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International Remittances and Financial Inclusion in Sub-Saharan Africa

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Abstract

This paper uses World Bank survey data, including about 10,000 households in five countries—Burkina Faso, Kenya, Nigeria, Senegal, and Uganda—to investigate the link between international remittances and households' financial inclusion in Sub-Saharan Africa. The paper finds that receiving international remittances increases the probability that the household opens a bank account in all the five countries. This result is robust to controlling for the potential endogeneity of remittances, using as instruments indicators of the migrants' economic conditions in the destination countries.

International Remittances and Financial Inclusion in Sub-Saharan Africa

Gemechu Ayana Aga and Maria Soledad Martinez Peria[*]

I.   Introduction

Remittances to Sub-Saharan Africa (SSA) have increased steadily in recent decades and are estimated to have reached about \$32 billion in 2013.[1] Although smaller than the official development assistance and foreign direct investment inflows, remittances constitute important resource inflows to the region. In 2012 remittances accounted for about 4 percent of the GDP of a typical country in Sub-Saharan Africa with consistent data on official remittances inflows, and accounted for over 5 percent of the GDP in about ten of the countries in the region. The magnitude is sizeable even in some of the larger countries. For instance, recorded remittances to Nigeria amounted to about 8 percent of GDP in 2012, the corresponding figure being about 10 percent for Senegal. The importance of remittances is particularly evident in some of the smaller countries of the region. In Lesotho and Liberia, for instance, remittances account for over 20 percent of the GDP. The true size of remittances is believed to be substantially higher given that officially reported figures ignore remittances transferred through informal channels.

Though studies have shown that remittances can affect aggregate financial development in SSA - as measured by the share of deposits or M2 to GDP (Gupta et al. 2009), to our knowledge there is no evidence for this region on the impact of remittances on household financial inclusion defined as the use of financial services.[2] This question is important because there is growing evidence that financial inclusion can have significant beneficial effects for households and individuals. In particular, the literature has found that providing individuals access to savings instruments increases savings (Aportela, 1999, Ashraf et al., 2014), female

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[1] All country-level aggregate remittance inflows data are from the World Bank. See Eigen-Zucchi et al. (2013) for the latest data.

[2] There is a vast literature examining the impact of remittance on various outcome measures, such as poverty (Acosta et al., 2007; Yang 2008; Anyanwu and Erhijakpor, 2010), health (Lu, forthcoming; De and Ratha, 2012), education (Yang, 2008; Edwards and Ureta, 2003), labor supply (Rodriguez and Tiongson, 2001; Kim, 2007), entrepreneurship (Yang, 2008; Amuedo-Dorantes and Pozo, 2006b), etc. Adams (2011) provides a review of some of the key literature on the household level impact of remittances.

empowerment (Ashraf et al., 2010), productive investment (Dupas and Robinson, 2009), and consumption (Dupas and Robinson, 2009 and Ashraf, et al., 2010).[3] Furthermore, the topic of financial inclusion has gained importance among international bodies, such as the UN and the Group of Twenty (G-20). In May 2013, the UN High-Level Panel presented the recommendations for post-2015 UN Development Goals, which included universal access to financial services as a critical enabler for job creation and equitable growth. In September 2013, the G20 reaffirmed its commitment to financial inclusion as part of its development agenda.[4]

This paper explores the link between international remittances and one aspect of financial inclusion in SSA: households' use of bank accounts. This issue is particularly important for SSA, given that on average only 24 percent of the population has an account with a formal financial institution. In contrast, 55 percent of adults in East Asia, 35 percent in Eastern Europe, 39 percent in Latin America, and 33 percent in South Asia have accounts.

Remittances may affect households' use of bank accounts in at least two ways. First, remittances might increase the demand for savings instruments. The fixed costs of sending remittances make the flows lumpy, potentially providing households with excess cash for some period of time. This might increase their demands for deposit accounts, since financial institutions offer households a safe place to store this temporary excess cash. Second, remittances recipients' exposure to banks, for example, when banks act as remittances paying agents, may familiarize them with the services offered by banks and increase their demand for bank accounts. Therefore, so long as lack of awareness is the main reason for households' financial exclusion, remittances may increase households' use of bank accounts.

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[3] There is also evidence that access to credit and to insurance products has beneficial effects but the results are not as strong or robust (Karlan and Murdoch, 2009 and Roodman, 2012).
[4] See the G20 Leader's Declaration from the St. Peterburg Summit at:
http://en.g20russia.ru/news/20130906/782776427.html

Using World Bank survey data including about 10,000 households in five countries --
Burkina Faso, Kenya, Nigeria, Senegal and Uganda – we find that receiving international
remittances increases the probability that the household opens a bank account in all the countries
in our study. This result is robust to controlling for the potential endogeneity of remittances,
using as instruments indicators of the migrants' economic conditions in the destination countries.

Our paper is related to an emerging literature on remittances and financial inclusion.
Using household level data from El Salvador, Anzoategui et al. (2014) show that remittances
have a positive effect on the likelihood that households have a bank account. Relatedly, Ashraf et
al. (forthcoming) find that migrants from El Salvador save more in the home country when
offered accounts providing greater ability to monitor and control savings. On the other hand,
Brown et al. (forthcoming) provide household level evidence that remittances have a negative,
and at best no, effect on the propensity of having a bank account in Azerbaijan, while finding a
positive and significant, but very small size, effect in Kyrgyzstan.

The rest of the paper is organized as follows. Section II discusses the data used and the
empirical methodology implemented. Section III presents the results, while section IV concludes.

II.   Data and Methodology

Data used in the paper come from household surveys conducted by the World Bank in
2010 in six Sub-Saharan African countries: Burkina Faso, Kenya, Nigeria, Senegal, South
Africa, and Uganda. We use survey data for the first five countries since South Africa is regarded
as a remittances sending country.

The representativeness of the sample varies across countries (Plaza et al., 2011). The sample selected is nationally representative for Nigeria, Senegal, and Uganda. The survey is not, however, nationally representative for Burkina Faso and Kenya. For Burkina Faso, the sample is representative of the 10 provinces with the largest concentration of migrant sending households (or receiving remittances). For Kenya, the selected sample is representative of households in the top 17 districts with the largest concentration of households with migrant members. Data were collected from about 10,000 households for the five countries combined: 2,100 from Burkina Faso, 1,937 from Kenya, 2,245 from Nigeria, 1,833 from Senegal, and 1,870 from Uganda.

The questionnaire used for the data collection is standardized across all countries. Importantly, aside from questions that are common in household level surveys (e.g., pertaining to household composition, expenditures, living conditions, etc.) the questionnaire gathers information on migration and remittances. In particular, it asks whether households have a member who is currently residing abroad and if the migrant has sent remittances over the past 12 months. Also, the survey collects information on the amount of remittances received by the household and the method of transfer. Although there are other data sets containing information on households' migrant status and the use of financial services (most notably the World Bank Global Findex database, see Demirguc-Kunt and Klapper, 2012) this data set is very rich and contains critical information that enables us to deal with potential econometric problems common to these types of studies. Particularly important is the fact that the questionnaire contains information on the migrants' destination countries. This information allows the construction of instruments that can be used to control for the potential endogeneity of remittance inflows in the regression of the likelihood of opening a bank account.

In Burkina Faso, Kenya, and Senegal, over 20 percent of the households report receiving remittances from members residing in other countries. This contrasts with Nigeria and Uganda where less than 6 percent of households report receiving international remittances.

