

Preliminary and incomplete.

Remittances and the Problem of Control: A Field Experiment Among Migrants from El Salvador

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Abstract

While remittance flows to developing countries are very large in magnitude, it is unknown whether migrants desire more control over the uses to which remittances are put. This research uses a randomized field experiment to investigate the importance of migrant control over the use of remittances. In partnership with a large Salvadoran bank, we offered US-based migrants from El Salvador the opportunity to channel remittances into savings accounts in their home country. Migrants were randomly allocated varying amounts of control over El Salvador-based savings. The results provide evidence that migrants seek to control savings accumulation by remittance recipients back home. When migrants have the option of greater control over El Salvador-based savings accounts, they are more likely to open such accounts and accumulate more savings in them. The effect is large in magnitude: from a base of roughly \$400, savings more than double when migrants have the option of full control over accounts, compared to roughly zero savings growth in the control group. Other results suggest that migrants use enhanced control to improve their bargaining power over the savings behavior of recipients, rather than saving autonomously in their own accounts.

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I. Introduction

Between 1965 and 2000, individuals living outside their countries of birth grew from 2.2% to 2.9% of world population, reaching a total of 175 million people in the latter year.¹ The remittances that these migrants send to origin countries are an important but relatively poorly understood type of international financial flow. Migrant remittances compare in magnitude to other important financial flows destined for developing countries, such as official development assistance and direct foreign investment. In 2007, migrant remittances sent to developing countries amounted to US\$251 billion.² Improvements in remittance data collection and continued immigration flows to developed countries have generated substantial recent interest in the remittance phenomenon, as evidenced by a proliferation of recent policy-oriented reports.³

Recent research in the economics of migration has documented several beneficial impacts of remittance flows on household well-being and investments. Households in the Philippines experiencing exogenous increases in remittances become more likely to leave poverty status, to send their children to school, and to invest in new entrepreneurial enterprises (Yang and Martinez 2005, Yang 2006, Yang 2008b). In El Salvador, households receiving more remittances have higher rates of child schooling (Cox-Edwards and Ureta 2003). In Guatemala, households receiving remittances tend to invest more in education, health and housing (Adams 2005), and international remittances are associated with lower depth and severity of poverty (Adams 2004). In Mexico, households with migrants invest more in small businesses than households without migrants (Woodruff and Zenteno 2007). In addition, remittances appear to serve as insurance, rising in the wake of negative shocks (Yang and Choi 2007, Yang 2008a).

To date, however, we know very little about how migrants make their remittance-sending decisions. In particular, it is unknown whether migrants desire greater control over how family members back home use the remittances they receive. Do migrants and

¹ Estimates of the number of individuals living outside their countries of birth are from United Nations (2002), while data on world population are from U.S. Bureau of the Census (2002).

² Ratha et al (2008).

³ Reports funded by the Multilateral Investment Fund of the Inter-American Development Bank include Pew Hispanic Center (2002) and Terry and Wilson (2005). The World Bank has also funded substantial publications on the topic, such as World Bank (2006) and World Bank (2007).

remittance recipients typically agree on the uses to which remittances should be put? If not, are migrants able to control how remittances are spent by recipients? How does lack of control affect the number of people remitted to, the amounts remitted, and the uses to which remittances are put? In the absence of control, do migrants simply send remittances as “gifts” with no attempt to direct their use? If migrants were to be given more control over remittance uses, how would they direct them to be used? A better understanding of these questions could have substantial impact on public policy, by suggesting policies to further stimulate remittance flows and potentially channel them towards more productive uses in migrant source countries.

This paper focuses on better understanding the extent to which remittance flows are reduced by the fact that migrants have no direct control over how remittances are used by recipients. Migrants may have greater preferences for investment and savings than recipient households, but can only imperfectly monitor how remittances are spent. Without direct control over the use of remittances, therefore, migrants may choose to keep their earnings overseas and to remit less. This research aims to shed light on the extent to which migrants’ lack of direct control over the use of remittances affects remittance flows, and on the impact of new financial products that could increase migrant control.

We focus on improving the ability of migrants to ensure that remittances are deposited and accumulated in savings accounts in the home country. In survey data collected as part of this study, U.S.-based migrants from El Salvador report that they would like recipient households to save 21.2% of remittance receipts, while recipient households prefer to save only 2.6% of receipts. Migrants often intend the savings to be for the use of the recipient household in the future, but such savings also can be intended for the migrant’s future use. In the latter case, migrants may send their own funds to be saved in El Salvador because they perceive savings held in the U.S. as relatively insecure (particularly for undocumented migrants who fear deportation and loss of their assets).

We designed a field experiment that offered new facilities for Salvadoran migrants to directly channel some fraction of their remittances into savings accounts in El Salvador. We developed these savings facilities in conjunction with Banco Agrícola, El Salvador’s largest bank. To isolate the importance of migrant control over savings, we

test demand for different products that offer migrants varying levels of control. For example, we investigate differential demand for savings accounts that must be solely in the name of a remittance recipient in El Salvador, versus accounts that are either jointly owned with the migrant or for which the migrant is the sole owner. In addition to raising savings rates in migrant families, these new facilities have the potential to stimulate household-level investments (in, for example, education, health, housing, and entrepreneurship) that would be paid for via the accumulated savings.⁴

Impact evaluation uses a treatment-control framework. Migrants in the sample are randomly allocated to be offered one of three different savings facilities, or to a control group that is offered no new savings facilities. An innovative aspect of the project is that baseline surveys are administered to both migrants in the U.S. and their corresponding remittance-receiving households in El Salvador. Such matched migrant/source-household surveys are rarely attempted, and so the resulting dataset will be extremely valuable for migration researchers interested in capturing a complete picture of the socio-economic situation of migrant families.

This research makes new contributions to a large literature in economics on intra-household decision-making. Attempts to understand the extent and nature of conflict between household members are central to research on the economics of the family, in both developed and developing countries. A wide variety of empirical studies have cast serious doubt on the “unitary model” of the household, the proposition that the joint actions of a household comprised of separate optimizing individuals can be represented as the actions of a single utility-maximizing agent.⁵

More recent models therefore take explicit account of potential preference differences among household members. Manser and Brown (1980) and McElroy and Horney (1981) model the allocation of household resources as the solution to a Nash cooperative bargaining problem, where the extent to which an individual’s preferences hold sway depends on his or her “threat point” (utility in the event of household dissolution or divorce). Lundberg and Pollak (1993) assume instead that the threat point

⁴ The impact of our experimental treatments on these later outcomes in recipient households in El Salvador will be the subject of future companion papers.

⁵ See the review in Strauss and Thomas (1995), as well as, more recently, Duflo (2003), Rangel (2006), and Martinez (2006).

is determined by a non-cooperative equilibrium within the household. Browning and Chiappori (1998) make the more minimal assumption that households achieve efficiency of resource allocation; their empirical tests provide evidence in favor of the efficient household model, rejecting the unitary model. However, even the minimal assumption of efficiency has been called into question by Udry (1996), who finds productive inefficiencies in resource allocation across male- and female-controlled farm plots in Burkina Faso, and Dubois and Ligon (2003), who document intra-household allocative inefficiencies in the Philippines.

A leading candidate explanation for observed inefficiencies is asymmetry of information in the household, so that family members cannot monitor each other well enough to enforce mutually-beneficial cooperative agreements. This idea has motivated new research that focuses on households with migrant members, because—due to the absence of the migrant member—these are households where information asymmetries are likely to be particularly pronounced. Overseas migrants may not share the same objectives as family members remaining back home, in particular regarding the use of remittances. For example, migrants may prefer that remittances be saved or invested, while remittance recipients may prefer consumption over investment.⁶ When overseas migrants cannot perfectly monitor how recipients use remittances, remittance amounts may be lower than under perfect information. De Laat (2005) shows that male Kenyan migrants spend considerable resources monitoring their rural wives, consistent with the existence of moral hazard in wives' implementation of husbands' remittance instructions. Chen (2006) finds evidence in China that non-cooperative behavior by wives when husbands have migrated is greater for behaviors that are more difficult to monitor.

