

Financial Openness and Remittances: Evidence from Sub-Saharan Africa

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Financial Openness and Remittances: Evidence from Sub-Saharan Africa

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Abstract

Does financial openness matter for remittances? Are the effects of financial openness on remittance dependent on the levels of financial and institutional development? This paper investigates these questions using panel data for 31 sub-Saharan African countries over from 1990 to 2015, and using a dynamic panel system generalized method of moments (GMM) estimation technique. The results show that financial openness, albeit having a declining effect, does not significantly influence the inflow of remittances into the region. In contrast, when conditioned on the levels of financial development and institutional quality, financial openness tends to significantly increase remittances. However, this effect declines with significant improvement in institutional quality and a well-developed financial sector. Thus, financial openness substitutes financial and institutional development in fostering remittances in the region.

Keywords: Remittances; Financial Openness; Financial Development; Institutional Quality; Sub-Saharan Africa.

JEL Classification: C28, G21, O11, O55

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1. Introduction

During the past three decades, remittances have increased significantly both in volume and importance. Official remittance flows to developing countries reached over US\$400 million in 2018, which is more than 70% of the global remittance flows. As a major source of external finance for developing countries, remittances have exceeded other private capital flows and overseas development assistance, and in some exceptions, foreign direct investment. Moreover, remittances were relatively stable and resilient during the 2007–2009 global financial crisis. Its development impact includes but is not limited to poverty reduction and economic growth, and with possible adverse effects through labour market incentives (i.e., the moral hazard effects) and “Dutch disease” effect (Rapoport and Docquier, 2006). This makes understanding the drivers of remittances very important for the development process of many developing countries.

For sub-Saharan Africa (SSA), their share of global remittance flows remains relatively small compared to other regions of the world.¹ One possible explanation is the high costs of remittance (Beck et al., 2022). As at 2018Q4, the region recorded an average cost of 9%, exceeding those of other regions and the global average of 7% (World Bank, 2018).² Overall, the cost of remittances is significantly above the 3% target of the 2030 Sustainable Development Goals (SDGs). Meanwhile, remittances are sensitive to prices and can increase significantly as prices decline (see Gibson et al., 2006; Ahmed et al. 2021). Several factors can influence the costs of remittance, which consist of both a fee and an exchange rate spread components. One such factor is government policies relating to the exchange rate, capital controls and regulation of the remittance market (Beck and Martinez Peria, 2011).³ For example, the removal of exchange controls and lower exchange rate volatility should reduce both the exchange rate spread and remittance prices (see Freund and Spatafora, 2008). Moreover, stringent control on remittance transactions is expected to increase the remittance prices since it can be transferred as a tax to recipients. For SSA, the high cost of remittances is often linked to the low volume of formal remittance flows, inadequate technology penetration and a non-competitive market environment (World Bank, 2017). Thus, the challenge remains how to reduce the costs of remittance and create incentives to attract a higher share of global remittance flows into the region.

This paper investigates the role of financial openness as a policy option for increasing remittances to sub-Saharan Africa. Financial openness through reduction of transaction cost and relaxing restrictions can help increase international capital flows (including remittances). For example, and with emphasis on remittances, Beine et al. (2012) show that a negative association exists between financial openness and remittance prices. This implies that a higher degree of financial openness in the country receiving the remittance should lower costs and, in turn, boost the value and volume of remittances. Furthermore, the interest in examining the nexus between financial openness and remittances in the region is because the markets for cross-border remittances in Africa are relatively underdeveloped and characterized by a high degree of informality, absence of effective competition, exchange rate controls, low level of financial development, and exclusive partnership with few money transfer operators (Mohapatra and Ratha, 2011). These factors contribute to high remittance price, restricted entry and competition in the remittance market, which in turn, encourages the use of informal channels for sending remittances.

Conversely, financial openness is often associated with risks such as exposure to financial crises and macroeconomic volatility. However, these can be minimized through collateral benefits such as domestic financial sector development, better governance institutions and discipline macroeconomic policies (Kose et al., 2009). Related literature on the macroeconomic effects of financial openness suggests that certain threshold levels of financial development and institutional quality are a prerequisite for an economy to maximize the benefit–risk trade-off of financial openness (see Kose et al., 2011). Even international institutions such as the International Monetary Fund (IMF) now maintain that financial openness would be more beneficial (i.e., less risky) provided countries can reach certain thresholds of financial development and institutional quality (IMF, 2012; Ostry et al., 2016). Similarly, Eichengreen and Rose (2014) show that the incidence and intensity of capital controls are systematically linked with financial development and institutional quality. For example, countries with deeper financial markets are less prone to maintain controls because financial development can help mitigate the impact short-term capital fluctuations. Likewise, countries with stronger and more responsive political institutions would be better placed to pursue first-best regulatory policies. Insights from this debate therefore point to the importance of deepened financial sector development and better institutional/governance quality for realizing the benefits of financial openness. Therefore, framing the issue in this way raises two pertinent questions. First, does financial openness matter for remittances? Second, is the relationship conditional on the levels of financial development and institutional quality? Whether financial development and institutional quality complement or substitute the remittance effect of financial openness remains an empirical question.

The objective is to investigate the effect of financial openness on remittances in sub-Saharan Africa for the period 1990–2015. Specifically, our interest is to examine the impact of financial openness on remittances, and possible interactions in the relationship conditional on financial development and institutional quality. A

relatively new strand of the macroeconomic determinants literature on remittances has developed with a focus on financial openness (see Beine et al., 2012; Bang et al., 2015). For example, Beine et al. (2012) finds a strong positive statistical and economic effect of remittances on financial openness, which implies that more inflows of remittance increase the probability of a country being financially open. Bang et al. (2015) shows that financial liberalization encompassing multidimensional aspects of freedom and robustness of the financial sector has a net negative long-run impact on remittances. As a contribution, the paper extends the analysis in Bang et al. (2015) by considering the role of financial development and institutional quality in shaping the effect of financial openness on remittances. This is in consonance with current debate within the academic and policy circles emphasizing that financial openness is not an end goal in itself, but one that requires certain levels of financial development and institutional quality to balance its benefit–risk effects.

