Economics Bulletin

Volume 41 Issue 2

Remittances and Financial Inclusion: Does Financial Development Matter?

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Abstract

This study provides new evidence on the relationship between remittances and financial inclusion using generalized methods of moments (GMM) and panel threshold regressions (PTR). The sample consists of 64 developing countries over the period 2004-2017. The empirical results suggest that remittances improve financial inclusion, and the relationship between both variables is nonlinear, with respect to financial development. These findings are supported by PTR estimations, that confirm positive and significant relationship between remittances and financial inclusion below a given threshold of financial development. Beyond this threshold, remittances and financial inclusion nexus is not significant. These results have some policy implications.

Citation: Jude Eggoh and Chrysost Bangaké, (2021) "Remittances and Financial Inclusion: Does Financial Development Matter?", *Economics Bulletin*, Vol. 41 No. 2 pp. 374-386.
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Submitted: June 29, 2020. **Published:** April 09, 2021.

1. INTRODUCTION

The rising volume of remittance flows into the developing countries in recent years has attracted increasing attention because of their effects on the recipient countries. According to the World Bank (2019), remittance flows to the developing countries have reached $ 529 billion in 2018, in addition to unknown amounts transferred through unofficial channels. There are today, the first largest source of external financial flows to developing countries, more than three times the amount of foreign aid. Moreover, remittances seem to be less volatile than other sources of external finance.

There is an extensive literature on the effects of remittances on poverty and inequality (Adams and Page, 2005; Acosta et *al.*, 2008), education (Edwards and Ureta, 2003), economic growth (Konté, 2014; Williams, 2018; Eggoh et *al.*, 2019), institutional quality (Abdih et *al.*, 2012; Berdiev et *al.*, 2013), and financial development (Gupta et *al.*, 2009; Aggarwal et *al.* 2011; Coulibaly, 2015; Sobiech, 2019). Although there is a growing literature on the impact of remittances on financial development, studies on the effects of remittances on financial inclusion are scarce. Financial inclusion is not the same as financial depth. It is possible to have financial development without financial inclusion since the former refers to the aggregate level of credit or deposit money bank. Thus, the financial inclusion measures the ability of the financial system to provide the financial services to the poorest by alleviating their vulnerability.

In this perspective, it is commonly accepted that financial inclusion has become a subject of considerable interest among policy makers, researchers, and other stakeholders. The heightened interest reflects a better understanding of the importance of financial inclusion for economic and social development. It indicates a growing recognition that access to financial services has a critical role in reducing extreme poverty, boosting shared prosperity, and supporting inclusive and sustainable development.

The literature on remittances put forward two main channels through which remittances can affect financial inclusion. Firstly, remittances increase demand for savings instruments because households might require saving an extra amount of remittances. Secondly, it could be that remittances potentially increase household's likelihood of obtaining a loan. According to Anzoategui et *al.* (2014), remittances increase the probability of having an account by at least 11%.

Empirically, most of the works, that tackled the effects of remittances on financial inclusion, have been carried out in the South American countries and refers to microeconomic approach. For instance, using household-level survey data for Mexico, Demirgüç-Kunt et *al.* (2011) find positive effects of remittances on savings indicators. In the same vein, Ambrosius and Cuecuecha (2016) investigate the effect of remittances on the use of formal and informal financial services, based on Mexican household data. The authors find positive and statistically significant effects of remittances on the ownership of savings accounts, the existence of debts, and borrowing. Based on data from household-level survey of Elsavador, Anzoategui et *al.* (2014) find that remittances have a positive impact on financial inclusion by promoting the use of deposit accounts. In Africa, most existing works focus on Nigeria. In this regard, Uchenna et *al.* (2005) examine the relationship between remittances and banking deep in Nigeria. They find that remittances cannot influence recipient's decision to open a bank account, while Afeju et Ogebe (2019) suggest that the receipt of remittances increases the probability of using formal financial services, such as deposit account and internet mobile banking.