This research also contributes to our understanding of the use of financial services by poor and particularly immigrant populations in the United States. Existing survey work has documented that Hispanics in the U.S. are less likely to have bank accounts than the native white population.⁷ Jankowski, Porter, and Rice (2007) document that demand for US\$100 bills is higher in Chicago zip codes that have higher immigrant (and

⁶ Ashraf (forthcoming) shows that husbands and wives change whether they choose to consume or save their money when they are being observed by their spouse.

⁷ The 2001 National Survey of Latinos finds that, like Latinos in general, Salvadorans in the US tend to be less likely to use financial products than whites or African-Americans. Only 67% of Salvadorans have a bank account, compared with 76% of African-Americans and 95% of whites.

specifically Hispanic) population shares. They interpret this as evidence that Hispanic immigrants have poor access to formal savings facilities, leading them to resort to cash savings (\$100 bills are preferred for cash savings due to reduced bulkiness). To our knowledge, however, ours is the first study to examine demand for savings facilities by immigrants in the U.S., and in particular how the level of migrant control over such facilities influences demand.

This study assesses whether conflict and information asymmetries in the household lead to lower remittances, and whether innovative financial products—that give migrants direct control over savings—encourage migrants to raise their remittance amounts. This is the first randomized field experimental examination of remittance-related financial services among migrants in a developed country. Comparisons across the various treatment conditions will reveal the impact of migrant control on account take-up, remittances, and savings growth. This research represents a substantial improvement over existing (non-experimental) studies which must infer the existence of control problems indirectly, and where the direction of causation is not known with certainty.

Our results provide support for the hypothesis that a desire for control over remittance uses—in particular, control over the extent to which remittances are saved in formal savings accounts—is quantitatively large and has an important influence on financial decision making by migrants. Across the experimental conditions in our sample, migrant demand for savings accounts is higher when migrants have the option of greater control over the accounts. When migrants have the option of joint or sole ownership of the account, the post-treatment account ownership rate is 53.3%, compared to only 33.2% when the offered account can be in the remittance recipient's name only. What's more, when migrants have the option of greater control over El Salvador-based savings accounts, they also accumulate more savings in them: from a base of roughly \$400, savings more than double when migrants have the option of full control over accounts, compared to roughly zero savings growth in the control group. Other results suggest that migrants use enhanced control to improve their bargaining power over the savings behavior of recipients, rather than saving autonomously in their own accounts.

The remainder of this paper is organized as follows. Section 2 briefly reviews the potential impacts of increasing migrant control over remitted resources from a theoretical standpoint. Section 3 provides an overview of the study design. Section 4 describes the characteristics of the sample and in particular investigates migrant and recipient expressed preferences over remittance uses. Section 5 presents the empirical results, and Section 6 concludes.

II. Potential Impacts of Migrant Control

When thinking about the potential impact of facilities that give migrants more control over savings back home, it makes sense to consider two types of effects: 1) effects on the savings rate in the household (considering the migrant overseas plus the family back home as a single household unit), holding remittance amounts constant, and 2) effects on the amount of remittances sent.⁸

If households and migrants have identical preferences, greater migrant control should not affect the household savings rate, nor should it affect the amount of remittances sent. In this situation, even without the migrant-controlled or -monitored savings facilities, migrants could send resources to households with confidence that households would save the same fraction the migrant would if he or she were at home making the saving decisions. However, if migrants and households have different preferences, then the migrant could respond to this difference by sending fewer remittances.

Consider a simple two-period example where migrants derive utility from their own consumption as well as the utility of family members back home in the current and a future period. Households back home have analogous utility functions, into which enters both the household's consumption and the migrant's utility in current and future periods. Imagine for simplicity that migrants do not have access to savings mechanisms overseas,

⁸ The effect of offering such the new savings facilities on both the selection of migrants, and their probability of return to their home countries, is a longer-term question that could be answered in subsequent follow ups to this study.

while households back home do, so that the only way for migrants to save is to send money home for family members to save on their behalf.

If migrants and family members discount the future at similar rates, then migrants keep only what they need for consumption and remit the remainder to be saved by the household back home. Households back home save exactly as much as the migrant would have him- or herself.

The interesting case arises when migrants discount the future at a different rate than family members back home. Assume, in particular, that migrants discount the future at a lower rate than (are more patient than) family members back home.⁹ For the moment, take the amount of remittances sent home as constant, so that the only choice variable is the fraction of remittances saved. Then, if the only way for migrants to save is for them to remit and have households save on their behalf, savings will be lower than the migrant would have preferred. By contrast, if migrants are given the ability to directly control the fraction of remittances that are saved, then savings will be higher due to the migrants' lower discount rate.

What's more, it is reasonable to expect that the amount of remittances would also change if migrants were given more control over savings back home. Migrants might work more hours, and consume less overseas, so that they could remit more home and directly control what fraction of those remittances were saved.

All told, then, providing a migrant the direct ability to control savings in the home country can lead both to higher remittances and a greater savings rate in the household. In essence, the migrant enjoys greater utility from remittances when she has control over the fraction saved, and therefore chooses to send more remittances home.¹⁰ Migrants may also raise their earnings and reduce their current consumption overseas if they have access to and control over savings facilities in the home country.

III. Study Design

⁹ This assumption is supported by survey evidence (described below) that migrants would prefer a much higher proportion of remittances be saved than do remittance-recipient households.

¹⁰ For this result to hold, it must be true that the migrant applies his or her own discount rate when discounting the household's future utility. An alternative model where the migrant applied the household's (higher) discount rate would not necessarily make such a prediction.

A. Focus on El Salvador

For several reasons, El Salvador is well-suited for this study. It is highly unusual among developing countries in its number of overseas migrants relative to the national population: at least one in seven Salvadorans lives outside of the country, primarily in the United States. Estimated total personal income of Salvadorans living in the United States was \$13.3 billion in 2001, roughly equal to El Salvador's GDP in that year.¹¹ In 2001, the number of Salvadorans living in the United States was between 0.8 and 1.1 million.¹² Large flows of Salvadorans into the US started with the civil war in 1980, and have continued at a remarkably steady pace since the war ended in 1992. The number of Salvadorans in the US rose substantially from 1990 to 2000 (by anywhere from 68% to 81%, depending on definitions). Concurrent with the expansion of Salvadorans overseas, the dollar value of remittances sent to El Salvador has also grown dramatically, from \$790 million to \$3.3 billion between 1991 and 2006.

B. Treatment Interventions

We partnered with a financial institution in El Salvador, Banco Agrícola, to design the savings facilities used in this project. These savings facilities either did not exist previously (in the case of treatments 2 and 3 below), or migrants in the U.S. did not have the ability to open them from outside El Salvador (in the case of treatment 1). In order to ascertain causal impacts, we randomly assigned clients to one of three treatment groups or a control group.

Migrants in the control group (labeled treatment 0) were not offered any new products. There were three treatment groups, labeled 1, 2, and 3. The presence of the control group allows us to estimate the ongoing change in remittances or savings that would have occurred had none of the products been offered. A subset of participating migrants and their household members back home were surveyed at baseline (prior to the

¹¹ Estimated total personal income of Salvadoran-born and self-identified Salvadorans in the US from the year 2001 round of U.S. government's Census 2000 Supplementary Survey (C2SS). The data on Salvadorans in the US are from the 2001 round of the U.S. Census 2000 Supplementary Survey, a nationally-representative US household survey covering some 700,000 households.