Furthermore, the survey includes questions on households' access to and use of formal financial services. In particular, households are asked whether any member of the household has a bank account. For households that have a member residing abroad, there is also a question asking if the household opened a bank account after the migrant left.

There is significant variation across countries in terms of households' financial inclusion. Over 60 percent of the households sampled from Kenya report that at least a member of the household has a bank account. In Burkina Faso, only 11 percent of households sampled report having a bank account. About 44 percent of households in Nigeria report having at least a member with a bank account. The corresponding figure is 23 percent for Uganda and 20 percent for Senegal.[5]

A relatively smaller proportion of the households with an international migrant note that a member of the household opened a bank account after the international migrant left the household. Higher values are reported in Kenya (and Uganda) where about 18 (and 8) percent of the households noted opening such account after the international migrant left the family. For the rest of the countries it is less than 5 percent.

We analyze the link between remittances and financial inclusion by estimating the following model:

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[5]A nationally representative survey of household financial inclusion indicates slightly lower figures for all the countries, except for Burkina Faso (Demirguc-Kunt and Klapper, 2012). The survey indicates that only about 6 percent of the population in Senegal has an account in formal financial institutions. Similarly, just about 42 percent of households in Kenya have an account in formal financial institutions. The corresponding figures for Uganda and Nigeria are 20 and 30 percent, respectively. In Burkina Faso, about 13 percent of the households report to have such account.

$$FI_h = \alpha + \beta1 * IntRem_h + \beta2 * X_h + \varepsilon_h \qquad (1)$$

Where h is the household, *FI* is the measure of financial inclusion, *IntRem* is the measure of households' remittances recipient status, X is a matrix of other household level variables, and ε is the error term. We use two measures of financial inclusion. A dummy variable that takes a value of 1 if any member of the household has a bank account, and zero otherwise. We also use a dummy that takes a value of 1 if the household opened a bank account after the migrant left the household, and zero otherwise. Note that this variable is only defined for the subset of households that have a migrant residing overseas.

We also use two measures of households' remittances recipient status. The first measure is a dummy indicating if the household received remittances from a migrant residing abroad. The second measure is the actual amount of remittances received by the household over the 12 months prior to the survey year.

We also control for additional variables that may affect households' financial inclusion (see Allen, Demirguc-Kunt, Klapper and Martinez Peria, 2012). We control for the household's education by including the proportion of adults in the household with at least a high school diploma. To capture the effect of household wealth on the demand and usage of financial services, we use the household's per capita expenditure. We also include the average age of the household members to account for a potential effect of age on financial inclusion. Given the role of proximity to financial services in access to finance and considering that financial services are mainly concentrated in urban areas, we include an urban dummy taking a value of 1 if the household resides in an urban area and zero otherwise. Table 1 lists all the variables used in our empirical analysis and provides definitions. We report summary statistics for all the variables used in Table 2.

III.   Results and Discussion

Baseline Regression

Table 3 provides the estimates of the baseline regression, where the dependent variable is the dummy that equals one for households that have bank accounts. We employ a simple Linear Probability model (LPM)[6] to estimate the regression equation, and standard errors are clustered at the region[7] and region fixed effects are controlled for. The results show that international remittances have a positive and significant effect in all of the five countries. The size of the point estimate varies across countries. For instance, in Kenya and Nigeria, receiving international remittances increases the probability of a household having a bank account by about 10 percentage points. The size of the coefficient is larger for Uganda, where receiving international remittances increases the probability of having a bank account by about 15 percentage points. The size of the coefficient is smaller for Senegal and Burkina Faso, where receiving international remittances increases the likelihood of having a bank account by about 5 and 6 percentage points, respectively.

As predicted, education enters with a positive and significant coefficient for all the countries. Average age enters with a negative and significant coefficient for two of the five countries, indicating that the older the household members are, the lower the likelihood that households will have a bank account. For Nigeria, however, the variable enters with a positive and significant effect, indicating the likelihood of having a bank account increases with age. The

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[6] Though our dependent variable is a limited dependent variable, we conduct our estimations with a linear probability model for a number of reasons. First, coefficients from this model can be easily interpreted. Second, fixed effect estimations are consistent. On the other hand, in the presence of fixed effects, probit models suffer from the incidental parameters problem which leads to inconsistent estimates.

[7] Since the geographic units vary across countries, we define region as the largest geographic unit in the sample for each country. In the case of Burkina Faso, region refers to administrative regions and for Nigeria it refers to states. For Kenya and Uganda, regions refer to the administrative districts, while for Senegal, the regional classification is based on the administrative provinces.

proxy for the household's level of income, per capita expenditure, has a positive and significant effect on the likelihood of having a bank account, except for Nigeria where the effect is negative, although not significantly different from zero. One of the issues with employing the LPM estimation is that the predicted values of the dependent variable may lie outside the zero-one range. We report the percentage of observations for which this is the case at the bottom row of the table. This issue does not appear to be serious in our case.

Table 4 provides estimation results using the actual value of remittances as the key explanatory variable. As before, international remittances enter with a positive and significant coefficient for all the countries. The results for the other explanatory variables are qualitatively similar to those reported in Table 3, except for Burkina Faso, where the actual value of remittances does not have a significant effect on the household's likelihood of opening a bank account.

IV Regression Results

A possible source of bias in the results reported above is the potential endogeneity of remittances. This could be due to reverse causality, since having a bank account may reduce the cost and inconvenience of receiving remittances, thereby potentially increasing the probability of receiving remittances. It could also be that both the likelihood of receiving remittances and of having a bank account are driven by unobservable variables. Our region fixed effects should help to mitigate this concern. Nonetheless, to address the potential endogeneity of remittances, we instrument international remittances with two variables. First, we use a measure of economic conditions in the migrants' destination countries. For each household with a migrant abroad, we construct a weighted per capita income of the countries where migrants reside; the weight being

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the share of household members that reside in each destination country. Instrumenting remittances using economic conditions in the migrants' destination countries is a similar procedure followed in other studies (Anzoategui et al., 2011; Aggarwal et al., 2011). Second, we use a measure of the employment status of the migrant member of the household residing abroad. For each household, we construct a measure taking the proportion of international migrants from the household that are currently employed. We expect the two variables to positively affect the propensity to remit and the size of remittances sent by migrants. For instance, migrants living in high income countries are, all else equal, more likely to send remittances. Similarly, the larger the proportion of migrants employed, the more likely they are to send remittances.

Table 5 provides estimation results of the first stage regressions, instrumenting the dummy for international remittances with the two variables described above. For each country, column (1) shows the first stage regression results using the weighted per capita income as instrument, column (2) presents the results using employment status of the migrant as instrument, while column (3) displays the results using both instruments. As can be seen, for all the countries in our analysis, the instruments enter with the expected sign and are statistically significant, both when entering the equation individually as well as jointly.

The bottom rows of the table provide some diagnostic tests for the validity of the instruments. We report the Kleibergen-Paap Lagrange Multiplier (LM) statistic to test the relevance of the instrument, i.e., the extent to which the two instruments are correlated with international remittances. Under the null hypothesis that the instruments are not relevant, this statistic follows a chi-squared distribution. In our case, the null hypothesis is rejected for all the countries, indicating that the instruments are relevant. We also report the Kleibergen-Paap transformed F statistic to test for the weak instruments problem. The test statistics rejects the null

of weak instruments using the critical values reported in Stock and Yogo (2005).[8] In addition, the variables are also found to be orthogonal to the error process of financial inclusion on the basis of the Hansen J statistic for over-identifying restrictions (column (3) for each of the countries). Thus, the instrument set is deemed valid for the purpose of the current exercise. Finally, given these findings, we can test for whether international remittances is an endogenous variable in the first place. This is essentially a postmortem type of test to see if we needed to instrument for international remittances in the first place. The test is based on C-statistic and follows a chi-squared distribution under the null hypothesis that the endogenous regressor can be treated as exogenous and, therefore, no need for instrumenting in the first place. In almost all the cases, except marginally so for Senegal, the test does not reject the null hypothesis of exogeneity of the international remittances variable. This means that endogeneity is not a serious issue in the first place and the baseline regression results are generally valid.