At the macroeconomic level, only a few studies have examined the relationship between remittances and financial inclusion. Using panel data on thirty-eight developing countries in Asia and Oceania over the period 2001-2012, Inoue and Hamori (2016) find that remittances improve the national branch network of commercial banks. Machasio (2018) applies fixed effects estimation as well as GMM method to study the relationship between remittances and financial inclusion. He shows that remittances increase financial inclusion about 2.49%. Therefore, remittances can be considered as a catalyst of financial inclusion in developing countries. However, work by Gautam (2019) suggests that remittances lead to a significant decline in the demand for deposit accounts from formal financial institutions.

These conflicting results show that this relationship is likely nonlinear since the effect of remittances on financial inclusion may be influenced by the level of financial development. Indeed, countries that have the same level of remittances may record different financial inclusions due to financial development level. Our paper is also complementary to the empirical literature that addresses the impact of remittances on economic development and their interaction with financial sector. Giuliano and Ruiz-Arranz (2009) find that remittances boost economic growth in countries with less developed financial systems while Bettin and Zazzaro (2012) suggest that remittances promote growth only in countries where financial system works well. This paper tests the hypothesis that remittances exert an effect on financial inclusion according to the level of financial development.

Our main contribution compared to the existing literature is threefold. The first novelty of the paper is that we provide new insights on the role that financial development plays in mediating the influence of remittances on financial inclusion. Specifically, we explore whether there exists a financial development threshold in the remittances-financial inclusion relationship. Previous studies pay less attention to this aspect. This relationship may be contingent on financial development, where remittances promote financial inclusion below or above a given threshold of financial development. This conjecture requires a more flexible modeling strategy that can accommodate different kinds of remittances remittances-financial development interactions. To this end, we use generalize methods of moments (GMM) on dynamic panel through a quadratic specification to analyze the nonlinear relationship between remittances and financial inclusion following the level of financial development. As a second novelty, for robustness checks, we rely on the panel threshold regressions (PTR) due to Hansen (1999) that authorized multiple thresholds. Most empirical papers indirectly assume a constant impact of remittances along the entire span and homogeneity among the countries in the sample. In this regard, they identify exogenous breaks or endogenous break threshold using semi-parametric or rolling Chow tests. This test imposes a discontinuity in the relationship between remittances and financial inclusion. This is not the case of our PTR model which captures, on a continuous basis, the effect of remittances on financial inclusion. To the best of our knowledge, this model has not been applied before on the considered topic, although it seems to be highly relevant. As a third novelty, unlike to previous works, which has often based on a few measures of financial inclusion, we use several indicators that capture the penetration as well as the access to financial services.

The rest of the paper is organized as follows. Section 2 lays out the methodological approaches and data, while section 3 contains a discussion of the empirical findings. Section 4 provides some concluding remarks.

EMPIRICAL METHODOLOGY AND DATA

Dynamic panel specification

The baseline regression of our dynamic panel specification is the following:

$$FI_{it} = \alpha_i + \lambda FI_{i,t-1} + \beta RM_{it} + \gamma FD_{it} + \varphi RM_{it} * FD_{it} + \phi' Z_{it} + \varepsilon_{it}, \quad (1)$$

where *FI* is financial inclusion variable (here, we use 6 different financial inclusion variables), *RM* denotes remittances over GDP, *FD* is financial development variable, and Z is vector of conditional information that controls for other factors associated with financial inclusion. α_i is an unobserved country-specific effect and ε_{it} is the error term.

The within fixed effects model estimator, applied to a dynamic specification, provides biased and non-convergent estimators, due to the correlation between the lagged endogenous variable $FI_{i,t-1}$ and ε_{it}, when the error terms are autoregressive. The first difference specification, proposed by Arellano and Bond (1991), may contain this shortcoming.

$$\begin{aligned} FI_{it} - FI_{i,t-1} &= \lambda\left(FI_{i,t-1} - FI_{i,t-2}\right) + \beta\left(RM_{it} - RM_{i,t-1}\right) + \gamma\left(FD_{it} - FD_{i,t-1}\right) \\ &+ \varphi\left(X_{it} - X_{i,t-1}\right) + \phi'\left(Z_{it} - Z_{i,t-1}\right) + \left(\varepsilon_{it} - \varepsilon_{i,t-1}\right). \end{aligned} \quad (2)$$

X represents the interaction variable between remittances and financial development. We use the Arellano and Bond's system GMM approach to estimate our financial inclusion model that consists of the stacked regressions in level and difference. The GMM estimator uses lagged differences of the explanatory variables as instruments for equation in level, in addition to lagged of the explanatory variables in level as instruments for equation in first difference. These models have been widely used to address the endogeneity problem that appears in panel data estimation (Arellano and Bover, 1995 and Blundell and Bond, 1998). Lastly, as discussed in the above-mentioned studies, GMM estimator also avoids simultaneity and reverse causality problems. The consistency of this estimator depends on the validity of the assumption that the error term does not exhibit serial correlation (AR1) and the validity of the instruments, based on AR2 and Hansen tests.