¹² Depending on the definition of "Salvadoran".

product offer). A follow-up round of the survey is planned to occur 12 months after the product offer to test the impact of the product on total remittance receipts, savings rates, the composition of household expenditures, and other outcomes such as household asset ownership, savings, and entrepreneurship. Prior to the administration of the follow-up survey, data on savings growth in the accounts and on remittances will be obtained from internal databases of the partner institution, Banco Agricola.

Treatment 0 (control group): Generic encouragement to save

This is the control condition. Migrants in this condition were visited by a marketer who gave them a generic speech encouraging them to save. Marketers described the uses and benefits of savings and encouraged migrants to save. Aside from the VIP card, marketers offered no new savings facility to migrants.

A generic encouragement to save was included in the control condition to ensure that any increases in savings seen in treatments 1, 2, or 3 (vs. corresponding changes in treatment 0) is not due simply to the “pitch” provided by the marketers. Because the “pitch” is provided to migrants in the control condition as well, any increases in savings in treatments 1, 2, or 3 must be due to the offer of the new savings facilities.

Treatment 1: Remitting into a household member's account

In the remaining treatment conditions (1, 2, and 3), marketers also made a generic speech encouraging migrants to save and provided the VIP card. But unlike in treatment 0, in treatments 1, 2, and 3 the marketer then offered to help set up a specific type of savings account into which migrants could remit.

In treatment 1, marketers emphasized that migrants could save by remitting into a bank account in the name of an individual in El Salvador. They then offered to help the individual in El Salvador open an account into which migrants can remit. If migrants were interested, they filled out forms to provide the name, address, and phone number of the individual in El Salvador who they wanted to open an account. The marketer offered to let the migrant use a project cell phone to call the person in El Salvador during the visit

to inform them of the new account. Within the next few days, project staff arranged by phone for the El Salvador individual to meet with the branch manager of the nearest Banco Agrícola branch in El Salvador to complete the final account-opening procedures in person.

Because the account offered in treatment 1 is in the name of someone in El Salvador, takeup and use of this account will reflect the extent to which migrants trust or are satisfied with the savings preferences of remittance recipients. Migrants may also use a recipient's savings account as a safe and convenient destination for remittances to that recipient. While remittances sent as cash need to be redeemed in cash with a bank teller in a branch, remittances sent into a bank account can be taken out in cash (if at all) at the recipient's convenience and via a wide network of ATMs across the country.

Treatment 2: Joint account for migrant and household

In treatment 2, after the initial pitch, marketers offered migrants a new savings facility that was designed for this project, called "Cuenta Unidos". This savings facility is a joint account in the name of the migrant as well as a designated individual in El Salvador. Joint account owners in both the US and El Salvador have ATM cards and full access to the account information. Migrants can deposit funds into the account via remittances, and can withdraw using their ATM card via US ATMs. Joint account owners in El Salvador can deposit and withdraw using their ATM cards or via normal banking operations with bank tellers.

If migrants were interested they filled out account-opening forms. As in treatment 1, migrants provided contact information for the joint account holder in El Salvador, and marketers and other project staff facilitated the account opening process on the El Salvador side (by offering the migrant a free call on their project cell phone and arranging the account opening appointment in El Salvador).

Compared to treatment 1, treatment 2 provides the migrant the ability to monitor the savings account of family members, but it does not provide full control over the funds. Indeed, the joint account holder in El Salvador has complete freedom to withdraw the entire savings balance from the account should they choose to do so. Therefore, the

difference in takeup and savings growth in treatment 2 vs. treatment 1 will reveal the incremental impact of giving migrants better ability to monitor savings balances. In addition, it could also reflect an increase in the migrant's bargaining power over the funds due to the fact that the migrant is a co-owner of the funds (unlike in treatment 1).

Treatment 2 was also designed to *nest* treatment 1, in that migrants had the option to *not* have joint ownership of the new account if they so wished. We will track whether migrants choose this option and the percentage that do so will provide information on the extent to which migrants care to monitor and jointly control the savings of households in El Salvador.

Treatment 3: Exclusive account for migrant

Treatment 3 nests treatments 2 and 1, while adding an additional savings facility: an account exclusively in the migrant's name, known as "Ahorro Directo". This facility was also newly designed by the project. Ahorro Directo is an account only in the name of the migrant. The migrant could deposit into the account by remitting into it, and received an ATM card for withdrawals at US ATMs.

In the marketing visit for treatment 3, Ahorro Directo and Cuenta Unidos were presented to the migrant simultaneously, and described as complementary products that could be used for different purposes. Ahorro Directo is for funds that the migrant does not want anyone else to access. Cuenta Unidos is for funds the migrant wants to share or co-manage with someone in El Salvador. In addition, migrants were allowed to open an account only in the name of a beneficiary in El Salvador (as in treatment 1).

In Treatment 3, if migrants wanted to open an Ahorro Directo account, we required them to *also* open a Cuenta Unidos account. We instituted this requirement because it was important to keep the account opening or transaction costs as similar as possible across treatments 2 and 3. For the purpose of the study, it is important to be able to interpret any differences in take-up across treatments 2 and 3 as due to an increased ability by migrants to control their savings in treatment 3, and not to a difference in transaction costs. By requiring that migrants wanting an Ahorro Directo also open a Cuenta Unidos, the migrant had to get an individual in El Salvador to physically visit a

Banco Agricola branch and fill out account-opening documents. If we had not instituted this requirement, then the transaction cost for opening an Ahorro Directo would have been much lower than for opening a Cuenta Unidos, because the former would not have required a trip by someone in El Salvador to a Banco Agricola branch. The upshot of this design is that take-up of Ahorro Directo in treatment 3 will be a lower bound of what take-up would have been had we not instituted this requirement. We felt that achieving clarity of interpretation was worth the sacrifice of potentially lower take-up in treatment 3.¹³

In sum, treatment 3 provides the migrant full ability to control funds in a savings account in El Salvador, unlike treatment 2 where ownership is joint with someone else. Any difference in take-up and savings growth in treatment 3 vs. treatment 2 will reveal the incremental impact of giving migrants the ability to exclusively control their savings balances.

C. Estimation Strategy

Two types of outcomes are of interest: (1) take-up rates of the new products, and (2) impacts of the treatments on outcomes such as savings, remittances, educational expenditures, housing investments, and the like. This paper focuses on take-up rates and savings as dependent variables. As data subsequently becomes available we will examine other outcomes as well.

To examine take-up of the new products for treated migrants, let Y_i be the dependent variable of interest (savings, or an indicator variable for account opening). Let $Z1_i$ be an indicator variable for assignment to Treatment 1, $Z2_i$ be an indicator variable for assignment to Treatment 2, and $Z3_i$ be an indicator variable for assignment to Treatment 3.

Estimating the impact of the treatments involves estimating the following regression:

¹³ Note that in treatment 1, the individual in whose name the account is opened must also go to a branch in El Salvador, so transactions costs are also equalized with treatment 1.

$$Y_i = \delta + \alpha_1 Z1_i + \alpha_2 Z2_i + \alpha_3 Z3_i + X_i' \phi + \mu_i \quad (1)$$

Coefficients α_1 , α_2 , and α_3 are the impact on the dependent variable of Treatments 1, 2, and 3 (respectively). The difference ($\alpha_3 - \alpha_2$) represents the difference in the impact of Treatment 3 vis-à-vis Treatment 2, and the difference ($\alpha_2 - \alpha_1$) represents the difference in the impact of Treatment 2 vis-à-vis Treatment 1. X_i is a vector of baseline control variables (which for now are limited to savings in November 2006, prior to the beginning of the study) and fixed effects. μ_i is a mean-zero error term.

If α_1 were positive and statistically significantly different from zero, this would be evidence that the account-opening assistance was effective and that some migrants value remitting into the savings account of someone else in El Salvador. If the differences $\alpha_3 - \alpha_2$ and $\alpha_2 - \alpha_1$ are similarly positive and statistically significantly different from zero, this would be evidence in favor of the study's hypothesis that migrants value the ability to monitor or control their savings.