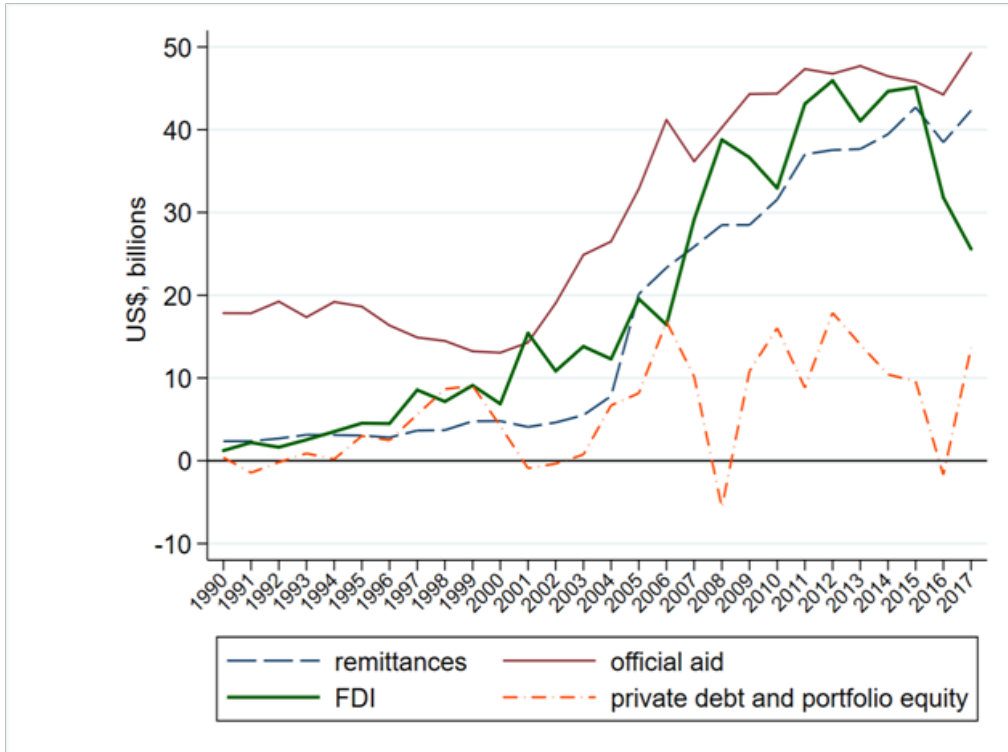
2. Remittances in sub-Saharan Africa

Official global remittances have increased substantially (see Table 1), rising from US\$68 billion in 1990 to US\$626.2 billion in 2018. In the same manner, remittances to developing countries have also risen substantially from US\$29.3 billion to US\$500.1 billion during the same period, and therefore represent a significant proportion of remittances inflows across the world. Remittances to developing countries represent more than 70% of global remittances (Table 1), making them an important source of external finance to these countries. Remittances to the region have risen in the direction as aggregate remittances to developing countries. From a paltry inflow of US\$2.3 billion in 1990, remittances to SSA have increased significantly over the period to US\$46.1 billion in 2018. However, and on a global scale, remittance inflows to SSA are quite small when compared to those of other developing regions. As at 2018, SSA remittance inflows accounted for only 9% of total remittances to developing countries compared to South Asia (26%), East Asia and Pacific (23%), Latin America and Caribbean (18%), Middle East and North Africa (13%), and Europe and Central Asia (11%).

Table 1: Remittances to developing countries (US\$ billions)

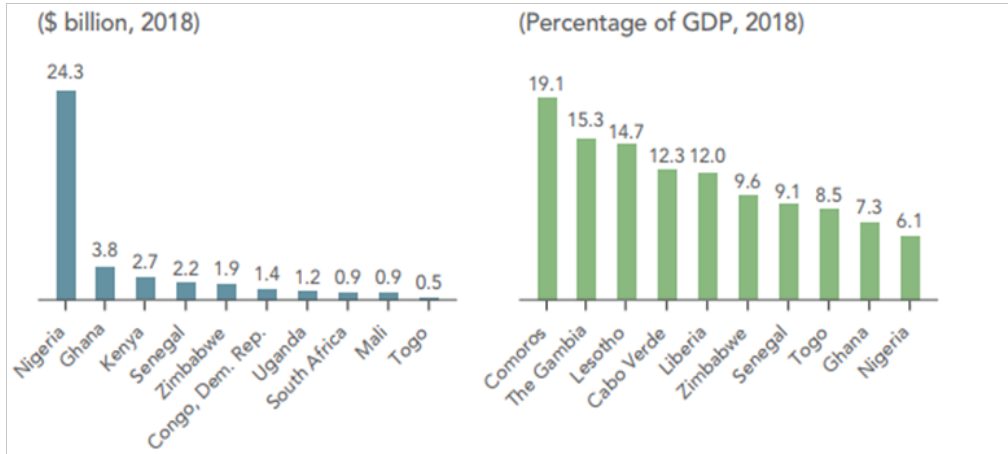
<i>Regions</i>	<i>1990</i>	<i>1995</i>	<i>2000</i>	<i>2005</i>	<i>2010</i>	<i>2015</i>	<i>2018</i>
Latin America & Caribbean	5.7	12.8	19.8	49.1	56.9	69.1	89.8
South Asia	5.5	9.9	17.1	34.2	81.9	117.6	131.1
East Asia & Pacific	8.6	14.8	18.7	37.6	68.3	122.1	115.3
Europe & Central Asia	3.2	4.1	8.6	17.9	37.8	43.3	54.7
Middle East & North Africa	10.4	12.1	11.5	23.5	38.2	51.3	63.1
<i>Sub-Saharan Africa</i>	<i>2.3</i>	<i>3.1</i>	<i>4.8</i>	<i>20.1</i>	<i>31.1</i>	<i>41.2</i>	<i>46.1</i>
Developing countries	29.3	49.9	74.1	172.1	300.6	427.2	500.1
World	68.4	94.5	121.6	254.1	417.8	558.9	626.2

Source: Authors' compilation from World Development Indicators online database.

Figure 1: Remittances and other capital flows to sub-Saharan Africa, 1990–2017

Although remittances to SSA have shown a steady increase over the past three decades, Figure 1 shows they have consistently lagged behind other capital flows into the region, particularly overseas development assistance (ODA) and foreign direct investment (FDI). ODA to the region is significantly larger than remittances, although both flows are less volatile than FDI and portfolio equity and private debt flows. However, remittances constitute an important source of external finance to many countries in the region. For example, Nigeria is the largest remittance-recipient country in SSA, with an inflow of US\$24.3 billion in official remittances in 2018, whereas other countries in the region received below US\$4 billion. However, as a percentage of gross domestic product (GDP), remittances to Comoros, The Gambia, Lesotho, Cape Verde and Liberia were 12% (see Figure 2), a figure higher than that of the share of Nigeria, which means that for some countries, remittances take a significant share of their GDP.

Figure 2: Top recipients of remittances in Sub-Saharan Africa, 2018



Source: World Bank (2019).

3. Related literature

Macroeconomic drivers of remittances

There are both micro- and macro-economic perspectives to the literature on the determinants of remittances (for reviews see Rapoport and Docquier, 2006; Hagen-Zanker and Siegel, 2007). The microeconomic aspect concentrates on the individual's motives to remit. Here, the underlying consideration which influences the decision behind remittance emphasizes factors such the characteristics of migrants, including educational attainment, family size and income level. Lucas and Stark (1985) in their seminal article on the motivations to remit first outlined the motives behind remittances as ranging from pure altruism to pure self-interest.⁴ Migrants are altruistic if money is sent back home to boost the family income level and help smooth consumption. The migrant's utility is derived from the family's utility which depends on the family's level of income back home. Thus, the amount of remittance is expected to increase with the migrants' income but decrease with the family income.⁵ Put differently, based on the altruistic motive, remittances should correspond negatively to the family's income level. Conversely, self-interest motives emphasize a positive relationship between remittances and the family income level, which are driven by the potential for inheritance and an investment (portfolio) choice either for acquisition of assets or in preparation for their return to the country of origin.