Although the previous specification allows considering for nonlinearity, it supposes that the transition function is linear. Then, the marginal effect of financial inclusion with respect to remittances is linear function of threshold variable *i.e.*, financial development. In addition, the method of the threshold determining is not based on an optimization process, which can sometimes lead to non-consistent thresholds. In the following paragraph, we propose panel threshold approach that allows for nonlinear relationship, where the remittances-financial inclusion elasticity depends upon the value of another observable variable, which is in our case the financial development.

PTR model

Let us consider the simplest case of PTR with two extreme regimes and a single threshold:

$$FI_{it} = \alpha_i + \beta_1 RM_{it} I\left(FD_{it} \le \gamma\right) + \beta_2 RM_{it} I\left(FD_{it} > \gamma\right) + \phi' Z_{it} + \varepsilon_{it}, \quad (3)$$

where γ is a threshold parameter, FD_{it} is the corresponding financial development variable and Z_{it} the vector of controls like in Eq. (1). The observations are divided into two regimes

depending on whether the threshold variable FD_{it} is smaller or larger than the threshold parameter γ. The regimes are distinguished by different regression slopes, β_1 and β_2, for the low and the high regime, respectively.

The PTR model allows individuals to move between groups and over time depending on changes in the threshold variable. This specification also provides a parametric approach to cross-country heterogeneity, as well as time instability of the remittances–financial inclusion coefficients with respect to the financial development variable.

The first step of our estimation method is to test the null hypothesis of linearity $H_0 : \beta_1 = \beta_2$ against the threshold model in Eq. (3). Under the null hypothesis, the threshold γ is not identified, so classical tests have non-standard distribution. For each possible value of γ, a LM statistic is calculated and subsequently inference is based on the supremum of the LM across all possible γ. The likelihood ratio test of H_0 is based on:

$$F = \left(S_0 - S_1(\hat{\gamma})\right) / \hat{\sigma}^2, \tag{4}$$

where S_0 is the sum of the squared residuals of the linear model, $S_1(\hat{\gamma})$ the sum of the squared residuals of the one-threshold model, and $\hat{\sigma}^2 = S_1(\hat{\gamma}) / N(T-1)$. Unfortunately, the asymptotic distribution of the LM statistic is non-standard and appears to depend in general upon moments of the sample. Since the critical value cannot be tabulated, Hansen (1996) suggested a bootstrap to simulate the asymptotic distribution of the likelihood ratio test. When the first threshold effect is approved, the same procedure can be applied to general model to determine the number of thresholds required to capture the whole non-linearity. The new null hypothesis consists of testing a specification with r regimes versus a specification with $r+1$ regimes. The procedure stops when the null hypothesis is not rejected.

Data and descriptive statistics

This study covers a panel of 64 developing countries,[1] over the period 2004-2017, based on data availability. Our data comes from different sources: World Development Indicators (World Bank, 2019a), Global Financial Inclusion (World Bank, 2019b), and Financial Access Survey (IFM, 2019). Among the financial inclusion indicators, we retain six (6) whose data are available for many countries. Our main exogenous variable is the ratio to GDP of migrant remittances. These remittances include current cash or kinds transfers received by resident households and remunerations of cross-border or seasonal workers employed in an economy where they are not resident. Financial development is also an exogenous variable of interest since it is used as a transition variable in the relationship between financial inclusion and remittances. Table 1 presents the list of variables and their definition.

[1] The list of countries is presented in the Appendix.