Table 6 presents the estimation results of the second stage regressions. For each country, column (1) provides estimation results, using the weighted per capita income of the migrant destination as the instrument; column (2) shows results of the regressions using employment status of the international migrant as instrument, while column (3) provides the results using the two instruments jointly. In all the regressions, standard errors are clustered at the regional level and regional fixed effects are controlled for. As can be seen, for Kenya, international remittances enters with positive and significant coefficient in the three specifications. Interestingly, the size of the coefficient is essentially similar to the baseline regressions. The results for the other control variables are also identical to the estimates in the baseline regression. For Uganda as

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[8] The critical value for the 10% (15%) maximal IV size is 16.38 for one instrument. When remittances is instrumented by the two instruments, the corresponding values are 19.93(11.56). The test statistics reported in the table are higher than the critical values of the 10% maximal IV size, except in the first column for Senegal, which is significant at 15%, indicating that the instruments used are not weak enough to distort the results of the IV regression.

well, international remittances enters with a positive and significant coefficient, and the size of the coefficient is slightly higher than the estimates in the baseline regression. Similarly, the estimates of the control variables are broadly comparable to the respective values reported in the baseline regression. For Burkina Faso, however, the international remittances variable is significant marginally and only in one of the three specifications, i.e., when the two instruments are used jointly. Remittances ceases to be significant when the two instruments enter separately. For Senegal, once again, the international remittances variable has a significant effect on households' financial inclusion, and the size of the coefficient is almost twice that of the baseline regression.

We also report similar results for the actual value of international remittances. Table 7 contains the results of the first stage regressions using the actual value of remittances. The instruments enter with the expected sign and are statistically significant, both when used individually as well as jointly. The diagnostic tests indicate that the instruments do not suffer from the weak instruments problem and that they are valid instruments. The diagnostic tests also indicate that the international remittances variable is not endogenous in the regression and, hence, the baseline regression results reported in Table 4 are valid. Table 8 presents the estimation results for the second stage regressions. The results are qualitatively similar to what is reported in Table 4.

We report two sets of additional results meant to check for the robustness of our findings. First, we re-estimate results reported in Table 5 to 8 by using weighted regression for countries where relevant weighting information is available. Second, we report regression results using a dummy for whether the household opened a bank account after international migrant left the household. We will discuss each of them in turn.

Since the survey is based on a non-random sampling technique, sampling weights are provided for all the countries except for Kenya. Although there are compelling reasons to use sampling weights when estimating population descriptive statistics based on a non-random sample data, the case for using sampling weights in analysis dealing with causal inferences is a bit nuanced (Deaton 1997; Haider et al 2013; Winship and Radbill 1994). Haider et al., (2013) provide three potential motives for using sampling weights in such analysis.[9] A textbook case is where one suspects the error term to be heteroskedastic, arising from the error term varying with the criteria used in the sampling design. Properly weighted regressions can reduce the problem of heteroskedasticity and could potentially improve the efficiency of the estimates. However, using sampling weights in an otherwise homoscedastic error term produces an inefficient estimate. The second case is when the sampling design is endogenous, i.e., when the sampling criteria is a function of the dependent variable modeled in the regression analysis. In such cases, unweighted OLS produces biased and inconsistent estimates since certain group could be over/under represented in the sample relative to the population, necessitating the need to correct for this by applying proper sampling weights. On the contrary, if the sampling design is exogenous, using sampling weights may make the estimates inefficient. The third scenario where one needs to use sampling weights in regression analysis for causal inference is when there is heterogeneity in the impact of explanatory variables that is somehow a function of the sampling criteria used. In our context, the sampling criterion is based on the migrant status of the households and clearly not a function of the dependent variable modeled. Hence, the second case for the need to use sampling weights does not apply to our case. The potential heteroskedasticity arising from some form of misspecifications is, however, already taken care of since we report robust standard errors,

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[9] Haider et al. (2013) also provide a comprehensive discussion of the trade-offs involved in using sampling weights in regression analysis.

corrected for unknown heteroskedasticity. Nevertheless, we report the results of the weighted IV regression for completeness.[10]

Appendix Tables 1 to 4 presents the first and second stage IV weighted regressions using the dummy and actual value of remittances. Appendix Table 1 provides the first stage IV regression results by instrumenting the remittances dummy using the two instrumental variables noted earlier. The estimation results are broadly comparable to the results based on unweighted regressions reported in Tables 5. In particular, the estimated coefficients of the two instrumental variables remain virtually unchanged by using sampling weights. Appendix Table 2 presents the second stage regression results of the IV estimation using a dummy for remittances. For Uganda and to some extent for Senegal, the results of the weighted and unweighted estimations are broadly similar. However, our key variable is no longer significant for Burkina Faso in all three specifications and for Nigeria in two of the three specifications. Weighted regression substantially reduces the size of the estimated coefficients for Nigeria, while it increased the standard error for Burkina Faso. Appendix Table 3 and Table 4 report respective results for weighted regression estimates using the actual value (in US$) of remittances received by the household.

We also report regression results using a dummy for whether the household has opened a bank account after international migrant left the household in Appendix Table 5 and 6. We estimate results with this alternative indicator of the use of bank accounts because we believe this variable is less likely to be affected by reverse causality issues given the nature of the questions (i.e., the fact that it assumes that the migration occurred first). Although a relatively

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[10] We also report the estimate for Kenya, although there are no sampling weights in the survey for the country.

small fraction of the households report opening such account[11], the results are positive and significant for all the countries (except for Uganda in some of the estimations), indicating that international remittances increases the probability that the household opens a bank account after the migrant left.

IV. Conclusion

Remittances inflows to SSA have been increasing over recent years, growing on average at about 4 percent between 2010 and 2013. The region is estimated to have received about $32 billion US$ in 2013. In addition to serving as a lifeline for many households, remittances inflows can impact the aggregate level of financial development and households' use of formal financial services. Although there are studies examining the impact of remittances on aggregate financial sector development in SSA, to our knowledge, there are no studies on the impact of remittances on households' financial inclusion.

Using survey data for approximately 10,000 households in five countries in SSA, we show that international remittances play an important role in enhancing households' financial inclusion. The findings of the paper add to the nascent literature on remittances and financial inclusion at the household level.

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[11] Note that the variable "bank account after international migrant left" is constructed only for households that have international migrants. Therefore, the regression results reported in Appendix tables 5 and 6 are based on sub-set of sample used in the rest of the tables.

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Table 1: Definition of variables

Variables	Definitions
Bank account	A dummy variable taking a value of one if the household has a bank account, and zero otherwise.
Bank account after international migrant left	A dummy variable taking a value of one if the household has opened a bank account after the member left the households to go abroad, and zero otherwise. This variable is defined only for households with at least one of their members residing abroad.
International remittances	A dummy variable taking a value of 1 if the household has received remittances from abroad over the past 12 months and zero otherwise.
ln(Actual value of remittances)	The per capita value (in US$) of total remittances received from abroad by the household over the past 12 months.
High School	The fraction of adult members of household with high school and above level of education.
Age	The average age of the members of the household.
ln(Per capita spending)	Household's per capita annual expenditure.
Urban	Dummy taking a value of one if the household resides in an urban area, and zero otherwise.