Once the migrant decides to remit, the amount of remittances channelled home whether for altruistic (insurance) or self-interest (investment) reasons is then influenced by macroeconomic considerations. Here economic, financial and institutional (political) conditions in both the host and home countries play a crucial role in determining the volume of remittances (see IMF, 2005). First and foremost, the stock of migrants working in the host country is an important driver of the remittances. A higher number of migrant workers will imply higher volume of remittances. For example, Elbadawi and Rocha (1992) and Freund and Spatafora (2008) found that stock of migrant labour has a positive and significant effect on remittances. Second, remittances can be linked to the level of economic activity (i.e., the aggregate income level) both in the source (host) and origin (home) countries. Better and improved economic conditions in the host country increase migrants' employment and

income-earning prospects and, in turn, more remittance flows to the home country.⁶ Meanwhile, remittances based on altruistic motives often exhibit counter-cyclical (procyclical) patterns with respect to the level of income in the home country.

Furthermore, remittance variability can be explained by other macroeconomic and financial variables such as domestic inflation, exchange rate and interest rates. Higher domestic inflation may encourage more remittances since it reduces the real income and consumption levels of migrants' families. However, this effect may be dampened if it leads to domestic currency depreciation, which reduces remittance flows. Exchange rate fluctuations, particularly a real exchange rate depreciation, is typically associated with a decline in remittances, especially those based on the self-interest motives for portfolio and investment decisions. Also, the existence of a black market premium has a negative effect on remittance flows particularly through official channels.⁷ Interest rate differential that signals investment opportunities in the home and host country may equally have an effect on remittances. Higher return on assets in the home country (as opposed to the host country) may encourage an increase in remittances for investment purposes (IMF, 2005). Empirical evidence suggests that inflation, exchange rate risk and interest rate differential are significant drivers of remittances (see Elbadawi and Rocha, 1992; Faini, 1994; El-Sakka and McNabb, 1999; Higgins et al., 2004; Ojede et al., 2019; Jijin et al., 2022). Their combination, which suggests weak macroeconomic policies, can propagate and amplify macroeconomic instability and uncertainty, which may therefore stifle remittance flows.⁸

Lastly, financial sector development and institutional quality. Evidence exists on the positive effect of financial development on remittances (see Freund and Spatafora, 2008; Gupta et al., 2009; Aggarwal et al., 2011). Financial sector development in the home country may lower the cost of transferring funds, which in turn can stimulate a higher flow of remittances through the official channels. Also, in a well-developed banking system, remittances may complement bank credit or act as collateral for increased financial access for migrants' families for productive investment. Studies have shown that financial development can enhance the growth effects of remittances (Mundaca, 2009; Bettin and Zazzaro, 2011; Sobiech, 2019) and also limit the impact of remittances on growth volatility (Ahamada and Coulibaly, 2011).⁹ However, remittances are more likely to flow to countries with better institutional quality such as political stability, and law and order due to their consequence on investment decisions (Singh et al., 2010; Lartey and Mengova, 2016; Effiong and Asuquo, 2017; Adenutsi and Ahortor, 2021; Kim, 2021). Institutional risk, such as political instability and low levels of law and order, creates uncertainty in the economic environment for investment opportunities, leading to a decline in remittances.¹⁰ Likewise, institutional quality may affect the growth effect of remittances such that their interaction would be expected to be positive (Catrinescu et al., 2009).

The role of financial openness

For remittance-receiving developing countries, policies such as the choice of regime and other restrictions on exchange rate are likely to accentuate exchange rate uncertainty and increase the black-market premium, which may discourage official remittance flows (El-Sakka and McNabb, 1999; IMF, 2005). For example, Freund and Spatafora (2008) found that the existence of multiple exchange rates significantly reduces the volume of official remittances. Similarly, Singer (2010) showed that for developing countries, the likelihood of adopting a fixed exchange rate regime increases with the size of remittance flows. Since the price (cost) of remittance includes two components, namely the fixed fee associated with the international transfer and the exchange rate margin, government policies that increase any or both components also increase the price of remittances, reducing remittances.

Complementary policies to address these concerns may require macro-based reform. One such policy option is opening the financial borders of a remittance-receiving country. In other words, removing restrictions on international financial flows such as remittances through financial openness (or liberalization). Financial openness can influence remittances in two dimensions (Beine et al., 2012). First, it facilitates international financial transactions which in specific reference to remittances may encourage more flows through official rather than informal channels.¹¹ Second, and much more important, financial openness is often associated with reduced cost of international financial transactions. Compared with a liberalized regime, controls and constraints on the financial borders raise the cost of transactions, limiting international financial flows such as FDI, portfolio investments and remittances. For remittances, financial openness will reduce the price remittances, which provides an added incentive to remit funds through formal channels such as the banking system. Overall, financial openness can operate through both intensive and extensive margins of remittances (Beine et al., 2012). As evidence, Beine et al. (2012) showed that higher financial openness lowers the cost of sending remittances to receiving countries, all things being equal. Lowered transaction costs, in turn, should facilitate more remittances. Therefore targeting both general parts of the current and capital accounts of the balance of payments may serve to promote remittances and other international financial flows through government policy instruments of financial openness.

Although financial openness is *a priori* expected to encourage more remittances through reduction in the cost of international financial transactions, the impact of financial openness on remittances remains an empirical question. This is due to the complex combination of both altruistic (insurance) and self-interest (investment) motives that “may coexist within an individual” (Rapoport and Docquier, 2006, pp. 1165), thereby making it difficult to disentangle their relative importance in determining the aggregate remittances. For example, the benefits of financial openness include efficient allocation of capital and long-term collateral benefits such

as a disciplined macroeconomic policy, improved domestic institutions of governance and domestic financial sector development (Kose et al., 2009). These benefits should enhance efficiency gains and lead to improved growth performance in an economy. Within this context, financial openness would increase the supply of remittances via the investment motive following an improved business and economic environment for investment opportunities and, in turn, reduce the demand for insurance motive. However, financial openness may increase the likelihood of macroeconomic volatility through incidence of financial crises such as sudden stops and capital reversals. In the presence of weak credit markets and institutions, dependence on remittances as an insurance strategy against output and consumption volatilities is fostered through inter and intra-familial arrangement. Thus, negative fluctuations in the business cycles of the recipient economy should encourage the demand for remittances via the insurance motive while the investment motive would decline due to an unfavourable economic environment for investment opportunities.

So far, empirical evidence on the link between financial openness and remittances is nascent. Bang et al. (2015) investigated the impact of financial liberalization on remittances for 84 developing countries. Emphasizing the multidimensionality of financial reforms, their evidence indicates that increased economic freedom in the financial sector (i.e., absence of direct government control over the allocation of credit) has a positive and immediate impact; whereas, improved robustness of the financial markets (i.e., the development of security markets, quality of banking supervision, and removal of stringent restrictions on interest rates and international capital) has a negative and lagged effect. Overall, the net effect of financial liberalization may have a negative impact on remittances in the long run. Beine et al. (2012) investigated the reverse causality from remittances to financial openness. They found a strong positive effect of remittances on financial openness, which implies that the more the remittances flow to a receiving country the greater the likelihood of becoming more financially open. Furthermore, following the extant literature on the effect of financial openness on growth and macroeconomic volatility (for a comprehensive review see Kose et al., 2009), there is general consensus that the effect of financial openness is subject to levels of financial and institutional development (for evidence see, e.g., Chinn and Ito, 2006; Kose et al., 2011; Okada, 2013). Taking into account the implication of financial openness for both altruistic and self-interest motives behind remittances, it is possible to hypothesize that financial openness may affect remittances through channels of financial development and institutional quality. This aspect of the relationship between financial openness and remittances remains unexplored in the empirical literature. This paper hopes to fill the gap with specific focus on countries in sub-Saharan Africa.