IV. Summary statistics from baseline survey

The sample consists of migrants from El Salvador who received a marketing visit carried out by a project team member. To screen out individuals who were likely to have relatively weak ties to the home country, enrollment into the study was limited to Salvadorans who had made their first entry into the U.S. within the last 15 years, and who had sent a remittance to someone in El Salvador within the last 12 months. Survey and treatment protocols are described in more detail in the Appendix.

For all 1,451 DC-area migrants who received a marketing visit, baseline data are available on the following variables that were collected at the beginning of the interaction (before any new financial product was offered): gender, whether the individual has a US bank account, relationship to the primary remittance recipient (parent, spouse, child, or other), a categorical variable for years in the U.S. (0-5 years, 6-10 years, 11-15 years), and the migrant's allocation of remittance raffle winnings across various expenditure categories (see below for more detail on the remittance raffle questions).

A subset of migrants who received a marketing visit were recruited beforehand and were administered a comprehensive baseline socioeconomic survey prior to the marketing visit (from 6-12 months before). For these migrants surveyed before the marketing visit, we also sent a survey team to interview the household in El Salvador that the migrant identified as his or her primary remittance recipient. We have comprehensive baseline survey data for 900 of the migrants, and for 741 of the households in El Salvador receiving remittances from these migrants.

A. Characteristics of migrants and remittance-receiving households

Summary statistics are presented in Table 1. Migrants in the DC sample are 29% female. Their mean age is 30.9, and mean years in the US is 5.6. 51% of migrants have been in the U.S. for 5 years or less. Only 1% of migrants surveyed are U.S. citizens.

Migrants live in households with a mean of 4.8 individuals. 59% of migrants are married or have an unmarried partner. Of those who are married or partnered, 73% have their partner with them in the US.

Median annual income is \$18,430 for the surveyed migrant, and \$26,840 for the household in which the migrant lives (means are somewhat higher due to large positive outliers). Median annual remittances sent to El Salvador by DC-area migrants is \$3,900. Median remittances as a percentage of migrant household annual income is 16%. Recipient households in El Salvador have median annual income of \$3,540. The most common type of recipient (in terms of familial relationship to migrant) is a parent, accounting for 49% of recipients. Spouses, children, and other relatives account for 14%, 5%, and 32% respectively.

A relatively high fraction of DC-area migrants have bank accounts, but their savings levels are quite low. 53% of migrants have an account in the US only, 7% have an account in El Salvador only, and 10% have an account in both countries (so overall, 70% of migrants already have an account in either the US or El Salvador, or both). Median savings, however, is just \$750, and median savings as a percentage of annual household income in migrant households is 3.0%.

B. Balance of baseline characteristics across treatment groups

To confirm that the randomization across treatments achieved the goal of balance in terms of pre-treatment migrant and recipient household characteristics, Table 2 presents the means of several baseline variables for each treatment group as reported prior to treatment.

The reported P-values are for F-tests of equality of means across the treatment groups, for each variable separately. The first 9 variables listed in table are stratification variables: migrants were first sorted into 48 cells (based on gender, US bank account, relationship to remittance recipient, and years on US category) before randomization into treatments 0, 1, 2, or 3. By design, the likelihood of statistically significant differences in baseline characteristics arising by chance is minimized for these variables, and this is reflected in the P-values all being very far from conventional significance levels.

The remaining variables in the table are other important variables but for which the data were not stratified prior to treatment assignment. For all these remaining variables, the P-values are also large and we cannot reject the hypothesis that the means are identical across treatment groups.

C. Expressed preferences regarding use of remittances

The data also provide evidence in support of the hypothesis that migrants have stronger preferences that their remittances be used for savings than do the remittance-receiving households.

One of the main goals of the study is to examine preferences over how remittances should be used, and compare the preferences of remittance senders (the DC-area migrants) with those of the remittance-receiving households in El Salvador. The comprehensive surveys fielded in DC and El Salvador contained a unique module intended to test for such preference differences. A concern we had was that simply asking migrants and households about their preferences over how remittances should be used might not yield useful answers. Their answers might have been automatic, conditioned by

what respondents thought was the “right” answer. Or respondents might not have thought carefully (as opposed to as situation where actual money were at stake).

Mindful of these issues, our approach was to tell survey respondents that their household in El Salvador was being entered into a raffle as part of the study. Respondents were told that 10 households in the study would win a prize of \$100. Each migrant was told that if their household in El Salvador won, the migrant would be able to specify exactly how the \$100 prize would be spent. The migrant was given a list of expenditure items, and was asked to divide the \$100 across one or more of these items. The list did not contain a “cash” option (the migrant could not say that some or all of the winnings would be given over in cash). A project representative would personally visit the household to ensure that the \$100 was spent exactly how the migrant specified.

Households in El Salvador were told of this raffle as well, and the household respondent was asked how he or she would like the \$100 to be allocated across the same expenditure categories. They were similarly told that a project representative would enforce that expenditure allocation should the household win the raffle. Households were not told how the DC-area migrant had previously responded to the same question (and survey staff in El Salvador did not have that information).¹⁴

This set-up gave both migrants and households incentives to answer thoughtfully and truthfully as to how they would prefer the funds to be used, because real money would be at stake if the household won the raffle. We would then expect that differences in preferences between migrants and households over how funds should be used would be reflected in their allocations of the possible \$100 raffle winnings.

Stark differences have indeed emerged between migrants’ and households’ allocations. Figure 1 presents the average breakdown of allocations across 13 expenditure categories for migrants (left-side pie chart) and households (right-side pie chart) for 740 pairs of migrants and households for which corresponding data on these raffle allocations are available, while Table 3 presents the mean allocations and the P-value of the F-test of the equality of the migrant vs. household means. The most obvious difference is that migrants allocate a much smaller amount (\$42.38) to “daily consumption” expenditures

¹⁴ The raffle will be held at the beginning of 2009. 10 El Salvador households will be chosen at random to win the \$100. In half of these the migrant’s expenditure allocation will be implemented, and in the other half the household’s expenditure allocation will be implemented.

than do recipient households, who allocate \$64.82 to daily consumption on average. A large fraction of that difference is accounted for by the fact that migrants allocate \$21.16 to savings, while households allocate just \$2.55 to savings on average. Both these differences are statistically significantly different from zero at the 1% level. The pattern is a strong confirmation that migrants have dramatically higher preferences for savings than do recipient households.

Some of the less-important expenditure categories also reveal differences between migrants and households. The categories where the differences are statistically significantly different from zero (at the 5% level) are as follows: phone bills (migrants \$1.46, households \$0.47), durable goods (migrants \$4.68, households \$0.66), and “other” (migrants \$1.20, households \$5.05). The higher allocation by migrants to phone expenditures may reflect a greater desire on the part of migrants to maintain connections with their families back home.

V. Impact of Treatments on Demand for Savings Accounts

We first estimate equation (1) examining the impact of the various treatment conditions on take-up of savings accounts. The basic equation regresses an indicator for account opening on indicators for being assigned Treatment 2 and Treatment 3.

Coefficient estimates for this most basic regression equation are reported in column 1 of Table 4. The coefficient of 0.332 on the constant term indicates that 33.2% of migrant/recipient pairs assigned to treatment 0 (the control group) had accounts at Banco Agricola in November 2008. The coefficients on Treatments 1, 2, and 3 are all positive in sign, and are all statistically significantly different from zero at the 1% level. The coefficients indicate that individuals offered Treatments 1, 2, and 3 were respectively 11.0, 13.0, and 20.1 percentage points more likely to have accounts at Banco Agricola. These coefficients are essentially unchanged when the stratification variables (gender, years in US category, US bank account ownership, relationship to recipient category), the migrant’s allocation to savings, and fixed effects for the individual who conducted the marketing visit are included in the regression (column 2).

