Migrant remittances and human capital investments

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Abstract. The objective of this paper is to investigate the effect of migrant remittances on human capital investments in remittance-receiving countries. Prior studies have generally focused on the effects of remittances on consumption and poverty reduction, without much effort given to human capital investments. We seek to fill this void by using a panel dataset comprising 71 developing countries drawn from the World Bank’s six regions to analyze the impact of remittance receipts on investment in human capital. The methodology we employ in the analysis is based on a systems approach using three-stage least squares regressions to account for endogeneity and/or simultaneity bias of remittances. Contrary to previous findings that remittances only support consumption and yield no social returns, we find that remittances do have a positive and significant effect on two measures of human capital investments: educational spending and healthcare spending.

Key words: migrant remittances, health spending, educational investment

JEL Codes: F22, F24, I22

1. Introduction

It is estimated that over 215 million people, or 3% of the world population, live and work outside their countries of birth (World Bank, 2011). The combined total remittances sent by migrants to their home countries are over $483 billion annually (World Bank, 2011). A large chunk of this ($350 billion) goes to developing countries. For many developing countries, remittances are the second largest source of external financing, after foreign direct investment (Figure 1). As a result of the recent global economic crisis, remittances have become the most stable source of external funding for developing countries, especially when compared with foreign direct investments and other private transfers. In the last decade, the rate of growth of remittances to developing countries outpaced that of private capital and official development assistance (Acosta et al., 2007).

Much of the previous research on remittances has generally centered on the effects of remittances on consumption and poverty in the receiving countries. The conventional wisdom on remittances has been summed up into three stylized facts (Mansour, Chaaban and Litchfield., 2011). Firstly, remittances are spent only on household consumption (Lipton, 1980; Chandavarkar, 1980). Secondly, only a small portion of remittances goes into savings and investments (Sofranko and Idris, 1999; Lopez and Seligson, 1991; Glytsos,

In view of the foregoing literature, several questions remain unanswered: what has been the effect of migrant remittances on human capital investments? Do remittance-receiving countries differ from non-recipient countries in terms of social outcomes such as education and healthcare? The objective of this paper is to examine the effects of remittances on human capital investments such as healthcare and educational spending in remittance-receiving countries. To accomplish this objective we construct a cross-country panel dataset comprising remittance inflows and human capital investments (educational and health spending) of 71 developing countries from all six regions of the World Bank classification. We hypothesize that remittances provide excess liquidity, thus, allowing households to spend on basic necessities like food, while also meeting other human capital investment needs like healthcare and education. Very few studies have used cross-country data to study the effects of migrant remittances on human capital investments in developing countries.

Figure 1: Inflows of Remittances, Foreign Direct Investment and Official Development Assistance (All Developing Countries):1995 - 2010

Source: IMF Balance of Payments Statistics and World Bank Migration and Remittances Factbook 2011

2. Review of Previous Studies

2.1. Remittances and Human Capital Investment

A number of studies have linked remittances to increased investment in education in remittance-receiving countries. Acosta (2006) found evidence that remittance is positively associated with educational attainment in El Salvador. Indeed, Acosta shows that remittances relax household budget constraints, thus, making it possible for increased consumption and investment in children's education. Controlling for the household's wealth and accounting for selection bias, his results show that girls and boys from households
receiving remittances are likely to be enrolled in school than those from non-receiving households. Furthermore, he shows that remittances are negatively associated with child labor and female labor supply.

Gupta et al. (2009) make the case that remittances are used to finance investments in education, housing, health, and better nutrition in Sub-Saharan Africa. For example, households receiving remittances in Zimbabwe are on average more educated than non-recipient households. Edwards and Ureta (2003) found that remittances greatly reduced the hazard of children dropping out of school in the case of remittance-receiving households in El Salvador. Similarly, Hanson and Woodruff (2002) studied the impact of remittances on child education in Mexico and found a positive effect of remittance on schooling. Mansuri (2006) studied the effect of economic migration on schooling outcomes in Pakistan. Using different measurements of schooling, the findings show a positive effect of migration on educational outcomes. Children from migrant households are not only more likely to attend school; they are also less likely to drop out of school than their counterparts from non-migrant households in the same village.