4. Empirical strategy

Model specification and estimation

Following the macroeconomic literature on the determinants of remittances (e.g., Singh et al., 2010; Bang et al., 2015; Adenutsi and Ahortor, 2021; Jijin et al., 2022), the effect of financial openness on remittances is identified using a standard linear dynamic panel data model as follows:

$$rem_{it} = \alpha rem_{it-1} + \beta_0 kaopen_{it} + \beta'_X X_{it} + \eta_i + \mu_t + \varepsilon_{it} \quad (1)$$

where i and t represent country and time period respectively; η_i is unobserved country-specific effects; μ_t is time dummies to account for time-specific effects; ε_{it} is the disturbance error term; rem_{it} measures the remittances-GDP ratio; its lagged term, rem_{it-1} , captures persistence or agglomeration effects (see Ratha, 2003); $kaopen_{it}$ measures the Chinn and Ito (2006, 2008) KAOPEN index of financial openness; and X_{it} is a vector of control variables as drawn from the literature on macroeconomic determinants of remittances. This includes: (i) the GDP per capita to capture economic conditions in the SSA remittance-receiving home country; (ii) the US GDP per capita to capture economic conditions in the host remittance-sending country; (iii) the nominal exchange rate; (iv) financial development measured by private sector credit/GDP and broad money/GDP; and (v) the polity IV index of democratization to control for institutional quality in the recipient country. The description of these variables is presented in Section 4.2 on data and descriptive statistics. Equation (1) can be described as a baseline model specification of the macroeconomic determinants of remittances with the incorporation of financial openness.

Furthermore, to capture the interactive effects of financial openness on remittances conditional on financial development and institutional quality, a multiplicative term ($kaopen_{it} \times Z_{it}$) is introduced into Equation 1, where the vector Z_{it} is extracted from the vector X_{it} to include only measures of financial development and institutional quality. Thus, the augmented version of Equation 1, which includes the interaction effects, is as follows:

$$rem_{it} = \alpha rem_{it-1} + \beta_0 kaopen_{it} + \beta_Z Z_{it} + \beta_{OZ} (kaopen_{it} \times Z_{it}) + \beta'_X X_{it} + \eta_i + \mu_t + \varepsilon_{it} \quad (2)$$

From Equation 2, the threshold (marginal) effects of financial openness on remittances are computed using the partial differentiation of remittances on financial openness:

$$\frac{\delta rem_{it}}{\delta kaopen_{it}} = \beta_0 + \beta_{0Z} Z_{it} \quad (3)$$

Here, the coefficient parameters β_0 and β_{0Z} capture the extent to which financial development and institutional quality affect the financial openness and remittances relationship.

Estimating (1) and (2) is problematic because of the presence of endogeneity bias. First, the lagged dependent variable for remittances, which captures persistence effect would be correlated with the error terms. Thus, serial correlation within panels is possible with respect to remittances. Second, endogeneity bias may exist through reverse causality from remittances to explanatory variables such as financial openness (Beine et al., 2012), financial development (Aggarwal et al., 2011) and institutional quality (Abdih et al., 2012; Williams, 2017). Third, unobserved country-specific heterogeneity may account for some of the observed impact of financial openness, financial development and institutional quality on remittances. Therefore, these concerns invalidate the use of traditional static panel data techniques as a method of estimation.

To address the problems of simultaneity bias, reverse causality and unobserved heterogeneity this paper uses panel data estimators based on generalized method of moments (GMM), particularly the system GMM estimator. Since the unobserved country-specific effects are correlated with the lagged dependent variable in a dynamic panel model specification, Arellano and Bond (1991) developed the difference GMM panel estimator, which estimates the dynamic panel model in first differences using lagged values of the explanatory variables as instruments. However, as pointed out by Arellano and Bover (1995) and Blundell and Bond (1998), lagged levels are weak instruments for first differenced endogenous variables due to persistence over time in the data. Such instruments can lead to finite sample bias and imprecision in the coefficient estimates. Consequently, Arellano and Bover (1995) and Blundell and Bond (1998) developed an alternative known as the system GMM panel estimator. The system GMM approach combines the equations in levels and first differences as a system, and then uses a larger set of internal instruments consisting of both the lagged levels and first differences of the explanatory variables under two moment conditions: (i) absence of serial correlation in the error terms; and (ii) absence of correlation between first difference of the explanatory variables and the error terms.

For consistent estimates, the validity of the instruments can be checked using two specification tests. First, the Arellano–Bond test for second order correlation, which examines the hypothesis that the first-differenced disturbance error terms are not serially correlated to the second order ones. Second, the Hansen test of

over-identifying restrictions, which tests the overall validity of the instruments. Furthermore, due to potential small sample bias in estimating the variance-covariance of matrix when performing the two-step system GMM estimation, robust standard errors are computed based on the Windmeijer (2005) methodology. Although there are concerns about the performance of system GMM estimator due to excessive instrument proliferation issues such as weak instruments and over-fitting of endogenous variables (see Roodman, 2009; Bazzi and Clemens, 2013), it remains the preferred estimation technique for dynamic panels models with a lack of good external instruments.

Data and descriptive statistics

For the empirical analysis, annual data is drawn for 31 countries in sub-Saharan Africa for the period 1990–2015. The countries are: Benin, Botswana, Burkina Faso, Cameroon, Cape Verde, Comoros, Congo Republic, Côte d'Ivoire, Eswatini (formerly Swaziland), Ethiopia, Gabon, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Madagascar, Malawi, Mali, Mauritius, Mozambique, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Sudan, Tanzania, Togo and Uganda. The selection of countries into the sample was based on data availability.

Data on remittance was captured using personal remittances received in US dollars. Personal remittance is the sum of three components, namely workers' remittances, compensation to employees and migrant transfers, based on the IMF Balance of Payments Statistics Yearbook (BOPSY). Workers' remittances include transfers of workers who move to another country and stay for one year or longer; compensation to employees consists of wages, salaries and other benefits earned by non-resident workers for work performed for residents of other countries; and migrants' transfers comprise financial items that arise from the migration or change of residence of individuals from one economy to another. Workers' remittances belong to current transfers and compensation to employees is an income component both in the current account, whereas migrant transfers is part of the capital account. As the dependent variable and in line with the empirical literature, remittance is normalized by GDP.