These account opening patterns provide support to the hypothesis that migrants value the additional control over savings accounts afforded by the Treatment 3, compared to the degree of control offered in Treatments 2 and 1. The bottom rows of the table present p-values of F-tests of the difference between pairs of treatment coefficients. The impact of Treatment 3 is statistically significantly different from the impact of Treatment 2 at nearly the 5% level of significance in either specification (the p-value is 0.0519 and 0.0571 in columns 1 and 2, respectively). Similarly, the impact of Treatment 3 is statistically significantly different from the impact of Treatment 1 at the 5% significance level in both specifications. Meanwhile, the impacts of Treatments 2 and 1 are statistically indistinguishable from one another.

VI. Impact of Treatments on Savings Balances

We also use equation (1) to examine the impact of the different treatment conditions on savings balances in Banco Agricola bank accounts. We separately examine savings in accounts that are under remittance recipients' names (including here joint *Cuenta Unidos* accounts held with the migrant) and under migrants' names (including here joint *Cuenta Unidos* accounts held with someone other than the remittance recipient).

Accounts for remittance recipients

In Table 5, the dependent variables are all types of savings accounts in the name of the remittance recipient in El Salvador. In the first two columns, the dependent variable is all savings across recipients' accounts, in specifications without (column 1) and with (column 2) right-hand-side control variables and fixed effects. In column 1, all coefficients on treatment indicators are positive, but owing to relatively large standard errors none are statistically significantly different from zero at conventional levels.

In column 2, the addition of controls for baseline (November 2006) savings and fixed effects for marketer and stratification cell leads the coefficient on Treatment 3 to be statistically significantly different from zero. Savings in recipient accounts for those whose migrant was assigned to Treatment 3 are \$491.55 higher than in the control group.

In this specification the coefficients on Treatments 2 and 1, while positive, remain statistically insignificant. Treatment 3 does appear to have a greater impact on savings in recipients' accounts than does Treatment 2 or 1: the difference in coefficients for Treatment 3 vs. Treatment 2 is marginally significant (p-value 0.116), and the corresponding difference for Treatments 3 and 1 is significant at the 10% level.

The remaining columns of the table look separately at treatment effects for two different types of recipient accounts: joint accounts (*Cuenta Unidos*) with the migrant (columns 3 and 4) and other recipient accounts (columns 5 and 6). The patterns that emerge are similar to those in the first two columns, with the largest effect being for Treatment 3 compared to Treatments 2 and 1 (although the impact of Treatment 3 is statistically significantly larger than those of the other two treatments only for the joint accounts offered through the project, in columns 3 and 4). The coefficient magnitudes indicate that Treatment 3 causes a \$193.49 increase in savings in *Cuenta Unidos* accounts and a \$298.06 increase in other recipient accounts.

Accounts for migrants

In Table 6, the dependent variables are all types of savings accounts in the name of the D.C.-area migrant. In the first two columns, the dependent variable is all savings across migrants' accounts, in specifications without (column 1) and with (column 2) right-hand-side control variables and fixed effects. In column 1, coefficients on Treatments 1 and 2 are positive, but owing to relatively large standard errors neither is statistically significantly different from zero at conventional levels. The coefficient on Treatment 3 is actually negative in this column, but it is very small in magnitude and also not statistically significantly different from zero.

In column 2, the addition of controls for baseline (November 2006) savings and fixed effects for marketer and stratification cell leads the coefficient on Treatment 1 to be statistically significantly different from zero. Savings in migrant accounts for those assigned to Treatment 1 are \$250.14 higher than in the control group. In this specification the coefficients on Treatments 2 and 3 are both positive but remain statistically insignificant. Treatment 1 has a greater impact on savings in recipients' accounts than

does Treatment 2 or 3: the difference in coefficients for Treatment 1 vs. Treatment 2 is significant at the 10% level, as is the corresponding difference for Treatments 1 and 3.

The remaining columns of the table look separately at treatment effects for three different types of recipient accounts: joint accounts (*Cuenta Unidos*) with someone other than the primary remittance recipient (columns 3 and 4), individual migrant *Ahorro Directo* accounts that were newly offered as part of this project (columns 5 and 6), and other migrant accounts (columns 7 and 8). It does not appear that migrants are accumulating savings in the new accounts created by the project: the coefficients on the treatment indicators are all small and statistically insignificantly different from zero for *Cuenta Unidos* and *Ahorro Directo* accounts (columns 3 through 6).

For other migrant accounts (the last 2 columns of the table), however, the pattern of coefficients is similar to those in the first two columns: the largest effect is for Treatment 1 compared to Treatments 2 and 3. The coefficient indicates that Treatment 1 causes a \$197.66 increase in savings in other migrant accounts. The Treatment 1 effect is statistically significantly larger than the effects for Treatment 2 and Treatment 3 at the 10% and 5% levels, respectively.

Interpretation of results

The first clear pattern in the empirical results is that even Treatment 1 (where the migrant was only offered an account for the remittance recipient) leads to a significant (11 percentage point) increase in account opening (Table 4), as well as an increase in savings in migrant accounts (Table 6). This may reflect the impact of the project's marketing of savings accounts to migrants: while in Treatment 1 migrants were only offered accounts for remittance recipients, the offer may have encouraged them to independently seek to open accounts for themselves at Banco Agrícola, and start saving in those accounts. The fact that Treatment 1, which offered migrants no control over accounts (merely an ability to remit into recipients' accounts), led to no statistically significant change in savings in recipient accounts is consistent with the hypothesis that migrants value control over savings in El Salvador.

Another revealing result is that the increase in savings in migrant accounts is only associated with Treatment 1 (Table 6), and not Treatments 2 or 3. A possible explanation

is that the enhanced monitoring and control offered by Treatments 2 and 3 is enough to encourage migrants to save in joint accounts with recipients, rather than independently in their own accounts.

The final striking pattern in the results is that Treatment 3 leads to statistically and economically significantly higher account opening (Table 4) and savings in recipient accounts (Table 5) compared to Treatments 2 or 1. This pattern is consistent with the hypothesis that migrants do indeed value the enhanced control over accounts that the exclusive migrant account (*Ahorro Directo*) offers them. However, the fact that there is essentially no impact of Treatment 3 on actual savings in *Ahorro Directo* accounts (Table 6) suggests that the value of these accounts appears not to be as an actual active savings vehicle. Rather, it may be that these accounts simply enhance the bargaining power of migrants vis-à-vis remittance recipients: migrants can credibly threaten recipients that if recipients do not save according to migrants' wishes, that they have a ready means to save in El Salvador independently of the remittance recipient.

VII. Conclusion

This paper contributes to knowledge in two areas. First, it expands our currently very limited knowledge about the determinants of international remittance flows, which have emerged in recent years as the largest and fastest-growing type of international financial flow to developing countries. Second, it contributes to the development economics literature on intrahousehold resource allocation and decision making, by documenting a demand on the part of migrants for greater control over the use of remittances sent to households in their country of origin.

We implemented a randomized field study that experimentally varied the amount of control that U.S.-based migrants from El Salvador could have over remittances sent into savings accounts in the home country. Our results provide support for the hypothesis that a desire for control over remittance uses is quantitatively large and has an important influence on financial decision making by migrants. We find that migrant demand for savings accounts is higher when migrants have the option of greater control over the accounts. When migrants have the option of joint or sole ownership of the account, the

post-treatment account ownership rate is 53.3%, compared to only 33.2% when the offered account can be in the remittance recipient's name only (a 60.5% increase in account opening). In addition, migrant control leads to more savings: savings more than double from a base of roughly \$400 when migrants have the option of full control over accounts, compared to a counterfactual of roughly zero savings growth. It also appears that migrants use enhanced control to improve their bargaining power over the savings behavior of recipients, rather than saving autonomously in their own accounts.