Boraz (2005) used instrumental variable approach to study the impact of remittances on child human capital development in Mexico. His survey results showed a small positive effect of remittances on schooling, but only for children living in small cities. Calero et al. (2009) investigates the impact of remittances on human capital investment in Ecuador. By specifically focusing on the role of remittances on school enrollment and reduction in child labor, they found that remittances increased school enrolment and decreased the incidence of child labor.

Following an augmented human capital modeling approach, Mansour et al. (2011) evaluated the impact of migrant remittances on human capital accumulation among youth in Jordan. Their results showed that remittances had a positive significant effect on two outcomes: educational attendance and educational attainment. The magnitude of the impact on both outcomes was greater for men than for women. Drabo and Ebeke (2010) also found evidence that remittances increased access to health care services in developing countries.

3. Methods

3.1. Simultaneous system of equations

Most studies investigating the impacts of migration and remittances have often relied on instrumental variable methods to deal with the problem of endogenous remittances. Empirical evidence has shown a pervasive existence of endogeneity between remittances and outcome variables of interest such as poverty, household consumption, and human capital investment (Acosta et al., 2007; Adams and Page, 2005; Gupta et al., 2009). Rather than using single equation estimation techniques like two-stage least squares to deal with endogeneity as done in most studies, we formulate and estimate a system of equations in which remittances, educational spending, and health expenditures are jointly determined. When endogeneity is involved, Wooldridge (2006) has shown that a systems estimation approach is generally more efficient than one relying on single-equation estimation by two-stage least squares (that is, instrumental variables approach).

It is our contention that remittances and human capital investments are simultaneously determined. The more countries invest in building their human capital, the more skilled labor they will have. The excess skilled labor then migrates to other countries where there is a high demand for skilled labor and hence higher wages. Consequently, higher investment in education and healthcare can translate into higher migration rates, and by extension, higher remittance receipts. But the other way around is also plausible, i.e., higher
Receipts of remittances encourage investments in human capital leading to excess skilled labor which then migrate and bring back more remittances. To model this reverse causality, we employ three-stage least squares (3SLS) estimation procedure to explain the relationship between remittances, educational expenditures, and health expenditures.

3.2. A general simultaneous equations model

A general simultaneous equations system is specified as follows;

\[
\begin{bmatrix}
  y_1 \\
  y_2 \\
  \vdots \\
  y_m
\end{bmatrix} =
\begin{bmatrix}
  Z_{1} & 0 & \cdots & 0 \\
  0 & Z_{2} & \cdots & 0 \\
  \vdots & \vdots & \ddots & \vdots \\
  0 & 0 & \cdots & Z_{m}
\end{bmatrix}
\begin{bmatrix}
  F_{1} \\
  F_{2} \\
  \vdots \\
  F_{m}
\end{bmatrix} +
\begin{bmatrix}
  \varepsilon_{1} \\
  \varepsilon_{2} \\
  \vdots \\
  \varepsilon_{m}
\end{bmatrix}
\]  

where \( \tilde{Z} = [Y \ X] \) is a vector of endogenous and predetermined variables in each equation, \( \hat{F} = [y \ \beta] \) is a vector of structural parameters and \( \varepsilon \) is vector of error terms, assumed to be correlated across equations.

3.3. Estimators

The two-stage least squares estimator of the system is derived in Greene (2003, pp.399) as;

\[
\hat{\delta}_{2SLS} = (\tilde{Z}'\tilde{Z})^{-1}\tilde{Z}'y
\] 

This estimator is consistent but not efficient.