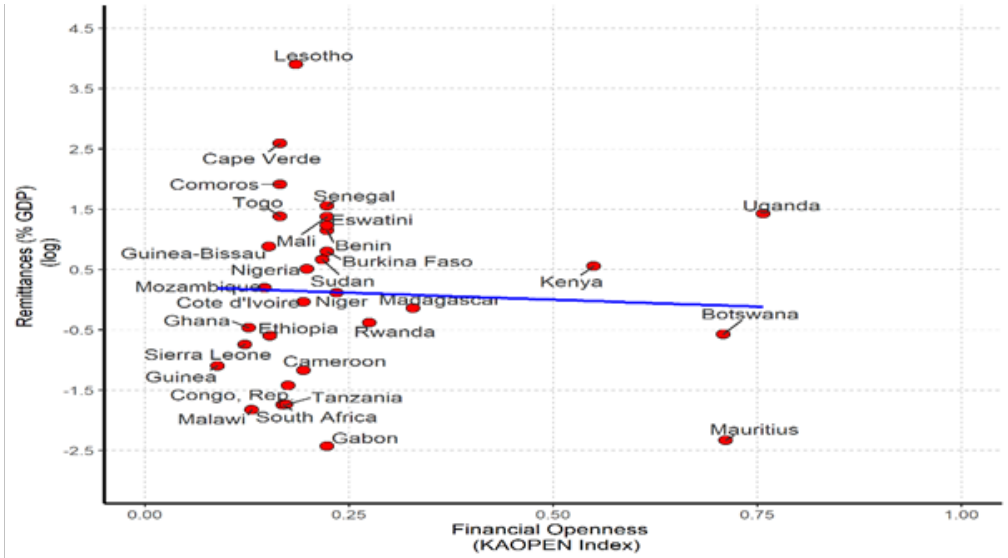
Since remittances are recorded in both the current and capital account of the balance of payments, to measure the extent of constraints and controls on these accounts, this paper uses the KAPOEN index of financial openness (Chinn and Ito, 2006, 2008).¹² The index captures the intensity of capital controls, and is based on the IMF Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) which reports for all countries whether there are restrictions on international transactions in place (1) or not (0). The KAOPEN index is computed as the first principal component of the following restrictions: (i) the presence of multiple exchange rates; (ii) restrictions on current account transaction; (iii) restrictions on capital account transaction; and (iv) requirement of surrender of export proceeds. Unlike de facto measures of financial openness, which focus on

cross-border asset holdings, the KAOPEN index is representative of the overall policy of a country with respect to the degree of financial openness, and thus is more appropriate in capturing the degree of barriers to migrant remittance transfers or factors that affect the cost of remitting. Moreover, the KAOPEN index for financial openness has gained usage in the remittance literature (Singer, 2010; Aggarwal et al., 2011; Beine et al., 2012). For this paper, the KAOPEN index is reversed so that one implies open and zero closed. More importantly, the term financial openness is generally used here to refer to the ease of sending and receiving remittances, and therefore should not be strictly interpreted as being applied to only capital account transactions.

To measure financial development, this paper uses two proxies. First, the ratio of private sector credit provided by demand deposit banks to GDP, which measures financial depth. Second, the ratio of broad money to GDP, which measures the size of the financial system and the extent of monetization. These indices are drawn from the World Bank Global Financial Development Database (GFDD), and are considered in turn for sensitivity analysis. Institutional quality is measured using the Polity2 index of democratization from the Polity IV database of the Center for Systemic Peace. The index is a composite measure of the difference between autocracy and democracy, and ranges from -10 to 10 , with higher score rating indicating better quality of democratic institutions. This index is rescaled to range from 0 (lower quality) to 1 (higher quality). Furthermore, additional control variables for other determinants of remittances are included in the estimation. First, the GDP per capita income of the remittance-receiving countries is used to proxy for economic conditions as well as the motive behind remittances. For example, a positive (negative) coefficient would indicate whether remittances are procyclical (counter-cyclical). Second, to capture for economic conditions in the remittance-sending (host) country, the US GDP per capita is used as proxy. Third is the nominal exchange rate of the domestic currency per US dollars since remittances are sent in foreign currencies. A positive coefficient would imply that a domestic currency depreciation would result in higher amounts of remittance inflows. Data for these variables are sourced from the World Bank World Development Indicators and the IMF International Financial Statistics (IFS) database. With the exception of the financial openness and institutional quality variables, all others are transformed to their natural logarithm.

The scatter plot between remittances and financial openness for the selected countries averaged over the sample period is presented in Figure 3. As shown, an inverse relationship exists between remittances and financial openness. More importantly and on average, most countries in sub-Saharan Africa can be classified as being “least financially open” with the exception of Kenya, Botswana, Mauritius and Uganda, which are approaching the “most financially open” category. Furthermore, the ratio of remittances to the GDP is high for Lesotho. These few observations are noticeable outliers in the data. Therefore, to reduce the outlier effects in the analysis, each variable is winsorized (i.e., trimmed) at the top and bottom 1%.

Figure 3: Scatter plot of remittances (% GDP) and financial openness (KAOPEN index) in selected sub-Saharan African countries, 1990–2015 (Country average)



Tables 2 and 3 present respectively the summary statistics and pairwise correlations for the variables of interest. Concentrating on the pairwise correlations in Table 3, the GDP per capita suggests the existence of a counter-cyclical relationship. Remittances and the US GDP per capita are positively correlated with a coefficient of 0.171. Both measures of financial development, private sector credit and broad money, both as a ratio of GDP, positively correlated with remittances with coefficients of 0.124 and 0.101 respectively.

Table 2: Summary statistics

Variables	N	Mean	Std. dev.	Min	Max
Remittances/GDP (<i>rem</i> , log)	773	0.133	1.777	-5.638	4.472
GDP per capita, SSA (<i>ssa gdpc</i> , log)	773	6.904	0.987	5.087	9.386
GDP per capita, US (<i>us gdpc</i> , log)	773	10.702	0.118	10.486	10.858
Nominal exchange rate (<i>nexr</i> , log)	773	3.867	2.346	-5.727	7.975
Polity2 index (<i>polity2</i> , not log)	773	0.579	0.288	0.05	1
Private sector credit/GDP (<i>pcredit</i> , log)	773	2.388	0.859	-0.135	4.632
Broad money/GDP (<i>m2gdp</i> , log)	773	3.174	0.517	1.879	4.671
Financial openness (<i>kaopen</i> , not log)	773	0.253	0.224	0	1

Also, both measures of financial development are highly correlated with each other with a coefficient of 0.749. The Polity2 measure of institutional quality is positively correlated with remittances with a coefficient of 0.135. Lastly, financial openness and remittances are negatively correlated with a coefficient of -0.080 , which is consistent

with the scatter plot in Figure 3. This may suggest that the relationship is conditional on other fundamental factors such as financial sector development and institutional quality. However, since correlation does not imply causation, less importance is attached to the pairwise correlation analysis. Instead, the cause-effect relationship between financial openness and remittances, and potential interactions are explored using regression analysis.

Table 3: Pairwise correlation

Variables	rem	ssa gdpc	us gdpc	nexr	pcredit	m2gdp	polity2	kaopen
<i>rem</i>	1.000							
<i>gdp</i>	-0.177	1.000						
<i>gdpu</i>	0.171	0.101	1.000					
<i>nexr</i>	0.012	-0.310	0.222	1.000				
<i>pcredit</i>	0.124	0.478	0.233	-0.131	1.000			
<i>m2gdp</i>	0.101	0.373	0.229	-0.257	0.749	1.000		
<i>polity2</i>	0.135	0.122	0.316	-0.020	0.360	0.485	1.000	
<i>kaopen</i>	-0.080	0.244	0.069	-0.046	0.302	0.286	0.144	1.000

5. Empirical results

Table 4 presents the system GMM (SGMM) estimation results for the specification in Equation 2, which includes the lagged term of remittances as an explanatory variable, financial development measured by private sector credit relative to GDP and institutional quality measured by the Polity2 index. Also, the specification includes the GDP per capita of countries in SSA, the US GDP per capita and the nominal exchange rate as additional controls as described in Table 2. From Table 4, the following specifications apply: columns 1 and 2 exclude and incorporate the measure of financial openness respectively; columns 3 and 4 extend the specification in column 2 with financial openness interactions with financial development and institutional quality respectively. Across all the specifications, the number of observations, countries, instruments and the p-values of second order Arellano–Bond (AR2) test for serial correlation and Hansen J-test for over-identifying restrictions are reported below the coefficient estimates. The main focus for this paper is the specifications in columns 3 and 4.