Table 2: Descriptive statistics
Summary statistics of variables used in the analysis. Except for Kenya, in all other cases, all summary statistics are weighted by relevant sampling weights.

Variable	Kenya		Uganda		Nigeria		Burkina Faso		Senegal	
	Mean	Sd.	Mean	Sd.	Mean	Sd.	Mean	Sd.	Mean	Sd.
Bank Account	0.63	0.48	0.23	0.42	0.44	0.50	0.11	0.32	0.20	0.40
Bank after International Migrant left	0.18	0.39	0.08	0.27	0.14	0.35	0.01	0.10	0.04	0.20
International Remittances	0.24	0.43	0.05	0.22	0.06	0.23	0.20	0.40	0.24	0.43
ln(Actual Value of International remittances)	1.25	2.34	0.19	0.92	0.19	0.86	0.45	1.00	0.92	1.80
High School	0.48	0.41	0.19	0.33	0.38	0.40	0.10	0.19	0.18	0.28
Age	29.86	14.08	24.65	11.91	23.26	9.58	22.08	8.50	24.18	8.20
ln(Per capita spending)	5.64	1.32	4.65	1.21	6.52	1.21	4.21	0.83	5.12	0.88
Urban	0.49	0.50	0.18	0.38	0.44	0.50	0.07	0.26	0.49	0.50
N	1937	1937	1870	1870	2245	2245	2100	2100	1833	1833
N (Bank after International Migrant Left)	711	711	249	249	580	580	694	694	620	620

Table 3: Baseline regression results for the probability of having a bank account on the dummy for international remittances

The dependent variable is a dummy equal to one if the household has a bank account and zero otherwise. International remittances is a dummy taking a value of 1 if the household has received remittances over the past 12 months, and zero otherwise. Other variables are defined in Table 1. Standard errors are clustered at the regional level and region level fixed effects are controlled for. t-statistics are in parentheses. *,**,*** denote significance at 10, 5, and 1 percent, respectively.

Variable	Kenya	Uganda	Nigeria	Burkina Faso	Senegal
International Remittance	0.088***	0.155***	0.096***	0.049**	0.058**
	(3.866)	(3.252)	(5.370)	(2.825)	(2.854)
High School	0.394***	0.479***	0.447***	0.148***	0.476***
	(10.946)	(9.915)	(10.014)	(4.126)	(14.101)
Age	0.000	-0.001	0.003**	-0.003**	-0.002***
	(0.110)	(-1.610)	(2.662)	(-3.501)	(-3.706)
ln(Per capita spending)	0.056***	0.063***	-0.012	0.077***	0.080***
	(4.321)	(4.606)	(-0.831)	(4.102)	(3.336)
Urban	0.080**	0.145***	0.040	0.145	0.077***
	(2.379)	(4.128)	(1.190)	(1.468)	(3.703)
Constant	0.065	-0.165***	0.330***	-0.192*	-0.293**
	(0.852)	(-2.792)	(3.279)	(-2.438)	(-2.484)
Observations	1,937	1,870	2,245	2,100	1,833
R-squared	0.322	0.383	0.452	0.111	0.308
Percentage of observations outside the 0-1 range	4.285	5.882	0.0445	6.810	3.819

Table 4: Baseline regression results for the probability of having a bank account on the actual value of international remittances

The dependent variable is a dummy that equals one if the household has a bank account and zero otherwise. International remittances is a per capita value (in US$) of remittances received by the household over the past 12 months from members and non-members residing abroad. Other variables are defined in Table 1. Standard errors are clustered at the regional level and region level fixed effects are controlled for. t-statistics are in parentheses. *,**,*** denote significance at 10, 5, and 1 percent, respectively.

Variable	Kenya	Uganda	Nigeria	Burkina Faso	Senegal
ln(Actual Value of International Remittance)	0.013***	0.036***	0.026***	0.015	0.011**
	(3.858)	(4.327)	(3.606)	(1.888)	(2.377)
High School	0.394***	0.477***	0.446***	0.149***	0.476***
	(11.093)	(9.889)	(10.143)	(4.184)	(14.000)
Age	0.000	-0.001*	0.003**	-0.003**	-0.002***
	(0.134)	(-1.720)	(2.719)	(-3.580)	(-3.676)
ln(Per capita spending)	0.056***	0.062***	-0.015	0.076***	0.078***
	(4.200)	(4.612)	(-1.069)	(4.191)	(3.356)
Urban	0.078**	0.146***	0.039	0.141	0.077***
	(2.330)	(4.268)	(1.169)	(1.435)	(3.767)
Constant	0.071	-0.155***	0.353***	-0.183**	-0.280**
	(0.913)	(-2.719)	(3.659)	(-2.458)	(-2.443)
Observations	1,937	1,870	2,245	2,100	1,833
R-squared	0.320	0.383	0.453	0.109	0.307
Percentage of observations outside the 0-1 range	4.388	6.364	0.223	6.286	3.219

Table 5: First stage instrumental variable regressions for the remittances dummy

The dependent variable is a dummy equal to one if the household received international remittances over the past 12 months, and zero otherwise. The instruments are the weighted per capita income of the migrants' destination countries and the proportion of migrants that are currently employed. Other variables are defined in Table 1. Standard errors are clustered at the regional level and region level fixed effects are controlled for. t-statistics are in parentheses. *,**,*** denote significance at 10, 5, and 1 percent, respectively