A consistent and efficient estimator (the 3SLS estimator) may be constructed from the covariance matrix of the vector of error terms:

\[
E[\varepsilon\varepsilon'] = \Sigma =
\begin{bmatrix}
  \sigma_{11} & \sigma_{12} & \cdots & \sigma_{1m} \\
  \sigma_{21} & \sigma_{22} & \cdots & \sigma_{2m} \\
  \vdots & \vdots & \ddots & \vdots \\
  \sigma_{m1} & \sigma_{m2} & \cdots & \sigma_{mm}
\end{bmatrix} = \Sigma \otimes I
\]  

where \( I \) is an \( N \times N \) identity matrix, \( \Sigma \) is the covariance matrix of error terms, and \( \otimes \) denotes the Kronecker product.

Suppose the covariance matrix \( \Sigma \) (or as it is done in practice its sample estimator) is known, the 3SLS estimator which is essentially a generalized least squares estimator is expressed as;

\[
\hat{\delta}_{3SLS} = (\tilde{Z}'(\Sigma^{-1}\otimes I)\tilde{Z})^{-1}\tilde{Z}'(\Sigma^{-1}\otimes I)y
\]  

and its asymptotic covariance matrix is;

\[
\text{Asy.Var}[\hat{\delta}_{3SLS}] = (\tilde{Z}'(\Sigma^{-1}\otimes I)\tilde{Z})^{-1}
\]  

3.4. Identification

Greene (2003, pp. 385) describes the identification of a simultaneous equations system as crucial to its estimation. Identification concerns with whether the parameters of the system—and that of each equation—can be uniquely estimated. The order condition for identification necessitates that the number of exogenous variables included from equation \( j \) must be at least as large as the number of endogenous variables included in equation \( j \) (Greene, 2003). The rank or sufficiency condition implies a large enough number of exogenous variables in the system to serve as instruments for each right-hand-side endogenous variable. Our empirical model includes enough exogenous variables to meet both order and rank conditions of identification.

3.5. Specification of the empirical model

Two sets of simultaneous equation systems are estimated. In the first case, remittances and educational spending (both variables expressed as a share of GDP) are endogenously determined within the system, as follows;
\[
\ln(Edus_{it}) = \alpha_0 + \gamma \ln(Remit_{it-1}) + \beta \ln(X_{it-1}) + \tau \ln(Z_{1t-1}) + \epsilon_{it} \tag{6}
\]
\[
\ln(Remit_{ij}) = \varphi_0 \ln(Edus_{it-1}) + \Gamma \ln(X_{it-1}) + \omega \ln(Z_{2t-1}) + u_{it} \tag{7}
\]

where all variables are expressed in natural logs (ln). This two-equation system has educational spending (Edus) and remittances (Remit) as endogenous, \(Z_1\) refers to exogenous variables included in the educational spending equation only, \(Z_2\) are exogenous variables in the remittances equation only, and \(X_{it}\) are other predetermined variables in the system.

A similar system is specified below for the relationship between healthcare spending (HC) and remittances (expressed as shares of GDP).

\[
\ln(HC_{it}) = \alpha_0 + \gamma \ln(Remit_{it-1}) + \beta \ln(X_{it-1}) + \tau \ln(Z_{1t-1}) + \epsilon_{it} \tag{8}
\]
\[
\ln(Remit_{ij}) = \varphi_0 \ln(HC_{it-1}) + \Gamma \ln(X_{it-1}) + \omega \ln(Z_{2t-1}) + u_{it} \tag{9}
\]

### 3.6. Wu-Hausman test of endogeneity

Several studies have determined remittances to be endogenous to outcome variables in empirical analyses. We test for endogeneity between remittances and educational spending on the one hand, and remittances and healthcare spending on the other. We use the Wu-Hausman procedure to test for endogeneity.