Table 1. Definition of the variables

Variables	Definition of the variables
Financial services access indicators	
Bankadult	Number of bank branches per 100,000 adults.
Bankkm2	Number of bank branches per 1,000 km2.
Dabadult	Number of automated teller machines (ATMs) per 100,000 adults.
Dabkm2	Number of ATMs per 1,000 km2.
Financial services penetration indicators	
Comptebk	Number of bank accounts with commercial banks per 1,000 adults.
Emprunt	Number of borrowers from commercial banks per 1,000 adults.
Exogenous variables	
Remit	Remittances as a percentage of GDP.
Findev	The ratio of liabilities i.e., broad money supply (M3) to GDP.
Gdppc	Gross domestic product (GDP) per capita expressed in constant 2010 dollars.
Trade	The openness to trade measured by the ratio of GDP to the sum of imports and exports.
Schoolpr	The gross primary school enrolment rate.

The descriptive statistics on average data by country, are presented in Table 2. The average level of remittances is about 4.70%, highlighting the scale of these funds in developing countries and their impact on the economic and the social activities in the recipient countries, by facilitating access to financial services for the most disadvantaged populations.

Table 2. Descriptive statistics

Variables	Obs.	Mean	Std. dev.	Minimum	Maximum
Bankadult	64	10.28	9.578	0.643	37.80
Bankm2	64	9.729	19.99	0.027	110.2
Dabadult	64	20.03	21.44	0.537	112.8
Dabkm2	64	16.11	34.55	0.029	196.3
Comptebk	64	639.0	601.9	28.21	2,678
Emprunt	64	110.5	125.0	1.172	746.5
Remit	64	4.707	6.351	0.134	27.15
Findev	64	40.19	35.53	8.605	260.7
Gdppc	64	3,484	3,338	229.9	16,389
Trade	64	79.15	33.99	19.41	173.4
Schoolpr	64	106.2	14.39	68.33	142.7

Overall, developing countries have experienced an increasing trend in financial inclusion indicators over the last decade. For example, the number of bank branches per 100,000 adults increased on average from 9.93 in 2010 to 12.71 in 2017. Over the same period, access to ATMs per 100,000 adults increased from 21.31 to 32.82.

However, the dynamics of financial inclusion indicators remain characterized by strong individual and temporal variability, suggesting therefore, the existence of a potential non-linearity with respect to remittances and financial development. As far as the other control

variables are concerned, the values obtained remain very close to the average trends suggested by most studies (Barro and Sala-i-Martin, 2004; Bahadir and Valev, 2015).

EMPIRICAL RESULTS AND IMPLICATIONS

The estimation of the relationship between remittances and financial inclusion is carried out in two steps: first, we assess the impact of remittances on financial inclusion, using panel dynamic specification that includes the interaction term between remittances and financial development. Second, we use PTR model that provides robustness checks of our previous results based on system GMM estimator.

Table 3 reports system GMM results concerning the effect of remittances on financial inclusion. To lessen concerns about endogeneity, we use the lagged value of independent variables as instruments. The regressions satisfy the specification tests (AR1, AR2 and Hansen tests). There is no evidence of a second serial correlation, but there is strong proof of a first serial correlation. Moreover, the regressions successfully pass the Hansen test and confirm the validity of the instruments.

Across all estimations, we find that remittances are positively and significantly related to financial inclusion. This finding supports the view that remittances promote financial inclusion in developing countries and corroborates works by Demirgüç-Kunt et *al.* (2011), Anzoategui et *al.* (2014), Ambrosius and Cuecuecha (2016), but contrasts with the empirical results provided by Gautam (2019). The regularity of remittances through formal channels can lead to an extension of banking activities to areas, where the beneficiaries of these transfers live. This extension of banking activities is reflected in the opening of new bank branches to bring financial services closer to customers. Depending on their profile, the beneficiaries of remittances may open a bank account. As a result, remittances promote access to bank accounts of recipient households, and stimulate various associated banking operations: deposits, bank credits, and insurance for example. Financial inclusion is also facilitated by the increase of ATMs that allow the withdrawal of transfers by beneficiaries.