	Kenya			Uganda			Nigeria			Burkina Faso			Senegal		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
High School	-0.023	0.002	-0.012	0.058***	0.053***	0.048***	0.016	0.017	0.009	0.015	0.046	0.045	-0.052	0.039	-0.006
	(-1.109)	(0.112)	(-0.754)	(3.319)	(3.206)	(3.041)	(0.593)	(0.691)	(0.359)	(0.349)	(1.120)	(1.118)	(-1.564)	(1.407)	(-0.290)
Age	-0.001	0.000	-0.001	-0.000	-0.000	-0.000	0.003***	0.002**	0.001*	0.001	0.001	0.000	-0.003	-0.002	-0.002
	(-0.892)	(0.350)	(-1.177)	(-1.133)	(-0.297)	(-0.570)	(3.357)	(2.294)	(2.035)	(0.801)	(0.921)	(0.782)	(-1.456)	(-1.388)	(-1.085)
ln (Per capita spending)	0.025*	0.026**	0.018*	0.019***	0.014**	0.013**	-0.006	0.003	0.002	-0.016	-0.008	-0.010	0.041***	0.042***	0.033***
	(2.096)	(2.725)	(1.888)	(3.096)	(2.354)	(2.428)	(-0.581)	(0.344)	(0.240)	(-1.138)	(-1.069)	(-1.154)	(3.658)	(3.834)	(4.712)
Urban	-0.050**	-0.041**	-0.037*	0.061**	0.043**	0.042**	-0.022	-0.016	-0.018	-0.062**	-0.000	-0.021	-0.050	-0.012	-0.029
	(-2.413)	(-2.143)	(-2.064)	(2.479)	(2.373)	(2.327)	(-1.725)	(-1.187)	(-1.387)	(-2.495)	(-0.015)	(-1.599)	(-1.655)	(-0.672)	(-1.284)
Weighted per capita income in migrants' destination countries	0.017***		0.008***	0.002***		0.000**	0.002***		0.001***	0.003**		0.001*	0.003***		0.002***
	(15.481)		(6.851)	(6.897)		(2.562)	(17.536)		(4.484)	(2.852)		(2.328)	(8.129)		(8.524)
Proportion of migrants abroad currently employed		0.734***	0.596***		0.513***	0.480***		0.733***	0.571***		0.601***	0.589***		0.718***	0.531***
		(20.283)	(13.129)		(13.895)	(12.927)		(12.881)	(7.282)		(14.272)	(14.361)		(23.203)	(18.101)
N	1937	1937	1937	1870	1870	1870	2245	2245	2245	2100	2100	2100	1833	1833	1833
Kleibergen-Paap LM Statistic	14.214	15.160	15.239	6.569	10.661	13.551	9.964	9.999	10.117	5.809	4.462	6.064	5.591	6.888	7.258
P-value	0.000	0.000	0.000	0.010	0.001	0.001	0.002	0.002	0.006	0.016	0.035	0.048	0.018	0.009	0.027
Kleibergen-Paap F-Statistic	239.651	411.389	177.783	47.566	193.084	86.374	307.496	165.927	242.603	8.134	203.680	108.088	66.088	538.370	164.752
Hansen J-statistic	0.000	0.000	0.260	0.000	0.000	2.553	0.000	0.000	2.720	0.000	0.000	1.236	0.000	0.000	0.804
P-value			0.610			0.110			0.099			0.266			0.370
Endogeneity test	0.085	0.129	0.045	2.592	2.197	0.300	2.673	0.237	0.402	1.122	0.589	0.372	2.760	2.797	2.563
P-value	0.771	0.720	0.832	0.107	0.138	0.584	0.102	0.627	0.526	0.289	0.443	0.542	0.097	0.094	0.109

Table 6: Second stage estimation results of the IV regressions for the remittances dummy

The table provides second stage estimation results of the likelihood of having a bank account by instrumenting the dummy of remittances using the weighted per capita income of the migrants' destination and the proportion of migrants that are currently employed. International remittances is a dummy that takes a value of one if the household received international remittances over the past 12 months of the survey time from member and non-member of the household residing outside the country, and zero otherwise. Other variables are defined in Table 1. Standard errors are clustered at the regional level and region level fixed effects are controlled for. t-statistics are in parentheses. *,**,*** denote significance at 10, 5, and 1 percent, respectively.

	Kenya			Uganda			Nigeria			Burkina Faso			Senegal		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
International Remittances	0.099**	0.080***	0.084***	0.452***	0.281***	0.295***	0.138***	0.086***	0.100***	0.254	0.035	0.043*	0.120***	0.097***	0.105***
	(2.223)	(2.646)	(2.806)	(3.244)	(3.050)	(3.108)	(4.818)	(2.904)	(3.714)	(1.568)	(1.606)	(1.814)	(3.901)	(2.872)	(3.343)
High School	0.394***	0.395***	0.395***	0.454***	0.468***	0.467***	0.444***	0.447***	0.447***	0.145***	0.149***	0.148***	0.475***	0.475***	0.475***
	(11.318)	(11.368)	(11.356)	(8.718)	(9.418)	(9.350)	(10.100)	(10.398)	(10.319)	(4.367)	(4.435)	(4.439)	(13.881)	(14.119)	(14.032)
Age	0.000	0.000	0.000	-0.001*	-0.001*	-0.001*	0.003**	0.003***	0.003***	-0.003***	-0.003***	-0.003***	-0.002***	-0.002***	-0.002***
	(0.083)	(0.142)	(0.127)	(-1.678)	(-1.670)	(-1.671)	(2.494)	(2.818)	(2.736)	(-3.866)	(-3.809)	(-3.819)	(-3.676)	(-3.888)	(-3.832)
ln(Per capita spending)	0.055***	0.056***	0.056***	0.057***	0.061***	0.060***	-0.012	-0.012	-0.012	0.080***	0.077***	0.077***	0.075***	0.077***	0.076***
	(4.338)	(4.186)	(4.233)	(4.887)	(4.892)	(4.906)	(-0.821)	(-0.871)	(-0.857)	(4.242)	(4.497)	(4.483)	(3.361)	(3.395)	(3.389)
Urban	0.081**	0.079**	0.080**	0.125***	0.137***	0.136***	0.040	0.039	0.040	0.149	0.145	0.145	0.078***	0.078***	0.078***
	(2.392)	(2.406)	(2.404)	(3.334)	(3.882)	(3.838)	(1.274)	(1.228)	(1.241)	(1.600)	(1.589)	(1.589)	(3.944)	(3.887)	(3.907)
N	1937	1937	1937	1870	1870	1870	2245	2245	2245	2100	2100	2100	1833	1833	1833

Table 7: First stage instrumental variable regression results for the actual value of remittances

The dependent variable is the per capita value (in US$) of international remittances received by household over the past 12 months from members and non-members of the household residing abroad. The instruments are the weighted per capita income of the migrants' destination countries and the proportion of migrants that are currently employed. Other variables are defined in Table 1. Standard errors are clustered at the regional level and region level fixed effects are controlled for. t-statistics are in parentheses. *,**,*** denote significance at 10, 5, and 1 percent, respectively.

	Kenya			Uganda			Nigeria			Burkina Faso			Senegal		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
High School	-0.081	0.040	-0.022	0.285***	0.291***	0.248***	0.085	0.093	0.062	-0.019	0.034	0.030	-0.207	0.201	-0.042
	(-0.742)	(0.465)	(-0.287)	(3.668)	(4.239)	(3.792)	(0.961)	(1.029)	(0.696)	(-0.123)	(0.236)	(0.208)	(-1.217)	(1.218)	(-0.325)
Age	0.000	0.003	-0.001	-0.000	0.002	0.001	0.011	0.008	0.005	0.004	0.003	0.003	-0.013	-0.009	-0.009
	(0.105)	(1.311)	(-0.265)	(-0.204)	(0.945)	(0.364)	(1.659)	(1.127)	(0.894)	(1.803)	(1.581)	(1.619)	(-1.529)	(-1.563)	(-1.264)
ln(Per capita spending)	0.236***	0.230***	0.194***	0.116***	0.098***	0.096***	0.093**	0.124***	0.120***	0.039	0.055	0.049	0.350***	0.369***	0.323***
	(3.420)	(4.419)	(3.692)	(3.516)	(2.974)	(3.248)	(2.329)	(3.228)	(3.241)	(0.811)	(1.340)	(1.189)	(5.474)	(6.536)	(7.284)
Urban	-0.234**	-0.176	-0.161	0.231**	0.167**	0.161**	-0.044	-0.022	-0.027	0.102	0.238	0.171	-0.229**	-0.062	-0.151
	(-2.402)	(-1.714)	(-1.652)	(2.371)	(2.204)	(2.130)	(-0.862)	(-0.390)	(-0.512)	(0.821)	(1.488)	(1.241)	(-2.623)	(-0.632)	(-1.751)
Weighted per capita income in migrants' destination countries	0.086***		0.033***	0.008***		0.004***	0.008***		0.003***	0.008**		0.005**	0.014***		0.009***
	(12.977)		(5.093)	(8.975)		(4.401)	(14.361)		(3.908)	(3.626)		(3.182)	(8.190)		(6.825)
Proportion of migrants abroad currently employed		3.894***	3.289***		2.124***	1.796***		2.695***	2.062***		1.027***	0.989***		2.910***	1.915***
		(20.404)	(15.422)		(14.646)	(12.260)		(15.324)	(7.916)		(6.518)	(6.383)		(18.773)	(20.697)
N	1937	1937	1937	1870	1870	1870	2245	2245	2245	2100	2100	2100	1833	1833	1833
Kleibergen-Paap LM Statistic	14.091	14.798	14.889	5.496	7.871	10.884	9.218	9.467	9.498	4.916	5.084	6.326	5.452	6.417	7.127
P-value	0.000	0.000	0.001	0.019	0.005	0.004	0.002	0.002	0.009	0.027	0.024	0.042	0.020	0.011	0.028
Kleibergen-Paap F-Statistic	168.398	416.321	173.393	80.550	214.506	114.552	206.250	234.835	222.660	13.151	42.481	24.861	67.075	352.443	377.275
Hansen J-statistic	0.000	0.000	0.412	0.000	0.000	1.281	0.000	0.000	2.625	0.000	0.000	1.227	0.000	0.000	0.195
P-value			0.521			0.258			0.105			0.268			0.659
Endogeneity test	0.813	0.205	0.427	2.443	2.221	1.272	2.587	0.271	0.314	1.277	0.152	0.250	3.055	3.893	3.883
P-value	0.367	0.651	0.513	0.118	0.136	0.259	0.108	0.603	0.575	0.258	0.696	0.617	0.080	0.048	0.049