Assuming we estimate equation (6) by the OLS procedure and want to find out if \(\ln(Remit_{ij})\) is endogenous, the procedure is outlined below;

**Step I:** Estimate the reduced form equation and obtain the predicted residuals
\[
\ln(Remit_{ij}) = c_0 + c_1Z_1 + c_2Z_2 + c_3Z_3 + c_4Z_4 + u \tag{10}
\]
where the \(Z_i\) are exogenous variables (instruments).

**Step II:** Re-estimate the OLS equation (Eqn. 6) including the predicted residuals from Eqn. 10.
\[
\ln(Edus_{it}) = \alpha_0 + \gamma \ln(Remit_{it-1}) + \beta \ln(X_{it-1}) + \tau \ln(Z_{1t-1}) + \delta \text{Residual} + \epsilon_{it} \tag{11}
\]

**Step III:** Perform test of significance of \(\delta\)

\(H_0: \delta = 0 \Rightarrow \) The hypothesis that \(\ln(Remit)\) is exogenous

\(H_1: \delta \neq 0 \Rightarrow \) The hypothesis that \(\ln(Remit)\) is endogenous

If we reject the null hypothesis, it implies that remittance is endogenous and OLS results are inconsistent. Thus, instrumental variable methods or simultaneous equations estimation should be preferred.

### 3.7. The data

The data cover 71 developing countries from the World Bank’s six regions over the period of 1998 to 2010. These six regions include; East Asia and Pacific (8 countries); Europe and Central Asia (14 countries); Latin America and the Caribbean (16 countries); Middle East and North Africa (7 countries); South Asia (5 countries), and Sub-Saharan Africa (21 countries). The countries included in the sample are those that have complete data for the given period of the study. Our sample covers all six regions of the world so as to be representative of all developing countries in terms of geography, size, and economic progress.

The remittances data are obtained from the IMF balance of payments statistics and the World Bank’s Migration and Remittances Factbook. Remittance, measured as inflows (current USD) is defined as the sum of three components—workers’ remittances, compensation of employees and migrants’ transfers. This composite measure of remittances counts only officially recorded transfers. Educational and health care
expenditures as percentage of gross domestic product of each country are obtained from World Bank Development Indicators.

Figure 2 plots a comparison of remittance inflows by region. Latin America and Caribbean countries (LAC) dominated the other regions in terms of volumes of remittance inflows for the most part of the late 1990s and early 2000s until 2006 when they were overtaken by East Asia and Pacific countries (EAP) predominated by massive inflows into China. Currently, the EAP and SAS regions remain the top recipients of remittances. Sub-Saharan Africa over the years has tended to receive the lowest remittances of any region. Low remittances in SSA may be attributed in part to high informal (unrecorded) remittances to the region. Freund and Spatafora (2005) estimates that informal remittances to developing countries are in the range of 35-75 percent of official remittances, and that Sub-Saharan Africa and Eastern Europe and Central Asia regions have relatively higher informal remittances while that of East Asia and the Pacific are relatively low. Moreover, South-South migration dominates South-North migration in the case of SSA compared to the other regions like LAC (where a greater percentage of migrants head North to USA and Canada), and similarly for the EAP and SAS (where most migrants head to Saudi Arabia and Western Europe).

Additional control variables like GDP per capita, labor force participation rates, and inflation are obtained from the World Bank Development Indicators. Percent of the population aged 15 and under as well as percent aged 65 and over are used as instrumental variables for educational and healthcare spending.

Another important variable is the Democ dummy variable which captures the effect of the receiving country's political regime type on volume of remittances received. The democracy dummy variable is constructed from the Polity IV database (Marshall et al., 2011). The Polity IV Project defines polity scores or regime scores for each country on a range from +10 (full democracy) to -10 (full autocracy). Polity is defined as a "political or governmental organization; a society or institution with an organized government; state; or body politic" (ibid., pp. 1). For our purpose, we define the Democ dummy variable to equal one if a country consistently scored a positive during the period covered in our data, and zero otherwise.