Ongoing data collection and survey work for this study will allow us to determine the impact of migrant control over savings on a variety of other outcomes in remittance-receiving households in El Salvador. Outcomes of interest in subsequent rounds of the survey include consumption, nutrition, child schooling, health status, and entrepreneurial investment.

Appendix

Survey and Treatment Protocols

The subjects of the field experiment are immigrants in the greater Washington D.C. area. To be eligible for inclusion in the sample, immigrants had to have met the following conditions: 1) they had to be from El Salvador, 2) their first entry into the U.S. had to have been within the last 15 years, and 3) they had to have sent a remittance to someone in El Salvador within the last 12 months.

A subset of migrants were only administered a brief baseline survey (to collect data on the treatment stratification variables and remittance raffle allocations) prior to being administered the marketing treatment. Another subset of migrants were recruited beforehand (up to 12 months before the marketing visit) and administered a comprehensive baseline survey questionnaire. Migrants administered the comprehensive baseline survey were paired with the household in El Salvador which is the migrant's primary remittance recipient, and we also attempted to field a comprehensive baseline survey for that recipient household.

The procedure for recruiting migrant-household pairs into the sample was as follows. First, we stationed our survey team at the two Salvadoran consulates in the Washington DC area (in DC proper and in Woodbridge, Virginia). The El Salvador consulate was aware of our study and agreed to cooperate. At regular intervals, a consular staffer would announce to individuals seated in the waiting area that our survey staff were present and ask for their participation. Survey team members were individuals of Salvadoran origin, and mostly female. Members of the survey team approached individuals in waiting area of the consulate and invited them to participate in the study. Other individuals were recruited for the study in the branches of Banagricola (a

subsidiary of Banco Agricola) remittance agencies in D.C., Maryland, and Virginia. Individuals who agreed to participate were administered the survey instrument then and there, or (in a small number of cases) at a different time and location of the subject's choosing. The survey took 1 hour to complete on average. The D.C. survey work began in June 2007 and was completed in January 2008.

The migrant sample comprises a reasonable cross-section of Salvadoran migrants in the Washington, D.C. area, and includes both documented and undocumented migrants. The consulate of El Salvador serves Salvadorans regardless of their legal status. The main services sought by study participants at the consulate were passport renewals, civil registration (of births, deaths, and marriages), and assistance with processing of Temporary Protected Status (a special provision allowing temporary legal work for Salvadorans and other nationalities who entered the U.S. after natural disasters or civil strife in the home country).

After completion of a migrant survey in the DC area, a separate survey team (fielded by a Salvadoran survey organization hired for the project) was dispatched to survey the individual in El Salvador that the migrant identified as his or her primary remittance recipient on a variety of individual- and household-level topics. The El Salvador household surveys were fielded between November 2007 and June 2008.

We randomly allocated 25% of the migrants in the sample to each of the four treatment conditions. The treatments were administered via face-to-face visits at a location of the migrant's choice by marketers hired for the study. Assignment to either treatment 0, 1, 2, or 3 occurred only after the migrant had agreed to a marketing visit. Visits took from 1-2 hours. Marketers were paid a flat fee for each completed visit which is the same for all treatment conditions (to remove any differential incentive to complete visits of different types). In cases where baseline surveys were administered to the migrant and associated remittance-receiving household in El Salvador, marketing visits were only scheduled after the survey of the El Salvador household had been completed, to eliminate bias in survey responses related to treatment assignment. The marketing visits were carried out between December 2007 and July 2008.

To help track migrants' remittance behavior after the visit, all visited migrants were given a special card (called a "VIP card") that provides a discount for sending remittances via Banagricola remittance locations in the DC area. Each card has a unique code that is entered into the computer during the remittance transaction to validate the discount, allowing us to track individual remittance transactions that take advantage of the discount. Banco Agricola's normal remittance charge is \$10 for a remittance up to \$1,500, and the VIP card allows the migrant to send a remittance for a randomly-determined price of either \$4, \$5, \$6, \$7, \$8, or \$9 (once randomly assigned at the outset, the price is fixed for the 12-month validity period of the card).¹⁵ Eligibility for the card was conditional on the migrant presenting an identification document of some sort (usually a Salvadoran passport). Migrants were told to bring an identification document in the initial appointment phone call.

¹⁵ This remittance price randomization is independent of the randomization to assign treatments 0, 1, 2, or 3, and so should not confound interpretation of any differences across treatments. The remittance price randomization was implemented for a separate study within the same study population on the impact of remittance prices on the frequency and amount of remittances.

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Table 1: Summary statistics

<u>Variable</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>10th pct.</u>	<u>Median</u>	<u>90th pct.</u>	<u>Num. Obs.</u>
Basic variables collected for all study participants						
Treatment 0 (no savings facility offered)	0.25	0.44	0	0	1	1,451
Treatment 1 (remittance recipient account only)	0.24	0.43	0	0	1	1,451
Treatment 2 (joint account)	0.26	0.44	0	0	1	1,451
Treatment 3 (joint + migrant account)	0.25	0.43	0	0	1	1,451
Migrant is female	0.29	0.46	0	0	1	1,451
Migrant has US bank account	0.67	0.47	0	1	1	1,451
Recipient is migrant's parent	0.49	0.50	0	0	1	1,451
Recipient is migrant's spouse	0.14	0.34	0	0	1	1,451
Recipient is migrant's child	0.05	0.22	0	0	0	1,451
Recipient is migrant's other relative	0.32	0.47	0	0	1	1,451
Migrant has been in US 0-5 years	0.51	0.50	0	1	1	1,451
Migrant has been in US 6-10 years	0.35	0.48	0	0	1	1,451
Migrant has been in US 11-15 years	0.14	0.35	0	0	1	1,451
Migrant allocation to savings in raffle	20.92	40.23	0	0	100	1,451
Variables collected in baseline survey						
Migrant's years in the US	5.57	3.60	1	5	11	900
Migrant has US bank account only	0.53	0.50	0	1	1	900
Migrant has El Salvador bank account only	0.07	0.26	0	0	0	900
Migrant has account in both US and El Salvador	0.10	0.30	0	0	1	900
Migrant's annual income (US\$)	25,710	58,339	5,779	18,430	41,280	868
Migrant's household's annual income (US\$)	38,533	90,200	8,237	26,840	62,300	900
Migrant's years of education	8.80	4.93	2	9	12	868
Migrant's age	30.89	7.65	22	30	41	896
Migrant's annual remittances sent (US\$)	4,987	4,120	1,200	3,900	9,600	900
Migrant's remittances as share of annual hh inc.	0.512	2.792	0.039	0.155	0.598	899
Migrant's total hh savings balance (US\$)	2,845	5,107	0	750	8,100	808
Migrant's savings as share of annual hh inc.	0.149	0.539	0.000	0.030	0.297	807
Migrant is US citizen	0.01	0.08	0	0	0	896
Migrant hh size in U.S.	4.81	2.15	2	5	8	900
Migrant is married or partnered	0.59	0.49	0	1	1	899
Migrant is coresident with spouse/partner	0.73	0.44	0	1	1	528
Recipient allocation to savings in raffle	2.55	15.35	0	0	0	741
Recipient's annual hh income (US\$)	14,117	177,786	1,200	3,540	9,680	741
Recipient has savings account	0.20	0.40	0	0	1	736
Recipient total hh savings balance (US\$)	381	1,729	0	0	380	736
Recipient's years of education	5.13	5.66	0	3	12	731
Recipient's age	46.84	14.93	26	48	66	741
Recipient's annual remittances received (US\$)	3,155	2,809	650	2,400	6,000	741
Recipient hh size	4.61	2.37	2	4	8	741
Savings data from Banco Agricola (US\$, Nov. 2006)						
Savings in recipient's name	444	3,811	0	0	100	1,451
Savings in migrant's name	87	766	0	0	0	1,451

Notes -- Survey data collected in 2007-2008 in Washington, D.C. and El Salvador. Indicator for "Migrant is coresident with spouse/partner" is undefined if individual does not have a partner or spouse. Savings data from Banco Agricola are from the bank's internal databases.