Table 8: Second stage IV results for the actual value of remittances

The table provides estimation results of the likelihood of having a bank account by instrumenting the dummy of remittances using the weighted per capita income of the migrants' destination and the proportion of migrants that are currently employed. International remittances is the total value (in US$) remittances received by the household over the past 12 months of the survey time from member and non-member of the household residing outside the country. Other variables are defined in Table 1. Standard errors are clustered at the regional level and regional level fixed effects are controlled for. t-statistics are in parentheses. *,**,*** denote significance at 10, 5, and 1 percent, respectively.

	Kenya			Uganda			Nigeria			Burkina Faso			Senegal		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
ln(Actual Value of International Remittances)	0.020**	0.015***	0.016***	0.086***	0.068***	0.072***	0.037***	0.023***	0.027***	0.106*	0.021	0.028*	0.026***	0.024***	0.025***
	(2.211)	(2.741)	(2.857)	(3.691)	(3.529)	(3.712)	(4.877)	(2.757)	(3.575)	(1.762)	(1.572)	(1.850)	(3.911)	(2.953)	(3.567)
High School	0.394***	0.394***	0.394***	0.456***	0.464***	0.462***	0.443***	0.447***	0.446***	0.151***	0.150***	0.150***	0.474***	0.474***	0.474***
	(11.450)	(11.482)	(11.477)	(8.979)	(9.315)	(9.236)	(10.280)	(10.537)	(10.466)	(5.124)	(4.587)	(4.661)	(13.481)	(13.558)	(13.521)
Age	0.000	0.000	0.000	-0.001**	-0.001*	-0.001*	0.003**	0.003***	0.003***	-0.003***	-0.003***	-0.003***	-0.002***	-0.002***	-0.002***
	(0.019)	(0.106)	(0.089)	(-1.960)	(-1.896)	(-1.911)	(2.514)	(2.866)	(2.774)	(-4.143)	(-3.894)	(-3.939)	(-3.548)	(-3.713)	(-3.650)
ln(Per capita spending)	0.053***	0.055***	0.055***	0.055***	0.058***	0.057***	-0.016	-0.015	-0.015	0.072***	0.076***	0.076***	0.071***	0.072***	0.071***
	(4.095)	(4.025)	(4.056)	(4.914)	(4.936)	(4.953)	(-1.172)	(-1.092)	(-1.116)	(4.184)	(4.451)	(4.472)	(3.336)	(3.262)	(3.305)
Urban	0.080**	0.079**	0.079**	0.132***	0.137***	0.136***	0.039	0.038	0.039	0.122	0.140	0.139	0.078***	0.078***	0.078***
	(2.384)	(2.396)	(2.395)	(3.795)	(4.047)	(3.994)	(1.240)	(1.204)	(1.214)	(1.359)	(1.536)	(1.526)	(4.157)	(4.083)	(4.118)
N	1937	1937	1937	1870	1870	1870	2245	2245	2245	2100	2100	2100	1833	1833	1833

Appendix Table 1: First stage instrumental variable regression results using the dummy of remittances and using sampling weights

The dependent variable is a dummy equal to one if the household received international remittances over the past 12 months, and zero otherwise. The instruments are the weighted per capita income of the migrants' destination and the proportion of migrants that are currently employed. Other variables are defined in Table 1. Standard errors are clustered at the regional level and region level fixed effects are controlled for and regression is weighted using the relevant sample weights, except for Kenya where results are based on unweighted regressions since the sample is not nationally representative. t-statistics are in parentheses. *,**,*** denote significance at 10, 5, and 1 percent, respectively.

	Kenya			Uganda			Nigeria			Burkina Faso			Senegal		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
High School	-0.023	0.002	-0.012	0.070***	0.059***	0.057***	-0.004	0.006	0.001	-0.064*	-0.002	0.006	0.030	0.142*	0.068
	(-1.109)	(0.112)	(-0.754)	(3.317)	(3.070)	(3.080)	(-0.262)	(0.598)	(0.052)	(-2.362)	(-0.084)	(0.225)	(0.463)	(2.052)	(1.205)
Age	-0.001	0.000	-0.001	-0.000	-0.000	-0.000	0.000	0.000	-0.000	0.002***	0.000	0.000	0.001	0.000	0.001
	(-0.892)	(0.350)	(-1.177)	(-0.084)	(-0.255)	(-0.389)	(1.390)	(0.645)	(-0.024)	(3.907)	(0.657)	(0.949)	(0.467)	(0.088)	(0.617)
ln(Per capita spending)	0.025*	0.026**	0.018*	0.015**	0.009**	0.010**	-0.001	0.003	0.003	-0.028	-0.014	-0.017	0.024	0.033**	0.026
	(2.096)	(2.725)	(1.888)	(2.565)	(2.208)	(2.314)	(-0.466)	(0.870)	(0.808)	(-1.857)	(-1.513)	(-1.524)	(0.850)	(2.267)	(1.608)
Urban	-0.050**	-0.041**	-0.037*	0.059**	0.043**	0.041**	-0.007	-0.011	-0.010	-0.096*	-0.014	-0.027	-0.055	-0.037	-0.040
	(-2.413)	(-2.143)	(-2.064)	(2.336)	(2.331)	(2.219)	(-0.998)	(-1.452)	(-1.315)	(-2.366)	(-0.568)	(-1.622)	(-1.380)	(-1.299)	(-1.261)
Weighted per capita income in migrants' destination countries	0.017***		0.008***	0.002***		0.000	0.002***		0.001***	0.005**		0.003***	0.003***		0.002***
	(15.481)		(6.851)	(5.399)		(1.372)	(22.510)		(3.947)	(3.289)		(6.713)	(8.854)		(8.815)
Proportion of migrants abroad currently employed		0.734***	0.596***		0.495***	0.469***		0.821***	0.649***		0.627***	0.610***		0.732***	0.558***
		(20.283)	(13.129)		(9.013)	(8.433)		(17.838)	(7.409)		(16.197)	(15.978)		(18.913)	(14.683)
N	1937	1937	1937	1870	1870	1870	2245	2245	2245	2100	2100	2100	1833	1833	1833
Kleibergen-Paap LM Statistic	14.214	15.160	15.239	8.760	17.689	18.399	5.713	4.545	7.839	5.266	4.310	5.347	5.960	7.131	7.238
P-val	0.000	0.000	0.000	0.003	0.000	0.000	0.017	0.033	0.020	0.022	0.038	0.069	0.015	0.008	0.027
Kleibergen-Paap F-Statistic	239.651	411.389	177.783	29.150	81.228	39.392	506.704	318.179	566.992	10.820	262.334	138.192	78.401	357.693	113.300
Hansen J-statistic	0.000	0.000	0.260	0.000	0.000	1.687	0.000	0.000	2.923	0.000	0.000	0.963	0.000	0.000	1.031
P-value			0.610			0.194			0.087			0.326			0.310
Endogeneity test	0.085	0.129	0.045	2.073	0.913	0.528	0.003	1.545	0.208	0.860	0.299	0.108	0.107	0.128	0.579
P-value	0.771	0.720	0.832	0.150	0.339	0.467	0.958	0.214	0.648	0.354	0.584	0.742	0.744	0.720	0.447