Table 4: Financial openness, remittances and interactions – main results

Variables	1	2	3	4
<i>remittances/GDP_{t-1}</i>	0.738*** (0.034)	0.735*** (0.033)	0.723*** (0.029)	0.712*** (0.034)
<i>GDP per capita (SSA)</i>	-0.561** (0.232)	-0.558** (0.239)	-0.533** (0.249)	-0.615** (0.231)
<i>GDP per capita (US)</i>	0.900** (0.333)	0.886** (0.341)	0.998*** (0.317)	1.085*** (0.358)
<i>nominal exchange rate</i>	0.0369 (0.031)	0.0382 (0.031)	0.0326 (0.032)	0.0316 (0.028)
<i>private credit/GDP</i>	0.115** (0.048)	0.118** (0.048)	0.222*** (0.071)	0.113** (0.050)
<i>polity2</i>	-0.0704 (0.119)	-0.0589 (0.130)	-0.0518 (0.131)	0.376* (0.219)
<i>financial openness</i>		-0.172 (0.228)	1.333** (0.571)	1.011* (0.609)

continued next page

Table 4 Continued

Variables	1	2	3	4
<i>financial openness × private credit/GDP</i>			-0.558**	
			(0.215)	
<i>financial openness × polity2</i>				-1.895**
				(0.928)
<i>constant</i>	-6.110**	-5.957*	-7.558**	-7.899**
	(2.864)	(2.924)	(2.836)	(3.172)
<i>N</i>	729	728	728	728
Country	31	31	31	31
Instruments	19	22	25	25
Hansen test	0.230	0.284	0.345	0.127
AR(2) test	0.949	0.991	0.800	0.971

Note: ****, **, * indicates 1%, 5% and 10% significance level respectively. All estimations are based on the dynamic two-step SGMM estimator technique with finite-sample corrected standard errors in parentheses. p-values are reported for the Hansen J-test of overidentification and the Arellano–Bond (AR) test for second order serial correlation.

Starting with the lagged term for remittances relative to GDP and the additional control variables, the lagged term for remittances exhibits a significant high persistence with positive coefficient estimates ranging between 0.712 and 0.738 across all specifications. Such persistence indicates that past levels of remittance do have contemporaneous effects on current level of remittance. In terms of the home country economic conditions of the remittance-receiving countries as measured by their GDP per capita income, the coefficient estimate is negative and statistically significant with a range of -0.533 and -0.615 across all specifications. From a macro perspective, the evidence of a negative relationship between economic conditions of migrants' home countries and remittances is theoretically consistent with the altruistic motive (or income support) behind remittances. This implies that migrants often send more remittances during periods of adverse economic conditions such as poverty or shocks that reduce a family's income level. Put differently, the relationship between remittances and migrants' home economic conditions at the aggregate level is counter-cyclical in nature, meaning that remittance flows to the sub-Saharan African countries play an important role of shock absorption. For example, in column 3 (Table 4), the coefficient of the log GDP per capita for the countries is -0.533 and from Table 2, its standard deviation is 0.987. Hence, a one-standard deviation increase in the logged SSA GDP per capita yields a 0.526 [$-0.533 \times 0.987 = -0.526$] reduction in remittances. The mean value of the log of remittances relative to GDP is 0.133, so a one-standard deviation increase results in a 3.96% points [$-0.526/0.133 = -3.955$] decline in remittances.

In contrast, the effect of the economic conditions in the migrant host country as measured by the US GDP per capita income is positive and statistically significant across all specifications in Table 4. This positive effect suggests a procyclical

relationship between remittances and economic conditions of host countries. The reason is that an improvement in the macroeconomic conditions of migrants' host countries would significantly boost migrants' income, and in turn, the amount of remittance transfers to their home countries. Countries with large diaspora are expected to attract more remittance flows as host countries become more prosperous and wealthier. For example, in the specification of column 3 (Table 4), the coefficient estimate of US GDP per capita income is 0.998, and its standard deviation is 0.118 (Table 2). Thus, a one standard deviation increase in US GDP per capita income yields 0.117 [$0.998 \times 0.118 = 0.117$] increase in remittances. Since the mean value of remittances is 0.133, a one-standard deviation increase in US GDP per capita income results in 0.88% points [$0.117/0.133 = 0.879$] increase in remittances. Similarly, the effect of exchange rate on remittances is positive although statistically indifferent from zero across all specifications. This means that remittance flows to SSA may not react significantly to changes in the exchange rate. Overall, the findings that remittances react negatively (positively) to migrants' home (host) economic conditions coupled with the zero effect of the exchange rate is consistent with evidence from other studies such as Singh et al. (2010) and Adenutsi and Ahortor (2021) for the region.

Turning to financial development as measured by log of private sector credit relative to GDP, its coefficient estimates, which range between 0.113 and 0.222, are positive and statistically significant across all specifications in Table 4. Focusing on column 3, private credit/GDP has a coefficient estimate of 0.222, and from Table 2, a standard deviation of 0.859. Thus, a one standard deviation increase in private credit/GDP will lead to a 0.191 [$0.222 \times 0.859 = 0.191$] increase in remittances. Coupled with the mean of the log remittances relative to GDP, a one standard deviation increase in financial development as measured by the log of the private sector credit to GDP increases remittances by 1.44% points [$0.191/0.133 = 1.436$]. Remittance flows are expected to increase with domestic financial sector development. This is because financial development ameliorates the adverse effect of information, enforcement and transaction costs, which helps the financial system to perform its basic functions such as efficient allocation of capital; corporate governance quality; risk diversification; trading; and management, savings mobilization and the exchange of goods and services in an economy (Levine, 2005). Thus, a well-developed financial system should encourage more remittance flows, especially through the official channel with a reduction in the system's related costs associated with remittance transfers. The findings of a positive response of remittances to the level of financial development supports previous evidence (e.g., Freund and Spatafora, 2008; Singh et al., 2010; Bettin et al., 2012).

The direct effect of financial openness, which is introduced in the specification of column 2 (Table 4), has a coefficient estimate of -0.172 and is not statistically significant despite controlling for the effects of financial and institutional development. This finding suggests that financial openness may not directly influence remittances. Evidence on the inverse relationship existing between financial openness and remittances is similar to that of Bang et al. (2015), who

found that financial liberalization (both robustness and freedom aspects) has a net negative effect on remittances in the long run. Specifically, Bang et al. (2015) showed that: (i) the economic freedom aspects of financial liberalization as captured by development in securities markets, improved banking supervision; and (ii) the removal of restrictions on interest rates and capital has an initial insignificant impact and reduced effect on remittances as a share of GDP. Meanwhile, the opposite effect of an immediate positive impact on remittances is found for the economic freedom aspects. Thus, their findings showed that different dimensions of financial liberalization may have different consequences for remittances. Although the index of financial openness as used in this paper is not disaggregated to examine the relative impact of each component on remittances, the evidence of a non-significant negative effect similar to Bang et al. (2015) does not control for possible interaction effects with the level of financial and institutional development as emphasized in the financial openness literature (see Kose et al., 2009, 2011; IMF, 2012). Thus, it becomes necessary to condition the remittance effect of financial openness on the level of financial development and institutional quality.