One of our interest variables is the interaction term between remittances and financial development. The interaction variable is negative and significant at conventional levels in most of cases (Table 3). This suggests the existence of nonlinear relationship between remittances and financial inclusion with respect to financial development. These findings show that the marginal impact of remittances on financial inclusion decreases with the level of financial development. In other words, remittances promote financial inclusion in countries with shallower financial systems by helping overcome liquidity constraints. These results are in line with the literature underlying the existence of a positive effect of remittances on growth in countries with less developed financial system (Giuliano and Ruiz-Arranz, 2009; Sobiech, 2019). Remittances have de facto acted as a substitute for financial services in promoting financial inclusion, by overcoming the needs for credit and insurance that the market has failed to provide. Furthermore, they might potentially increase the demands for deposit accounts since financial institutions offer households a safe place to store this temporary excess cash. Finally, remittances might increase household's likelihood of obtaining a loan. Processing remittance flows provide financial institutions with information on the income of recipient households. This information might make financial institutions better willing and able to extend loans to otherwise opaque borrowers.

However, once a certain threshold of financial development is reached, the impact of remittances on financial inclusion declines. Since financial development seems to matter remittances uses, the main policy recommendation is that public authorities in countries with shallower financial systems may foster financial sectors, thus ensuring that a proportion of remittances are channeled in a more effective way to have a positive impact on financial inclusion.

Table 3. Panel dynamic estimation of the relationship between financial inclusion and remittances

Variables	(1) Bankadult	(2) Bankm2	(3) Dabadult	(4) Dabkm2	(5) Comptebk	(6) Emprunt
IF_{it-1}	0.900***	0.968***	0.733***	0.840***	0.906***	0.883***
	(0.004)	(0.002)	(0.003)	(0.004)	(0.004)	(0.007)
Remit	0.062***	0.088***	0.099***	0.071***	0.027***	0.021***
	(0.007)	(0.004)	(0.013)	(0.011)	(0.007)	(0.007)
Findev	0.045***	0.086***	0.159***	0.156***	0.014*	0.063***
	(0.005)	(0.004)	(0.007)	(0.004)	(0.007)	(0.009)
Findev*Remit	-0.016***	-0.022***	-0.011***	-0.006**	-0.003	0.007**
	(0.002)	(0.001)	(0.004)	(0.003)	(0.002)	(0.002)
Gdppc	0.031***	-0.034***	0.350***	0.158***	0.087***	0.149***
	(0.005)	(0.004)	(0.005)	(0.013)	(0.009)	(0.019)
Trade	0.019***	-0.0006	-0.129***	-0.166***	-0.011***	0.053***
	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)	(0.004)
Schoolpr	0.394***	0.170***	0.573***	0.414***	0.161***	1.072***
	(0.047)	(0.050)	(0.056)	(0.045)	(0.044)	(0.060)
Constante	-2.089***	-0.737***	-4.716***	-2.739***	-0.808***	-6.044***
	(0.237)	(0.267)	(0.264)	(0.226)	(0.222)	(0.324)
AR1 (*p-value*)	0.009	0.005	0.040	0.034	0.000	0.045
AR2 (*p-value*)	0.695	0.742	0.559	0.526	0.177	0.283
Test de Hansen (*p-value*)	0.991	0.990	0.990	0.997	0.996	0.998
Observations	832	832	832	832	832	832
Number of countries	64	64	64	64	64	64

Notes: Standard deviations in parentheses. *** p <0.01; ** p <0.05; * p <0.1. All the exogenous variables are in natural logarithm.

Let us consider the other control variables. All the explanatory variables have the expected sign. Indeed, GDP per capita is positively associated with financial inclusion, supporting the literature that suggests a concomitant relationship between financial development and economic growth (Beck et *al.*, 2000; Bangaké and Eggoh, 2011). Thus, the increase of economic activities creates financing needs and consequently leads to financial development, which results in certain conditions in better financial inclusion. As a result, increased output will be followed by greater financial inclusion of households, to support economic activities. Similar results have been obtained by Chinoda (2020), who shows from a sample of 30 African countries over the period 2004-2017, that economic growth stimulates financial inclusion. Trade openness also positively affects financial inclusion, then supports works by Hajilee and Niroomand (2019). The role of human capital on financial inclusion is examined in this study.

It is found that the estimated coefficient of gross primary school enrollment rate is positive and significant at conventional levels. As far as financial development is considered,[2] the sign is positive and significant at 1%, suggesting that financial development mainly stimulates financial inclusion through access to credit cards, bank loans and ATMs coverage.