Appendix Table 2: Second stage IV regressions for the dummy of remittances using sampling weights

The table provides estimation results of the likelihood of having a bank account by instrumenting the dummy of remittances using the weighted per capita income of the migrants' destination and the proportion of migrants that are currently employed. International remittances is a dummy that takes a value of one if the household received international remittances over the past 12 months of the survey time from member and non-member of the household residing outside the country, and zero otherwise. Other variables are defined in Table 1. Standard errors are clustered at the regional level and region level fixed effects are controlled for and regression is weighted using the relevant sample weights, except for Kenya where results are based on unweighted regressions since the sample is not nationally representative. t-statistics are in parentheses. *,**,*** denote significance at 10, 5, and 1 percent, respectively.

	Kenya			Uganda			Nigeria			Burkina Faso			Senegal		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
International Remittances	0.099**	0.080***	0.084***	0.458***	0.288***	0.299***	0.062*	0.033	0.040	0.190	0.026	0.035	0.105*	0.069*	0.080*
	(2.223)	(2.646)	(2.806)	(3.380)	(3.232)	(3.339)	(1.788)	(1.246)	(1.424)	(1.252)	(0.923)	(1.069)	(1.946)	(1.690)	(1.914)
High School	0.394***	0.395***	0.395***	0.491***	0.507***	0.506***	0.444***	0.445***	0.444***	0.168***	0.154***	0.155***	0.463***	0.470***	0.468***
	(11.318)	(11.368)	(11.356)	(9.401)	(10.621)	(10.532)	(9.493)	(9.583)	(9.562)	(3.535)	(2.631)	(2.675)	(7.308)	(7.518)	(7.465)
Age	0.000	0.000	0.000	-0.001**	-0.001**	-0.001**	0.003*	0.003**	0.003**	-0.003**	-0.003***	-0.003***	-0.003**	-0.003**	-0.003**
	(0.083)	(0.142)	(0.127)	(-2.502)	(-2.377)	(-2.386)	(1.946)	(1.994)	(1.983)	(-2.480)	(-2.605)	(-2.593)	(-2.216)	(-2.266)	(-2.251)
ln(Per capita spending)	0.055***	0.056***	0.056***	0.051***	0.053***	0.053***	-0.020	-0.020	-0.020	0.084***	0.080***	0.081***	0.045**	0.047**	0.046**
	(4.338)	(4.186)	(4.233)	(5.002)	(5.134)	(5.133)	(-1.408)	(-1.427)	(-1.422)	(2.870)	(3.064)	(3.048)	(2.228)	(2.399)	(2.344)
Urban	0.081**	0.079**	0.080**	0.125***	0.138***	0.137***	0.032	0.032	0.032	0.015	0.003	0.003	0.102***	0.100***	0.101***
	(2.392)	(2.406)	(2.404)	(4.336)	(4.847)	(4.827)	(0.872)	(0.862)	(0.865)	(0.134)	(0.025)	(0.030)	(4.598)	(4.606)	(4.616)
N	1937	1937	1937	1870	1870	1870	2245	2245	2245	2100	2100	2100	1833	1833	1833

Appendix Table 3: First stage instrumental variable regressions using actual value of remittances and using sampling weights

The dependent variable is the per capita value (in US$) of international remittances received by household over the past 12 months from members and non-members residing abroad. The independent variables are weighted per capita income of the migrants' destination and the proportion of migrants that are currently employed. Other variables are defined in Table 1. Standard errors are clustered at the regional level and region level fixed effects are controlled for and regression is weighted using the relevant sample weights, except for Kenya where results are based on unweighted regressions since the sample is not nationally representative. t-statistics are in parentheses. *,**,*** denote significance at 10, 5, and 1 percent, respectively.

	Kenya			Uganda			Nigeria			Burkina Faso			Senegal		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
High School	-0.085	0.031	-0.030	0.301***	0.279***	0.252***	0.006	0.045	0.022	-0.088	0.006	0.032	0.163	0.706**	0.294
	(-0.770)	(0.367)	(-0.401)	(3.819)	(4.363)	(4.380)	(0.202)	(1.050)	(0.657)	(-0.831)	(0.038)	(0.243)	(0.681)	(2.456)	(1.356)
Age	0.001	0.004	-0.000	0.001	0.002	0.001	0.003*	0.002	0.002	0.004**	0.001	0.001	-0.002	-0.005	-0.002
	(0.280)	(1.417)	(-0.092)	(0.723)	(0.989)	(0.700)	(1.896)	(1.419)	(1.128)	(3.075)	(0.387)	(0.619)	(-0.321)	(-0.851)	(-0.428)
ln(Per capita spending)	0.235***	0.229***	0.193***	0.090***	0.069***	0.072***	0.032	0.047*	0.045*	-0.004	0.024	0.014	0.275**	0.319***	0.279***
	(3.439)	(4.427)	(3.698)	(2.912)	(2.852)	(3.023)	(1.662)	(1.841)	(1.786)	(-0.101)	(0.825)	(0.450)	(2.683)	(3.604)	(3.894)
Urban	-0.232**	-0.174	-0.158	0.261**	0.210**	0.195**	-0.032	-0.044*	-0.041*	-0.086	0.075	0.032	-0.386*	-0.320*	-0.335*
	(-2.376)	(-1.705)	(-1.633)	(2.430)	(2.583)	(2.347)	(-1.579)	(-1.853)	(-1.770)	(-0.741)	(0.682)	(0.341)	(-1.816)	(-1.862)	(-2.139)
Weighted per capita income in migrants' destination countries	0.086***		0.033***	0.008***		0.003**	0.009***		0.003***	0.013***		0.009***	0.015***		0.009***
	(13.057)		(5.110)	(5.897)		(2.629)	(19.509)		(4.588)	(4.646)		(5.498)	(7.208)		(6.156)
Proportion of migrants abroad currently employed		3.893***	3.289***		1.929***	1.685***		2.883***	2.203***		1.099***	1.045***		2.874***	1.896***
		(20.471)	(15.412)		(7.818)	(6.974)		(21.336)	(9.071)		(7.522)	(7.213)		(8.309)	(7.980)
N	1937	1937	1937	1870	1870	1870	2245	2245	2245	2100	2100	2100	1833	1833	1833
Kleibergen-Paap LM Statistic	14.107	14.797	14.891	7.694	13.493	14.547	5.766	4.805	7.082	4.324	4.166	5.085	5.713	6.516	6.944
P-val	0.000	0.000	0.001	0.006	0.000	0.001	0.016	0.028	0.029	0.038	0.041	0.079	0.017	0.011	0.031
Kleibergen-Paap F-Statistic	170.487	419.081	174.714	34.771	61.120	31.568	380.614	455.226	344.080	21.589	56.577	45.926	51.953	69.040	55.369
Hansen J-statistic	0.000	0.000	0.469	0.000	0.000	0.581	0.000	0.000	2.896	0.000	0.000	1.011	0.000	0.000	0.671
P-value			0.493			0.446			0.089			0.315			0.413
Endogeneity test	0.868	0.186	0.411	1.887	1.282	1.567	0.410	1.302	0.000	0.901	0.037	0.004	0.576	0.119	0.089
P-value	0.352	0.667	0.521	0.170	0.257	0.211	0.522	0.254	0.985	0.343	0.847	0.949	0.448	0.730	0.766