Figure 2: Remittances (Inflows) by Region, 1998 -2010

Note: EAP = East Asia and Pacific; ECA = Europe and Central Asia; LAC = Latin America and Caribbean; MNA = Middle East and North Africa; SAS = South Asia; SSA = Sub-Saharan Africa
4. Results

There is evidence of endogeneity between remittances and the outcome variables. The Wu-Hausman test results (not reported) confirm this to be the case. This endogeneity could arise as a result of several factors; reverse causality, omitted variables, measurement errors, and selection bias. The results show that remittances increase investment in human capital of recipient countries, but also countries that invest highly in human capital development tend to produce more remittances. This finding is possible because households are known to make decisions simultaneously; for example, to migrate, invest in education or healthcare, or consume in the present or save for the future. Reverse causality (feedback effect) and simultaneous decision making lead to a simultaneity bias, which if not taken into account could produce misleading estimates of the effect of remittances. To overcome this simultaneity bias, we estimated the simultaneous equation systems represented by equations (6) and (7), and (8) and (9).

Equations 6-9 were first estimated using ordinary least squares, then each pair of simultaneous equations was estimated by three-stage least squares method. Table 1 reports the estimated results of the OLS and 3SLS regressions for equations 6 and 7. Similarly, Table 2 reports the results of the OLS and 3SLS regressions for equations 8 and 9. Table 1 shows that controlling for endogenous effects, remittances have a positive effect on educational spending in both OLS as well as 3SLS regressions and this effect is very highly significant, statistically. However, the OLS estimate of the effect of remittances on educational spending has a downward bias (0.0623 versus 0.0793 in the 3SLS). Thus, if we use the OLS results we under-estimate the impact of migrant remittances on educational investment in receiving countries. We can infer from the 3SLS estimate that on average a 10% increase in migrant remittances is associated with a 0.79% increase in the percentage of the receiving country's gross domestic product allocated to investment in education. In a similar vein, and inferring from the results in Table 2, a 10% increase in migrant remittances is associated with a 0.30% increase in health spending (as a percent of GDP). The OLS estimate of the effect of remittance on health spending also shows a downward bias (0.0266 versus 0.0302 from the 3SLS equation).

These findings of positive effect of remittances on human capital investments are to be expected: remittances relax liquidity constraints, thus allowing households to meet food expenses and other (non-food) expenses such as investments in human capital and housing. Indeed, remittance receipts make it possible for households to undertake investments that otherwise would have been impossible due to credit constraints. Gobel (2013) finds empirical evidence in the case of Ecuador that remittances increased expenditures on education and healthcare. Yang (2008) found in the case of Filipino households that educational expenditures rise while child labor falls as a result of a positive shock in remittance receipts.

Gross national income per capita (ngnpcap) is positively related to remittances, negatively related to healthcare spending but has no significant effect on educational spending. All things remaining equal, if a country's gross national income per capita is 1% higher than another, it can be expected to receive 0.24% to 0.39% more remittances than another similarly situated country with lower per capita income. The upshot of this finding is that, relatively poorer countries tend to receive less in remittances which is probably because they produce less migrants than relatively richer countries, that are probably able to send more migrants to other countries. It could also be a reflection of the skill level of the migrants: relatively richer countries educate more of their citizens, produce more skilled migrants who earn higher wages in the destination countries, and consequently remit more to their home countries. The results also show that relatively richer countries spend a lesser percentage of their GDP on healthcare. Thus, if per capita income increases by 10%, healthcare spending falls by 0.90%, ceteris paribus.
We also investigate the effect of male and female participation in the labor force on human capital investments. The results show that the percentage of females in the labor force \((lnlabptfem)\) does not significantly affect educational spending in this sample of countries, while a higher percentage of males in the labor force \((lnlabptmal)\) is negatively associated with spending on education (-1.5). However, higher female participation in the labor force is positively associated with higher spending on healthcare (0.16) while higher male participation is negatively associated with healthcare spending (-0.80). Inflation \((lninfl)\) does not appear to significantly influence investments in human capital. The inflation rate is only marginally significant in the educational spending equation with a negative sign. This would indicate that if the inflation rate goes up, spending on education falls, but we have no a priori expectation regarding the direction of effect of this variable. Based on intuition only, a positive effect of inflation would have made more sense in that in times of higher inflation people may want to put their money in long term investments like education.