The specification in column 3 (Table 4) incorporates the interaction effect between financial openness and financial development. As shown, the direct effect of financial openness with a coefficient estimate of 1.333 becomes positive and is statistically significant. The interaction term between financial openness and financial development has a coefficient estimate of -0.558 with statistical significance at 5% level. This means that financial openness and its interaction term has significantly positive and negative effects on remittances respectively. Thus, the inclusion of the interaction term between financial openness and financial development clearly shows that the insignificant average effect of financial openness on remittances in column 2 (Table 4) hides the existence of significant effects varying with the level of financial development. The partial (marginal) effect of financial openness as conditioned on the level of financial development from column 3 (Table 4) is given as:

$$\frac{\delta rem_{it}}{\delta kaopen_{it}} = 1.333 - 0.558 \textit{ private credit/GDP}$$

Consequently, the partial effect of financial openness on remittances decreases with financial development, and the threshold level of financial development between the positive and negative partial effect is 2.389. For example, the total effect of a unit increase in financial openness for SSA is calculated to be 0.0496% using the average value of financial development [$\delta rem / \delta kaopen = 1.333 - (0.558 \times 2.2388) = 4.96 \times 10^{-4}$].¹³ Furthermore, and using the minimum (maximum) value of financial development (*pcredditt*), a unit increase in financial openness leads to a 1.41% (–1.25%) points increase (decrease) in remittances. This finding suggests that financial openness tends to reduce

remittances in countries where financial development is above the threshold level, whereas financial openness increases remittances in countries where the financial development is below the threshold level. In other words, the effect of financial openness on remittances varies with the level of financial development: financial openness appears to increase (decrease) remittance flows to countries with a relatively small (large) financial sector. Therefore, this finding shows evidence of substitutability between financial openness and financial development in fostering remittances.

Turning next to the impact of institutional quality as measured by the Polity2 variable and its interaction with financial openness as specified in column 4 (Table 4), the direct effect of institutional quality is positive and statistically significant at the 10% level. The change in sign and significance contrasts with the negative and insignificant effect of the Polity2 measure of institutional quality in the specifications of columns 1 to 3 (Table 4). On the basis of column 4 (Table 4), the result shows that improvement in the institutional quality of the migrants' home country can boost significantly more remittance inflows. This finding is consistent with that of other studies (such as Singh et al., 2010; Lartey and Mengova, 2016; Effiong and Asuquo, 2017). Furthermore, with the introduction of the interaction term between financial openness and institutional quality, the positive and significant effect of financial openness is maintained as in column 3 (Table 4) with a coefficient estimate of 1.011. Similarly, and as with the interaction between financial openness and financial development, the interaction between financial openness and institutional quality is negative and statistically significant at 5% level with a coefficient estimate of -1.895. The partial effect of financial openness on remittances as conditioned on institutional quality from column 4 (Table 4) is given as:

$$\frac{\delta rem_{it}}{\delta kaopen_{it}} = 1.011 - 1.895 polity2$$

which yields a threshold value of 0.534 for institutional quality. On the basis of the positive and negative impact of financial openness and its interaction term with institutional quality, the partial effect of financial openness declines with institutions beyond the threshold value and vice versa. For example, the total effect of a unit increase in financial openness for SSA is calculated to be -0.086% points using the average value of financial development [$\delta rem / \delta kaopen = 1.333 - (0.558 \times 0.579) = -0.086$]. Furthermore, using the minimum (maximum) value of institutional quality (Polity2), a unit increase in financial openness leads to a 0.92% (-0.89%) points increase (decrease) in remittances. This implies that financial openness reduces (increases) remittances in countries where the institutional quality is higher (lower) than the threshold value. In other words, remittance flows to countries with lower institutional quality benefit more from financial openness than those in countries with higher institutional quality. Thus, similar evidence of substitutability is observed between financial openness and institutional quality in fostering remittance flows.

Further analysis of the robustness of the empirical results is presented in Table 5 when broad money relative to GDP (broad money/GDP) is substituted for private sector credit relative to GDP as the measure of financial development. Specifications in columns 1 to 4 (Table 5) show that the results are similar with those presented in Table 4 both from the perspective of coefficient signs and statistical significance. Concentrating on the interaction between financial openness and financial development in column 3 (Table 5), the partial effect of financial openness on remittances is by, $[4.304 - 1.329 \times \text{broad money/GDP}]$, which corresponds to a significant positive direct and negative interaction effect on remittances. As with the earlier results in column 3 in Table 4, financial openness reduces remittances beyond the threshold value of 3.239 $[4.304/1.329 = 3.239]$ for the level of financial development. However, the interaction between financial openness and institutional quality in column 4 of Table 5 provides similar evidence with the partial effect given by, $[1.161 - 2.125 \times \text{polity2}]$, which yields a threshold value of 0.546 $[1.161/2.125 = 0.546]$ for the level of institutional quality as measured by the Polity2 variable. As with the level of financial development, the remittance impact of financial openness declines with higher quality of institutions. Hence, our findings show that financial openness substitutes with both financial and institutional development in fostering remittances in SSA. While financial openness increases remittance flows in countries with weak financial systems and poor institutional quality, the converse relationship of a decline in remittances holds for countries with a deepened financial system and high-quality institutions.

Table 5: Financial openness, remittances and interactions- robustness results

Variables	(1)	(2)	(3)	(4)
remittances/GDP _{t-1}	0.735*** (0.033)	0.733*** (0.032)	0.704*** (0.029)	0.706*** (0.032)
GDP per capita (SSA)	-0.535*** (0.191)	-0.534** (0.196)	-0.609*** (0.188)	-0.611*** (0.192)
GDP per capita (US)	0.838** (0.332)	0.822** (0.344)	1.158*** (0.345)	1.032*** (0.359)
nominal exchange rate	0.0395 (0.032)	0.0408 (0.033)	0.0328 (0.033)	0.0312 (0.030)
broad money/GDP	0.185* (0.098)	0.194** (0.094)	0.474*** (0.142)	0.223** (0.094)
polity2	-0.0422 (0.124)	-0.0317 (0.135)	-0.0514 (0.149)	0.445* (0.229)
financial openness		-0.154 (0.247)	4.304*** (1.462)	1.161* (0.636)
financial openness × broad money/GDP			-1.329*** (0.436)	

continued next page

Table 5 Continued

Variables	(1)	(2)	(3)	(4)
<i>financial openness</i> × <i>polity2</i>				-2.125** (0.965)
<i>constant</i>	-5.961** (2.805)	-5.799* (2.891)	-9.729*** (3.264)	-7.832** (3.134)
<i>N</i>	732	731	731	731
Country	31	31	31	31
Instruments	16	19	22	22
Hansen test	0.163	0.221	0.122	0.217
AR(2) test	0.953	0.971	0.924	0.990

Note: ***, **, * indicates 1%, 5% and 10% significance level respectively. All estimations are based on the dynamic two-step SGMM estimator technique with finite-sample corrected standard errors in parentheses. p-values are reported for the Hansen J-test of overidentification and the Arellano–Bond (AR) test for second order serial correlation.