Appendix Table 4: Second stage IV results for the actual value of remittances using sampling weights

The table provides second stage IV estimation results of the likelihood of having a bank account by instrumenting the per capita value (in US$) of remittances using the weighted per capita income of the migrants' destination and the proportion of migrants that are currently employed. International remittances is the actual value of remittances received by household over the past 12 months of the survey time from members and non-members of the household residing outside the country. Other variables are defined in Table 1. Standard errors are clustered at the regional level, region level fixed effects are controlled for and regression is weighted using the relevant sample weights, except for Kenya where results are based on unweighted regressions since the sample is not nationally representative. t-statistics are in parentheses. *,**,*** denote significance at 10, 5, and 1 percent, respectively.

	Kenya			Uganda			Nigeria			Burkina Faso			Senegal		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
ln(Actual Value of International Remittances)	0.020**	0.015***	0.016***	0.093***	0.074***	0.077***	0.017*	0.009	0.012	0.077	0.015	0.023	0.023*	0.017*	0.020*
	(2.211)	(2.741)	(2.857)	(3.627)	(3.410)	(3.751)	(1.817)	(1.253)	(1.456)	(1.352)	(0.939)	(1.136)	(1.903)	(1.751)	(1.943)
High School	0.394***	0.394***	0.394***	0.495***	0.503***	0.502***	0.444***	0.444***	0.444***	0.163***	0.154***	0.155***	0.462***	0.468***	0.465***
	(11.450)	(11.482)	(11.477)	(9.743)	(10.628)	(10.465)	(9.472)	(9.574)	(9.547)	(3.175)	(2.643)	(2.716)	(7.082)	(7.327)	(7.224)
Age	0.000	0.000	0.000	-0.002***	-0.001***	-0.001***	0.003*	0.003**	0.003**	-0.003***	-0.003***	-0.003***	-0.003**	-0.003**	-0.003**
	(0.019)	(0.106)	(0.089)	(-2.773)	(-2.612)	(-2.645)	(1.917)	(1.977)	(1.961)	(-2.610)	(-2.611)	(-2.594)	(-2.128)	(-2.219)	(-2.177)
ln(Per capita spending)	0.053***	0.055***	0.055***	0.049***	0.051***	0.051***	-0.020	-0.020	-0.020	0.079***	0.080***	0.080***	0.041*	0.044**	0.043**
	(4.095)	(4.025)	(4.056)	(4.897)	(4.917)	(4.933)	(-1.477)	(-1.468)	(-1.470)	(3.056)	(3.074)	(3.075)	(1.905)	(2.102)	(2.011)
Urban	0.080**	0.079**	0.079**	0.128***	0.135***	0.133***	0.032	0.032	0.032	0.003	0.001	0.001	0.106***	0.103***	0.104***
	(2.384)	(2.396)	(2.395)	(4.580)	(4.805)	(4.791)	(0.872)	(0.863)	(0.866)	(0.026)	(0.011)	(0.013)	(4.489)	(4.576)	(4.551)
N	1937	1937	1937	1870	1870	1870	2245	2245	2245	2100	2100	2100	1833	1833	1833

Appendix Table 5: Estimation of the probability of opening a bank account after international migrant left using dummy of remittances inflows

The dependent variable is a dummy for whether the household has opened a bank account after international migrant left the household and zero otherwise. International remittances is a dummy taking a value of 1 if the household has received remittances over the past 12 months of the survey time from members and non-members of the household residing abroad, and zero otherwise. Other variables are defined in Table 1. Standard errors are clustered at the regional level and region level fixed effects are controlled for. t-statistics are in parentheses. *,**,*** denote significance at 10, 5, and 1 percent, respectively.

Variable	Kenya	Uganda	Nigeria	Burkina Faso	Senegal
International Remittances	0.131***	0.085	0.086**	0.013*	0.046***
	(4.553)	(1.357)	(2.416)	(2.036)	(3.800)
High School	0.027	0.057	-0.037	-0.023*	0.033
	(0.586)	(1.552)	(-0.619)	(-2.041)	(1.042)
Age	-0.003***	-0.001	-0.003*	0.000	-0.002*
	(-3.434)	(-0.298)	(-1.928)	(0.438)	(-1.913)
ln(Per capita spending)	0.013	-0.047	0.012	0.007	0.014**
	(1.218)	(-1.597)	(0.703)	(1.156)	(2.456)
Urban	0.044**	0.025	-0.030	0.048	0.005
	(2.290)	(0.559)	(-0.909)	(1.873)	(0.400)
Constant	0.093*	0.284**	0.123	-0.038	-0.036
	(2.003)	(2.507)	(0.791)	(-1.275)	(-1.078)
Observations	711	249	580	694	639
R-squared	0.115	0.272	0.117	0.036	0.050
Percentage of observations outside the 0-1 range	2.813	4.016	0.517	31.56	18.15

Appendix Table 6: Estimation of the probability of opening a bank account after international migrant left using actual value of remittances

The dependent variable is a dummy for whether the household has opened a bank account after international migrant left the household and zero otherwise. International remittances is a per capita value (in US$) of remittances received by the household over the past 12 months of the survey time from member and non-member household residing abroad. Other variables are defined in Table 1. Standard errors are clustered at the regional level and region level fixed effects are controlled for. t-statistics are in parentheses. *,**,*** denote significance at 10, 5, and 1 percent, respectively.

Variable	Kenya	Uganda	Nigeria	Burkina Faso	Senegal
ln(Actual Value of International Remittances)	0.022***	0.019**	0.032***	0.009*	0.014***
	(4.390)	(2.308)	(3.241)	(1.963)	(4.557)
High School	0.021	0.052	-0.047	-0.025**	0.033
	(0.476)	(1.593)	(-0.830)	(-2.509)	(1.002)
Age	-0.003***	-0.001	-0.004**	0.000	-0.002*
	(-3.611)	(-0.462)	(-2.466)	(0.326)	(-2.015)
ln(Per capita spending)	0.009	-0.050	-0.001	0.006	0.007
	(0.847)	(-1.675)	(-0.046)	(1.036)	(1.335)
Urban	0.040*	0.022	-0.037	0.043	0.006
	(2.069)	(0.536)	(-1.218)	(1.723)	(0.514)
Constant	0.142***	0.316***	0.222	-0.032	-0.010
	(2.977)	(2.817)	(1.544)	(-1.169)	(-0.306)
Observations	711	249	580	694	639
R-squared	0.114	0.274	0.142	0.048	0.068
Percentage of observations outside the 0-1 range	2.110	4.016	3.793	45.53	25.51