The percent of population 15 and under \((lnpop15)\) is not significantly different from zero, an indication that it does not have any relationship with educational spending but is negatively related to health expenditure. The Democracy dummy variable \((Democ_dum)\) is positively related to the level of remittances. Thus, democratic countries receive on average more than 40% more remittances than autocratic countries, ceteris paribus.

We also control for regional effects by including five regional dummy variables; EAP (East Asia and Pacific), LAC (Latin America and Caribbean), MNA (Middle East and North Africa), SAS (South Asia), and SSA (Sub Saharan Africa). Europe and Central Asia (ECA) is left out as the reference region. Thus, we interpret the coefficients on the included regional dummy variables relative to ECA. From Table 1, in terms of educational spending, four of these dummy variables are positive and significant. For example, the coefficient on \(ssa\) is 0.345, indicating that Sub-Saharan Africa countries spend more on education (as a percent of their GDP) than countries in ECA region. However, SSA countries receive less in remittances (as indicated by -1.197 in the remittances equation) than countries in the ECA region. Latin America and Caribbean countries also spend more on education (as percentage of GDP) than ECA countries. The same applies to countries of the MNA and EAP regions. Countries in South Asia (SAS) do not significantly spend more of their gross domestic product on education than countries in the ECA region.

As far as health spending is concerned, Table 2 shows that two regional dummy variables have a positive and significant effect on health spending, while two have a negative effect. Thus, LAC and MNA significantly spend more (as a % GDP) on healthcare services than countries of the ECA region. EAP and SAS countries significantly spend less on healthcare services (as a percent of GDP) relative to countries of the ECA region.

5. Conclusion

Migrant remittance has become an important component of external financing for many developing countries around the world. The data show that remittances have become the most stable source of foreign exchange, and in some cases, accounts for a sizable share of gross domestic product of recipient countries. It was once the belief of many scholars in this line of research that remittances only finance consumption (Lipton, 1980; Chandavarkar, 1980). This view, however, has now been proven wrong as more empirical evidence shows that remittances are put to uses beyond consumption; such as investments in housing, education, and healthcare.
Rather than follow the traditional methodology of instrumental variables or two-stage least squares to determine the impact of remittances, this study uses the more robust approach of three-stage least squares estimation, which is a system estimator. The use of system estimation confers certain suitable properties (consistency and efficiency) that are lacking in the use of single equation two-stage least squares. Using a rich dataset of 71 developing countries drawn from six regions of the World Bank's classification, the results show that remittances positively impact educational and healthcare spending in developing countries.

### Table 1: The Effect of Remittances on Educational investment

<table>
<thead>
<tr>
<th></th>
<th>OLS (1)</th>
<th>OLS (2)</th>
<th>3SLS (3)</th>
<th>3SLS (4)</th>
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<td>Inremit</td>
<td>0.0623</td>
<td>0.0793*</td>
<td>0.244**</td>
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<td></td>
<td>(0.00960)</td>
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<td>ln infl</td>
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<td>-0.0182</td>
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<td></td>
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<tr>
<td></td>
<td>(0.0145)</td>
<td>(0.0145)</td>
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<td>(0.209)</td>
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<td>(0.0637)</td>
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<td></td>
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<td></td>
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<tr>
<td></td>
<td>(0.183)</td>
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<td>(0.175)</td>
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</tr>
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<td>Democ dum</td>
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<td>0.440**</td>
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<tr>
<td></td>
<td>(0.163)</td>
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<td>(0.150)</td>
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<tr>
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Standard errors in parentheses, \(^* p < 0.10, ^* ^* p < 0.05, ^* ^* ^* p < 0.01, ^* ^* ^* ^* p < 0.001\)