Since the relationship between remittances and financial inclusion can vary according to the recipient countries' financial depth, it would be interesting to determine the value of the financial development threshold. Unfortunately, our previous estimation on dynamic panel cannot provides accurate threshold due to the linearity constraint of the elasticity of financial inclusion with respect to remittances. In order to overcome this limitation, our objective in the next paragraph is to assess the marginal effect of remittances on financial inclusion under different regimes of financial development. This gives us a robustness check to challenge our previous results.

Robustness analysis on PTR

Table 4 presents the non-linearity test and the PTR estimates. The non-linearity test rejects the null hypothesis of linearity at the conventional significance level of 5% for all regressions. At the same time, the test of one threshold PTR model (H0) against the alternative of two thresholds model is in favor of the null hypothesis. As a result, the tests provide evidence of a nonlinear relationship between remittances and financial inclusion, with respect to financial development. In particular, a PTR with one threshold (two regimes) is sufficient to purge the non-linearity between both variables and this threshold for financial development is ranged between 4.33 and 4.61.

According to the level of financial development, a differentiated impact of remittances on financial inclusion is obtained (Table 4). In order to highlight the sensitivity of the relationship between financial inclusion and remittances, Figure 1 displays the elasticities of financial inclusion with respect to remittances conditional to the financial development which is the transition variable. Indeed, for countries with level of financial development below the threshold (first regime), remittances improve financial inclusion, while the relationship is not significant under the second regime. This result is significant both for coverage in bank branches and for ATMs variables. However, for countries with developed financial sector, financial inclusion is already achieved, as a result, remittances no longer play a decisive role. Consequently, in weak financial system remittances work as a substitute of financial sector, and then, promote the financial inclusion of households. Similar results highlighting a substitution effect between remittances and financial development have been obtained by Giuliano and Ruiz-Arranz (2009). The differentiated effects of remittances on financial inclusion, depending on the level of financial development, support our previous results, based on dynamic panel model. Finally, the control variables appear significant in most regressions, with consistent signs.

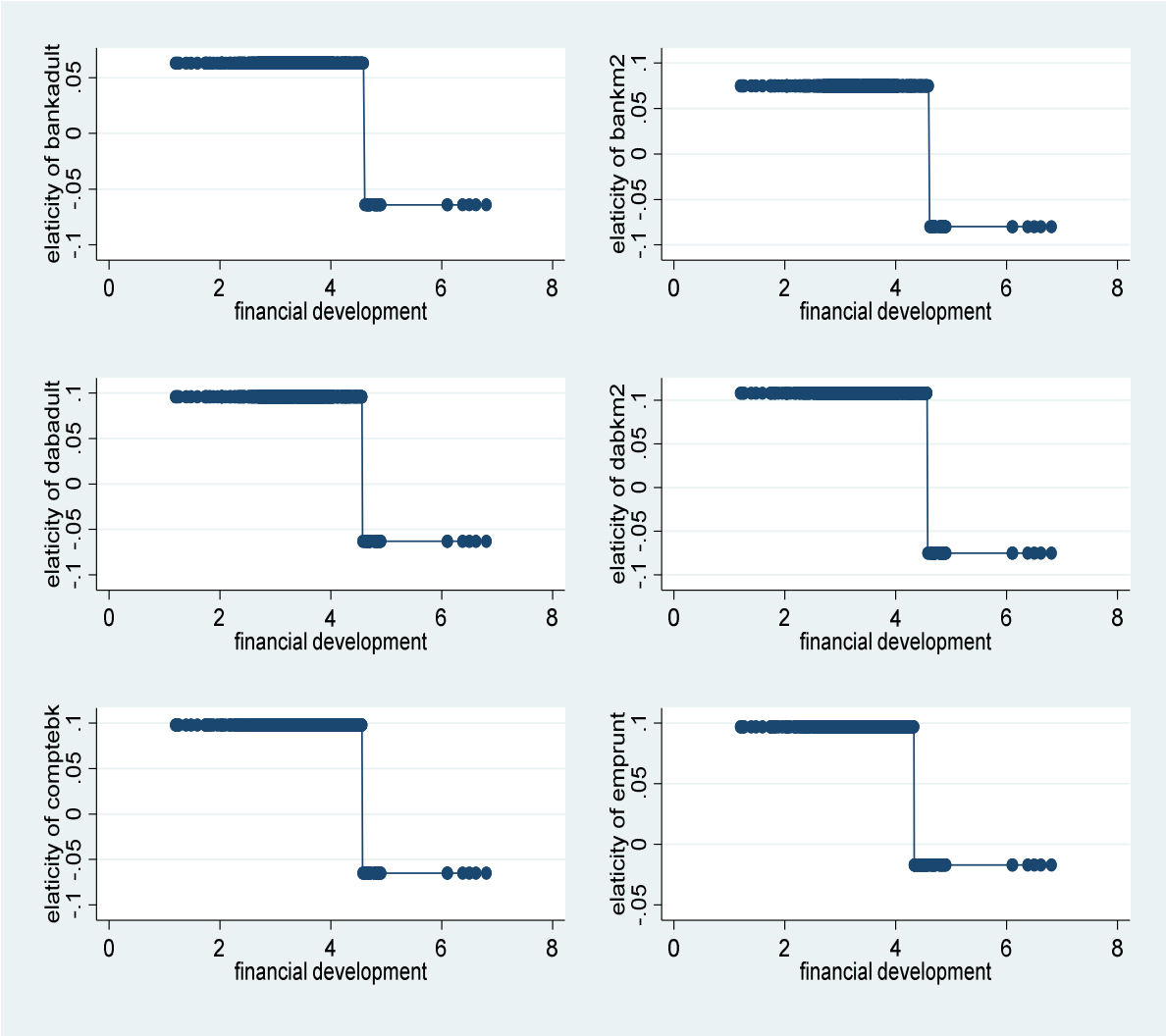
[2] This result remains robust using different indicators of financial development: ratio of bank loans or deposits to GDP. For sake of brevity, we do not present these results here. They can be provided to the interested reader upon request to the authors.