Table 2: Means of baseline variables by treatment group

<u>Variable</u>	<u>Treatment group</u>				<u>P-value: test of equality of means</u>
	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	
Migrant is female	0.26	0.32	0.31	0.29	0.335
Migrant has US bank account	0.66	0.66	0.70	0.67	0.643
Recipient is migrant's parent	0.48	0.51	0.50	0.49	0.921
Recipient is migrant's spouse	0.17	0.12	0.13	0.13	0.264
Recipient is migrant's child	0.07	0.05	0.03	0.06	0.204
Recipient is migrant's other relative	0.29	0.32	0.34	0.32	0.412
Migrant has been in US 0-5 years	0.52	0.50	0.49	0.51	0.890
Migrant has been in US 6-10 years	0.34	0.36	0.37	0.34	0.857
Migrant has been in US 11-15 years	0.14	0.14	0.14	0.15	0.986
Migrant allocation to savings in raffle	22.04	19.86	19.92	21.85	0.813
Log (migrant's annual income)	9.66	9.48	9.70	9.47	0.306
Migrant's years of education	8.87	8.20	9.31	8.71	0.134
Migrant's age	30.61	31.05	31.04	30.87	0.924
Recipient allocation to savings in raffle	2.02	2.21	2.00	3.91	0.564
Log (recipient's hh income)	8.03	8.00	8.06	7.94	0.841
Recipient's years of education	5.69	4.52	5.09	5.26	0.278
Recipient's age	44.94	46.41	47.65	48.08	0.189
Savings in recipient's name	405.93	602.24	404.64	370.68	0.847
Savings in migrant's name	116.05	62.53	111.92	56.94	0.608
Savings, recipient + migrant	521.98	664.77	516.83	427.63	0.879

Notes -- Table presents means of key variables for each treatment group as reported at baseline, prior to treatment. P-value is for F-test of equality of means across treatment groups. The first 9 variables listed in table are stratification variables: migrants were first sorted into 48 cells (based on gender, US bank account ownership, relationship to remittance recipient, and years on US category) before randomization into treatments 0, 1, 2, or 3. Savings data are from internal Banco Agricola database, as of November 2006.

Table 3: Migrant vs. recipient allocation of \$100 in possible raffle winnings
(U.S. dollars)

<u>Raffle use categories</u>	<u>Migrant (in U.S.)</u>	<u>Remittance Recipient (in El Salvador)</u>	<u>Difference (migrant minus recipient allocation)</u>	<u>P-value: test of equality of means</u>
Daily consumption	42.38	64.82	-22.44	0.000
Savings	21.16	2.55	18.61	0.000
Clothing	7.19	6.31	0.88	0.414
Housing	2.43	1.91	0.52	0.471
Medical expenditures	9.40	7.69	1.71	0.173
Educational expenses	5.57	5.67	-0.10	0.916
Utilities bills	3.51	3.84	-0.33	0.698
Small business expenses	0.74	0.54	0.20	0.612
Phone bills	1.46	0.47	0.99	0.039
Agricultural inputs	0.27	0.41	-0.14	0.655
Durable goods	4.68	0.66	4.02	0.000
Automobile payments	0.00	0.07	-0.07	0.318
Other (specify)	1.20	5.05	-3.85	0.000
Num. obs.	740	740		

Notes -- Table presents mean amounts allocated to given expenditure category out of \$100 in possible remittance raffle winnings. Sample comprised of matched pairs of Salvadoran migrants in the U.S. and their "primary" remittance recipient in El Salvador. Migrants report desired allocation of funds by the remittance recipient. Remittance recipients report desired allocation of funds by themselves. "Housing" includes rent, construction, and mortgage payments. P-value is for F-test of equality of means across two groups (migrants vs. remittance recipients).

Table 4: Impact of treatments on account opening

(Ordinary least-squares estimates)

Dependent variable: Indicator for migrant or recipient household having at least one account in November 2008

	(1)	(2)
Treatment 3 (joint account + indiv. migrant account)	0.201*** (0.036)	0.197*** (0.036)
Treatment 2 (joint account)	0.130*** (0.036)	0.128*** (0.036)
Treatment 1 (remittance recipient account)	0.110*** (0.037)	0.112*** (0.037)
Constant	0.332*** (0.026)	0.401** (0.187)
Marketer fixed effects		Y
Fixed effects for stratification cell		Y
Observations	1451	1451
R-squared	0.021	0.089
P-value of F-test: equality of Treat. 3 & 2 coeffs.	0.0519	0.0571
P-value of F-test: equality of Treat. 3 & 1 coeffs.	0.0143	0.0209
P-value of F-test: equality of Treat. 2 & 1 coeffs.	0.5846	0.6580

* significant at 10%; ** significant at 5%; *** significant at 1%

Notes -- Dependent variable equal to 1 if migrant or remittance recipient has any account with Banco Agricola, 0 otherwise. Omitted treatment indicator is for Treatment 0 (control group). Marketer fixed effects are for the specific individual (out of 9) who conducted the marketing visit. Fixed effects for stratification cell are for each of 48 unique combinations of stratification variables: gender (male/female), having a US bank account (yes/no), relationship to remittance recipient (parent/child/spouse/other), and years in US category (0-5 years/6-10 years/11-15 years).

Table 5: Impact of treatment on savings balances of remittance recipient

(Ordinary least-squares estimates)

Dependent variable: Savings by remittance recipient in Banco Agricola accounts in November 2008

	(1)	(2)	(3)	(4)	(5)	(6)
<u>Type of savings:</u>	All accounts in recipient's name	All accounts in recipient's name	Joint accounts with migrant (<i>Cuenta Unidos</i>)	Joint accounts with migrant (<i>Cuenta Unidos</i>)	Other accounts in recipient's name	Other accounts in recipient's name
Treatment 3 (joint account + indiv. migrant account)	435.24 (338.85)	491.55*** (177.95)	191.69*** (49.15)	193.49*** (50.02)	243.55 (336.01)	298.06* (176.02)
Treatment 2 (joint account)	223.03 (336.10)	213.23 (176.87)	38.31 (48.76)	34.96 (49.71)	184.72 (333.29)	178.27 (174.95)
Treatment 1 (remittance recipient account)	376.88 (342.26)	184.94 (179.35)	8.13 (49.65)	1.42 (50.41)	368.75 (339.40)	183.52 (177.41)
Savings in recipient's name, Nov. 2006		1.03*** (0.02)		0.01 (0.00)		1.02*** (0.02)
Savings in migrant's name, Nov. 2006		0.02 (0.08)		0.04 (0.02)		-0.02 (0.08)
Constant	388.94 (238.78)	-1,158.44 (915.68)	16.34 (34.64)	-102.09 (257.36)	372.60 (236.78)	-1,056.35 (905.75)
Marketer fixed effects		Y		Y		Y
Fixed effects for stratification cell		Y		Y		Y
Observations	1451	1451	1451	1451	1451	1451
R-squared	0.001	0.742	0.013	0.042	0.001	0.743
P-value of F-test: equality of Treat. 3 & 2 coeffs.	0.529	0.116	0.002	0.001	0.860	0.494
P-value of F-test: equality of Treat. 3 & 1 coeffs.	0.865	0.088	0.000	0.000	0.713	0.520
P-value of F-test: equality of Treat. 2 & 1 coeffs.	0.652	0.874	0.541	0.504	0.586	0.976
Mean savings in Nov. 2006, Treatment 0 (control group)	405.93					
Mean savings in Nov. 2008, Treatment 0 (control group)	388.94					

* significant at 10%; ** significant at 5%; *** significant at 1%

Notes -- Dependent variable is in US\$. Joint accounts (Cuenta Unidos) are in name of recipient. Omitted treatment indicator is for Treatment 0 (control group). Marketer fixed effects are for the specific individual (out of 9) who conducted the marketing visit. Fixed effects for stratification cell are for each of 48 unique combinations of stratification variables: gender (male/female), having a US bank account (yes/no), relationship to remittance recipient (parent/child/spouse/other), and years in US category (0-5 years/6-10 years/11-15 years).