All explanatory variables are first lags of their natural logarithms except for dummy variables (ssa, mna, sas, eas, lac, Democ dum); Remit=Remittances/GDP; \(†\) denotes chi-square statistic. Note: EAP = East Asia and Pacific; ECA = Europe and Central Asia; LAC = Latin America and Caribbean; MNA = Middle East and North Africa; SAS = South Asia; SSA = Sub-Saharan Africa; gnpcap=gross national income per capita,
labprtfem= labor force participation rate (females), labprtmal= labor force participation rate (males); pop15=percent of population aged 15 and under; infl=inflation rate.

**Table 2: The Effect of Remittances on Healthcare investment**

<table>
<thead>
<tr>
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<th>(1) lnhc OLS</th>
<th>(2) lnremit OLS</th>
<th>(3) lnhc 3SLS</th>
<th>(4) lnremit 3SLS</th>
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<td>0.0302**</td>
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<td></td>
<td>(0.00527)</td>
<td>(0.00552)</td>
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<td>-0.0947***</td>
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<tr>
<td></td>
<td>(0.0155)</td>
<td>(0.0688)</td>
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<td>0.00695</td>
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<td></td>
<td>(0.00785)</td>
<td>(0.00815)</td>
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<tr>
<td>Lnlabprtfem</td>
<td>0.165***</td>
<td>-1.027***</td>
<td>0.157***</td>
<td>-1.117***</td>
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<tr>
<td></td>
<td>(0.0304)</td>
<td>(0.184)</td>
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<td></td>
<td>(0.105)</td>
<td>(0.615)</td>
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<td>-0.200</td>
<td>0.120†</td>
<td>-0.313</td>
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<td>(0.0434)</td>
<td>(0.250)</td>
<td>(0.0447)</td>
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<tr>
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<td>-0.261***</td>
<td>-0.474†</td>
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<td>(0.0342)</td>
<td>(0.198)</td>
<td>(0.0352)</td>
<td>(0.190)</td>
</tr>
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<td>-0.555**</td>
<td>0.301***</td>
<td>-0.0861</td>
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<tr>
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<td>(0.195)</td>
<td>(0.0366)</td>
<td>(0.186)</td>
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<td>0.884***</td>
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<tr>
<td></td>
<td>(0.171)</td>
<td>(0.171)</td>
<td></td>
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</tr>
<tr>
<td>Democ_dum</td>
<td>0.511***</td>
<td>0.404***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.116)</td>
<td>(0.114)</td>
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<tr>
<td>Cons</td>
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<td>-4.434</td>
<td>5.763***</td>
<td>-1.838</td>
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<td>(0.484)</td>
<td>(2.831)</td>
<td>(0.494)</td>
<td>(2.778)</td>
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<tr>
<td>N</td>
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<td>1139</td>
<td>1019</td>
<td>1019</td>
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<tr>
<td>R²</td>
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<td>0.261</td>
<td>0.354</td>
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<td>adj. R²</td>
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<td>0.255</td>
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<td>52.42</td>
<td>39.89</td>
<td>415.86†</td>
<td>480.79†</td>
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</table>

Standard errors in parentheses; †p<0.10, *p<0.05, **p<0.01, ***p<0.001

All explanatory variables are first lags of their natural logarithms except for dummy variables (ssa, mna, sas, eas, lac, Democ_dum); Remit=Remittances/GDP, † denotes chi-square statistic; Note: EAP = East Asia and Pacific; ECA = Europe and Central Asia; LAC = Latin America and Caribbean; MNA = Middle East and North Africa; SAS = South Asia; SSA = Sub-Saharan Africa; gnpcap=gross national income per capita, labprtfem= labor force participation rate (females), labprtmal= labor force participation rate (males); pop15=percent of population aged 15 and under; infl=inflation rate.
6. References


