORTH AMERICA

	Canada		United States		t-test for
Variable	**Mean**	**SD**	**Mean**	**SD**	**Equality of Means**
% Remitting	63.40	0.48	57.95	0.49	n.s.
% Remitting for Prod. Purposes	20.10	0.40	16.41	0.37	n.s.
$ Remitted Monthly [@]	284.20	412.69	241.77	342.45	n.s.
Age	30.32	7.44	32.18	8.67	**
Age Squared	974.61	554.71	1110.33	647.18	**
Race	0.75	0.44	0.68	0.47	n.s.
High School Grad.	0.64	0.48	0.65	0.48	n.s.
Male	0.71	0.45	0.74	0.44	n.s.
M.G. Native	0.65	0.48	0.64	0.48	n.s.
Months in North America	48.53	39.17	42.43	53.88	n.s.
Months in N. Am. Squared	3880.98	8990.25	4688.17	18277.87	n.s.
Monthly Earnings [@]	1849.91	1179.88	1570.89	1002.86	**
Income Tax Filed	0.59	0.49	0.24	0.43	****
Desires to Permanently Stay in N.A.	0.44	0.50	0.28	0.45	****
English Fluency	0.70	0.46	0.47	0.50	****
Legal Status	0.36	0.48	0.17	0.38	****
Spouse in Brazil	0.06	0.23	0.14	0.35	***
▲ Spouse in North America	0.33	0.47	0.35	0.48	n.s.
No. of Minor Children in Brazil	0.46	0.98	0.60	1.13	n.s.
▲ No. of Minor Children in N.A.	0.35	0.75	0.41	0.79	n.s.
No. of Relatives in North America	2.38	4.39	4.09	5.41	****

* p< .10, ** p <.05, *** p<.01, **** p<.001. // N = 195 for the U.S. and 194 for the Canadian samples.

[@] Canadian Dollars were converted to US dollars at 1991 rate of 1.20.

▲ Variables not used in analyses but presented to highlight sample similarities.

TABLE 4
LOGISTIC REGRESSION MODELS PREDICTING
THE LOG ODDS OF REMITTING FUNDS TO BRAZIL, BY COUNTRY

(standard errors in parentheses)

Independent	CANADA				UNITED STATES			
Variable	A	B	C	D	A	B	C	D
Individual Characteristics								
Age	0.215 *			0.109	0.106			0.005
	(0.114)			(0.138)	(0.109)			(0.122)
Age Squared	-0.003 *			-0.001	-0.002			-0.001
	(0.002)			(0.002)	(0.001)			(0.002)
Race	0.171			0.135	0.763 **			0.688 *
	(0.375)			(0.413)	(0.335)			(0.387)
H.S. Graduate	0.991 ***			0.597	0.482			-0.042
	(0.373)			(0.434)	(0.327)			(0.402)
Gender	-0.042			0.388	-0.025			0.123
	(0.350)			(0.405)	(0.339)			(0.394)
Minas Gerais Native	-0.624 *			-0.278	-0.189			-0.462
	(0.336)			(0.387)	(0.324)			(0.389)
Investments in North America								
Months in North America		0.025 *		0.014		0.006		0.014
		(0.014)		(0.016)		(0.009)		(0.011)
Months in N. Am. Squared		0.000 **		0.000		0.000		0.000
		(0.000)		(0.000)		(0.000)		(0.000)
Desires to Permanently Remain in North America		0.164		0.206		-0.373		-0.450
		(0.332)		(0.344)		(0.347)		(0.409)
Monthly Earnings		0.026 *		0.029 *		0.027		0.016
		(0.014)		(0.015)		(0.018)		(0.020)
Legal Status		1.026 ***		0.797 *		0.539		0.545
		(0.385)		(0.420)		(0.522)		(0.571)
English Fluency		0.566		(0.217)		0.681 **		0.235
		(0.377)		(0.421)		(0.332)		(0.401)
Income Tax Return Filed		-0.661		-0.722		-0.258		-0.379
		(0.427)		(0.473)		(0.453)		(0.500)
Family Obligations								
Spouse in Brazil			-1.210	-1.193			-0.767	-0.975
			(1.122)	(1.196)			(0.648)	(0.766)
Number of Minor Children in Brazil			0.279	0.238			0.490 **	0.932 ***
			(0.205)	(0.239)			(0.218)	(0.297)
Number of Relatives in North America			-0.048	0.003			-0.066 **	-0.092 **
			(0.035)	(0.046)			(0.031)	(0.036)
Model chi-square	18.203 ***	30.579 ****	9.383 **	39.598 ****	11.490 *	10.217	24.454 ****	50.897 ****
Degrees of Freedom	6	7	3	16	6	7	3	16

Source: BGSU - "Brazilian Immigration to Ontario, 1991" and "Brazilian Immigration to the United States, 1990."

* p< .10, ** p <.05, *** p<.01, **** p<.001. // N = 195 for the U.S. and 194 for the Canadian samples.