In summary, findings from our analysis show evidence of substitutability between financial openness and each of financial development and institutional quality in fostering remittances in the countries in SSA. As earlier mentioned, the effect of financial openness on remittances is not straightforward because of the complex combination of altruistic and self-interest or portfolio choice motives behind the decision to remit. Thus, the results can be interpreted in the sense that financial openness would reduce remittances in the presence of improved domestic institutions and a well-developed financial system.

In contrast, financial openness would increase remittances by compensating for the presence of weak institutions and financial markets. This effect is bound to foster inter-familial arrangements leading to more remittance transfers to the recipient country due to the risk effect of output and consumption volatility. As a mitigation strategy, migrants would typically remit more to help diversify the risk associated with financial openness. Within this context, the insurance motive would play a dominant role, meaning that remittances would constitute a source of resilience against adverse economic shocks. In the short run, financial openness would boost significant volume of remittances; in the long run, financial openness would lead to a drop in remittances with significant improvement in financial and institutional development.

From the perspective of other international capital flows, findings from our analysis seems counter-intuitive. Evidence from studies on the effect of financial openness on other capital flows such as FDI and portfolio equity emphasized the need to build a sound institutional framework and deepen financial sector development (e.g., Noy and Vu, 2007; Okada, 2013; Gammoudi and Cherif, 2016). For example, Okada (2013) found that the effect of financial openness on FDI increases with the level of institutional quality. In other words, both financial openness and institutional quality are complements in fostering international capital flows. This evidence is theoretically consistent with the viewpoint that countries can maximize the benefit–risk trade-off

from financial openness provided certain threshold conditions such as financial sector and institutional development are in place. However, the divergence of our findings from this viewpoint could be attributed to the uniqueness of remittances from other capital flows. While other capital flows are highly procyclical, volatile and driven by an investment motive, remittances are counter-cyclical, relatively stable, and more often dominated by an altruistic (insurance) motive (i.e., consumption smoothing) than the self-interest or portfolio (investment) motive. This is why remittances are useful in mitigating the effect of adverse economic shocks, thereby helping households in the recipient home country to diversify against income risks and smooth consumption volatility.

6. Conclusion and further research

This paper investigates the impact of financial openness as a policy option for encouraging more inflows of remittances into the sub-Saharan African region. Specifically, it examines the partial effect of financial openness on remittances conditioned on the levels of financial development and quality of domestic institutions. The analysis used data for a panel of 31 countries over the period 1990–2015 and a system GMM estimator for dynamic panel models that are robust for addressing endogeneity issues.

Consequently, the main findings can be summarized as follows. First, financial openness, albeit having a declining effect, does not significantly influence the inflow of remittances into SSA. This implies that financial openness as a standalone policy may not attract more remittances. In contrast, when conditioned on the levels of financial development and institutional quality, financial openness tends to significantly increase remittances. However, this effect declines with significant improvement in institutional quality and a well-developed financial sector. Thus, the results suggest that financial openness would increase remittances in countries with a weak financial system and domestic institutional quality and vice versa. In other words, beyond threshold conditions of a deepened financial sector and better institutional quality, the partial effect of financial openness leads to reduction in remittance inflows in the long run. Hence, financial openness substitutes rather than complements financial and institutional development in fostering remittances. Therefore, financial openness as a policy option would only foster remittances in the presence of weak financial markets and institutions as the insurance motive will play a crucial role in mitigating the potential risk of financial crises and macroeconomic volatility.

From the foregoing, we advocate for a cautious approach in the adoption of financial openness as a policy instrument for increasing remittance inflows into the region. The removal of controls and restrictions in the remittance markets in countries in SSA in the short term would yield increased remittance inflows. However, such policy options when accompanied simultaneously with strengthening of the domestic institutional quality and a well-developed financial system would lead to a reduction in remittances. Such an effect brings into question the sustainability of remittances as a long-run source of development finance particularly for remittance-dependent economies. Lastly, future research in exploring the complex relationship may consider alternative estimation techniques such as the panel threshold techniques, other alternative conditional (threshold) variables, and the choice and selection of countries based on their income-level classification.

Notes

1. See Table 1.
2. Across the African remittance corridors, remittance prices remained above 10% (see World Bank, 2017).
3. Others include: (i) factors that affect remittance mark-up of remittance service providers such as competition, market structure and the level of education of the migrant population; and (ii) socio-economic characteristics in both the sending and receiving countries that might influence both cost and mark-ups such as stage of economic development (i.e., standard of living), geographic distribution of population and volume of remittance transactions.
4. For Lucas and Stark (1985), between pure altruism and pure self-interest motives is the possibility of a mixed motive otherwise called “tempered altruism” or “enlightened self-interest” in which an implicit contractual arrangement exists between the migrant and the household family for purposes of co-insurance, exchange motives and loan repayment. The migrant supports the household in bad economic times (i.e., cushion the effect of income volatility) and, in turn, the household supports the migrant by paying the cost of migration or during spells of unemployment.
5. The rationale is simple and straightforward: adverse conditions such as poverty and shocks which reduce the domestic income at the family level should encourage more remittance from migrants.
6. Note that immigration policy can restrict the demand for migrant labour and the level of wages will determine migrants’ earning, their savings–consumption behaviour and, in turn, the amount to be remitted.
7. The higher the black market premium, the larger the share of remittance diverted to the black market through unofficial channels. Also, migrants may remit through the black market if remittances through official channels are subject to taxation.
8. This explains typical policy prescription with emphasis on the competitiveness of interest and exchange rates.
9. Conversely, remittances may promote financial development (Gupta et al., 2009; Bettin et al., 2012). Remittances may substitute for inefficient or non-existent credit markets by bridging the financial constraints for accessing credit, thereby providing an alternative credit channel for financing investment. In addition, remittances can lead to an expansion in the banking system’s loanable funds, increasing domestic credit in the financial system (Giuliano and Ruiz-Arranz, 2009).
10. See Abdih et al. (2012) and Williams (2017) for evidence on the reverse effect of remittances on institutional quality

11. Remittance flows through the official channels is impossible in a financial autarky whereas informal channels, apart from being less expensive at first glance, may involve more risk. Synonymous with informal channels is illegal activities such as money laundering for which an individual may be considered as a criminal. Moreover, due to long distances between pairs of countries, physical transportation of money may involve higher costs and be subject to theft.
12. This index is available for download from Hiro Ito's website: http://web.pdx.edu/~ito/Chinn-Ito_website.htm
13. The impact is roughly zero because the threshold and mean value of financial development are approximately the same.

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Mission

To strengthen local capacity for conducting independent, rigorous inquiry into the problems facing the management of economies in sub-Saharan Africa.

The mission rests on two basic premises: that development is more likely to occur where there is sustained sound management of the economy, and that such management is more likely to happen where there is an active, well-informed group of locally based professional economists to conduct policy-relevant research.

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