Table 6: Impact of treatment on savings balances of migrant

(Ordinary least-squares estimates)

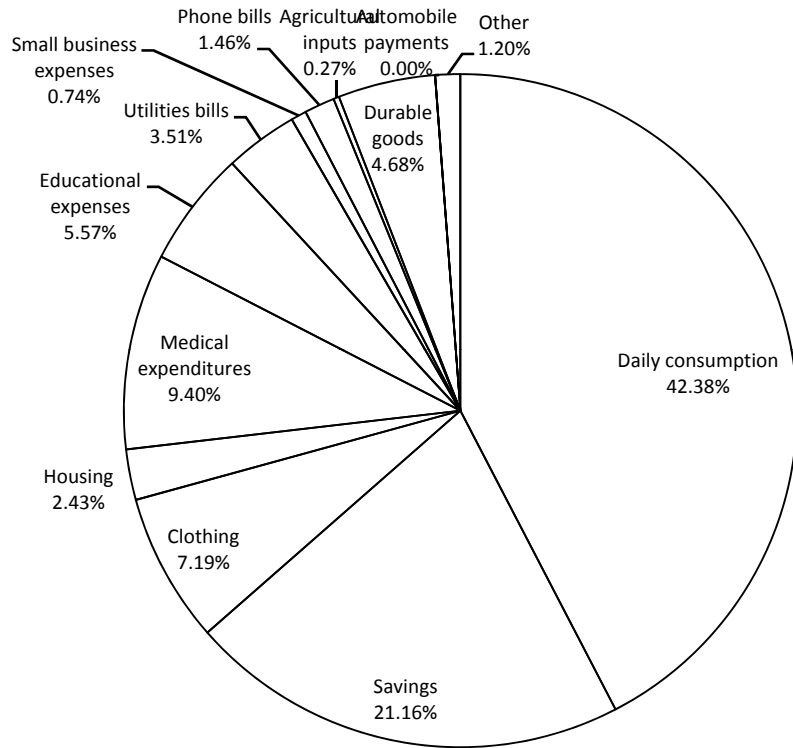
Dependent variable: Savings by migrant in Banco Agricola accounts in November 2008

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<u>Type of savings:</u>	All accounts in migrant's name	All accounts in migrant's name	Joint accounts other than with recipient (<i>Cuenta Unidos</i>)	Joint accounts other than with recipient (<i>Cuenta Unidos</i>)	Individual migrant account established by project (<i>Ahorro Directo</i>)	Individual migrant account established by project (<i>Ahorro Directo</i>)	Other accounts in migrant's name	Other accounts in migrant's name
Treatment 3 (joint account + indiv. migrant account)	-11.43 (119.30)	52.24 (103.76)	24.97 (16.08)	25.89 (16.43)	42.88 (37.25)	43.14 (37.97)	-79.27 (112.65)	-16.79 (95.59)
Treatment 2 (joint account)	63.78 (118.33)	77.86 (103.13)	18.01 (15.95)	19.60 (16.33)	40.21 (36.94)	37.06 (37.74)	5.56 (111.73)	21.20 (95.01)
Treatment 1 (remittance recipient account)	185.98 (120.50)	250.14** (104.57)	6.35 (16.24)	6.48 (16.56)	49.70 (37.62)	46.01 (38.27)	129.93 (113.78)	197.66** (96.35)
Savings in recipient's name, Nov. 2006		0.00 (0.01)		-0.00 (0.00)		0.00 (0.00)		0.00 (0.01)
Savings in migrant's name, Nov. 2006		1.08*** (0.05)		-0.00 (0.01)		-0.01 (0.02)		1.09*** (0.04)
Constant	152.03* (84.07)	-176.88 (533.91)	-0.00 (11.33)	-27.10 (84.57)	20.07 (26.25)	-101.79 (195.37)	131.96* (79.38)	-47.99 (491.89)
Marketer fixed effects		Y		Y		Y		Y
Fixed effects for stratification cell		Y		Y		Y		Y
Observations	1451	1451	1451	1451	1451	1451	1451	1451
R-squared	0.002	0.292	0.002	0.022	0.002	0.027	0.002	0.326
P-value of F-test: equality of Treat. 3 & 2 coeffs.	0.527	0.804	0.664	0.700	0.943	0.872	0.449	0.689
P-value of F-test: equality of Treat. 3 & 1 coeffs.	0.103	0.059	0.253	0.242	0.857	0.940	0.067	0.027
P-value of F-test: equality of Treat. 2 & 1 coeffs.	0.308	0.098	0.471	0.426	0.800	0.814	0.272	0.066
Mean savings in Nov. 2006, Treatment 0 (control group)	116.05							
Mean savings in Nov. 2008, Treatment 0 (control group)	152.03							

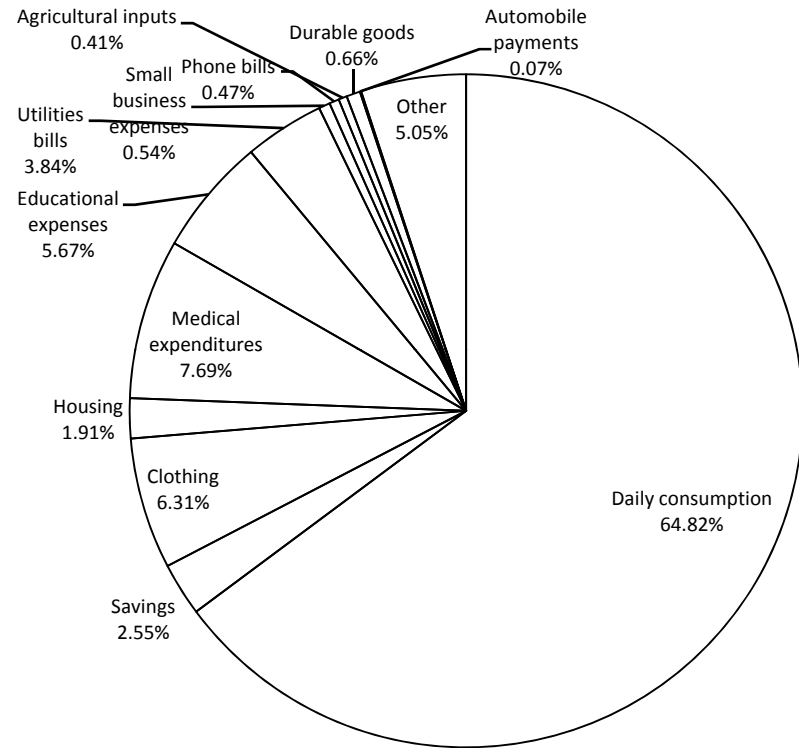
* significant at 10%; ** significant at 5%; *** significant at 1%

Notes -- Dependent variable is in US\$. Joint accounts (*Cuenta Unidos*) are in name of recipient. Omitted treatment indicator is for Treatment 0 (control group). Marketer fixed effects are for the specific individual (out of 9) who conducted the marketing visit. Fixed effects for stratification cell are for each of 48 unique combinations of stratification variables: gender (male/female), having a US bank account (yes/no), relationship to remittance recipient (parent/child/spouse/other), and years in US category (0-5 years/6-10 years/11-15 years).

Figure 1: Allocations of \$100 raffle winnings



Migrant



Remittance recipient