TABLE 5
TOBIT COEFFICIENTS PREDICTING MONTHLY AMOUNT REMITTED TO BRAZIL, BY COUNTRY

(standard errors in parentheses)

Independent	CANADA				UNITED STATES			
Variable	A	B	C	D	A	B	C	D
Individual Characteristics								
Age	23.711			13.933	2.660			-27.691
	(33.303)			(35.339)	(28.916)			(28.841)
Age Squared	-0.456			-0.286	-0.061			0.165
	(0.458)			(0.472)	(0.393)			(0.394)
Race	-8.092			2.181	-117.924			-67.282
	(99.894)			(95.155)	(84.115)			(80.493)
H.S. Graduate	-169.690 *			-141.590	-102.949			18.137
	(94.661)			(97.619)	(83.826)			(86.870)
Gender	31.626			-148.854	99.851			44.022
	(98.051)			(100.096)	(90.993)			(89.863)
Minas Gerais Native	202.148 **			134.125	100.352			98.864
	(98.156)			(95.494)	(86.761)			(82.724)
Investments in North America								
Months in North America		2.679		0.058		1.698		3.541
		(3.892)		(4.114)		(2.320)		(2.452)
Months in N. Am. Squared		-0.033 **		-0.023		-0.006		-0.010
		(0.017)		(0.017)		(0.007)		(0.007)
Desires to Permanently Remain in North America		9.215		8.134		12.893		17.911
		(83.338)		(82.023)		(89.219)		(87.524)
Monthly Earnings		0.192 ****		0.206 ****		9.170 **		4.083
		(0.040)		(0.042)		(4.317)		(4.359)
Legal Status		-119.100		-48.775		-100.541		-90.683
		(96.005)		(100.980)		(139.540)		(132.126)
English Fluency		-87.032		-47.169		-153.287 *		-70.805
		(90.279)		(95.542)		(89.107)		(90.958)
Income Tax Return Filed		58.992		43.142		-35.257		1.930
		(107.247)		(115.009)		(118.989)		(112.047)
Family Obligations								
Spouse in Brazil			136.919	75.221			349.675 ***	322.627 **
			(206.381)	(188.701)			(121.464)	(126.282)
Number of Minor Children in Brazil			0.131	2.821			31.726	83.687 *
			(50.706)	(52.147)			(38.457)	(42.903)
Number of Relatives in North America			-15.670	0.738			-18.608 **	-22.637 ***
			(11.596)	(12.799)			(8.128)	(8.323)
Model chi-square	14.450 **	36.220 ****	2.800	44.450 ***	7.710	8.340	25.050 ****	41.200 ****
Degrees of Freedom	6	7	3	16	6	7	3	16
Pseudo R Squared	0.007	0.018	0.001	0.022	0.004	0.005	0.014	0.022

Source: BGSU - "Brazilian Immigration to Ontario, 1991" and Brazilian Immigration to the United States, 1990."
*** p< .10, ** p <.05, *** p<.01, **** p<.001. // N = 195 for the U.S. and 194 for the Canadian samples.**
71 left-censored observations for the Canadian sample and 82 for the U.S. one at monthly remittances= 0.

TABLE 6
LOGISTIC REGRESSION MODELS PREDICTING THE LOG ODDS OF REMITTING FUNDS FOR INVESTMENT PURPOSES TO BRAZIL, BY COUNTRY

(standard errors in parentheses)

Independent	CANADA				UNITED STATES			
Variable	A	B	C	D	A	B	C	D
Individual Characteristics								
Age	-0.011			0.341	-0.328 *			-0.378
	(0.283)			(0.313)	(0.187)			(0.254)
Age Squared	-0.001			-0.005	0.004 *			0.006
	(0.004)			(0.005)	(0.003)			(0.004)
Race	-0.735			-0.628	-0.641			-0.851
	(0.499)			(0.547)	(0.477)			(0.570)
H.S. Graduate	-0.169			0.411	-0.315			-0.506
	(0.446)			(0.546)	(0.469)			(0.626)
Male	-0.079			-0.079	0.088			0.207
	(0.465)			(0.555)	(0.503)			(0.618)
Minas Gerais Native	0.472			0.185	-1.106 *			-1.255 *
	(0.473)			(0.560)	(0.566)			(0.694)
Investments in North America								
Months in North America		-0.020		-0.024		0.033 **		0.049 **
		(0.023)		(0.026)		(0.015)		(0.020)
Months in N. Am. Squared		0.000		0.000		0.000 *		0.000 **
		(0.000)		(0.000)		(0.000)		(0.000)
Desires to Permanently Remain in North America		0.481		0.598		0.423		0.489
		(0.425)		(0.471)		(0.503)		(0.607)
Monthly Earnings		0.002		-0.001		0.014		0.056
		(0.017)		(0.021)		(0.030)		(0.037)
Legal Status		-0.848 *		-1.191 **		0.749		0.687
		(0.498)		(0.599)		(0.827)		(0.900)
English Fluency		-0.540		-0.313		-0.806		-0.480
		(0.466)		(0.547)		(0.492)		(0.623)
Income Tax Return Filed		0.500		1.032		1.286 *		2.206 **
		(0.593)		(0.741)		(0.728)		(0.925)
Family Obligations								
Spouse in Brazil			19.004	19.208			-0.232	0.440
			(12239.674)	(11421.986)			(0.756)	(0.986)
Number of Minor Children in Brazil			-0.788 **	-0.977 **			-0.732 **	-0.753 *
			(0.381)	(0.425)			(0.320)	(0.410)
Number of Relatives in North America			0.041	0.024			-0.015	-0.060
			(0.062)	(0.081)			(0.055)	(0.079)
Model chi-square	8.995	9.157	15.755 ****	31.006 **	12.151 *	9.760	9.506 **	31.888 **
Degrees of Freedom	6	7	3	16	6	7	3	16

Source: BGSU - "Brazilian Immigration to Ontario, 1991" and Brazilian Immigration to the United States, 1990."
* p< .10, ** p <.05, *** p<.01, **** p<.001. // N = 123 for the Canadian and 113 for the U.S.samples.