Table 4. Test of non-linearity and PTR estimates

	(1) Bankadult	(2) Bankm2	(3) Dabadult	(4) Dabkm2	(5) Comptebk	(6) Emprunt
Financial development threshold and test of non-linearity						
FD threshold (γ)	4.612	4.612	4.574	4.574	4.574	4.331
Fisher test (F1)	68.72***	73.70***	44.86**	37.78**	41.09**	35.75***
p-value	[0.003]	[0.010]	[0.019]	[0.059]	[0.043]	[0.100]
Fisher test (F2)	31.91*	33.70*	24.39	27.64	23.27	20.08
p-value	[0.080]	[0.080]	[0.230]	[0.210]	[0.200]	[0.300]
Remittances						
1st regime ($DF_{it} \leq \gamma$)	0.063***	0.075***	0.096***	0.108***	0.098***	0.097***
	(0.011)	(0.014)	(0.022)	(0.024)	(0.017)	(0.022)
2nd regime ($DF_{it} > \gamma$)	-0.064	-0.080	-0.0634	-0.075	-0.065	-0.017
	(0.089)	(0.108)	(0.158)	(0.176)	(0.123)	(0.045)
Control variables						
Findev	0.255***	0.344***	0.664***	0.745***	0.476***	0.432***
	(0.038)	(0.046)	(0.070)	(0.078)	(0.054)	(0.057)
Gdppc	0.913***	1.295***	2.400***	2.693***	1.185***	1.863***
	(0.071)	(0.086)	(0.135)	(0.150)	(0.104)	(0.128)
Trade	-0.034	-0.087***	-0.211***	-0.268***	-0.137***	-0.126**
	(0.027)	(0.033)	(0.052)	(0.058)	(0.040)	(0.050)
Schoolpr	0.341**	0.491***	1.671***	1.770***	0.675***	1.127***
	(0.154)	(0.185)	(0.290)	(0.322)	(0.225)	(0.280)
Constant	-7.548***	-12.350***	-25.530***	-29.360***	-7.509***	-16.740***
	(0.898)	(1.080)	(1.691)	(1.880)	(1.312)	(1.629)
Observations	896	896	896	896	896	896
R2 *within*	0.311	0.363	0.426	0.428	0.296	0.318
Number of countries	64	64	64	64	64	64

Notes: Standard deviations are in parentheses and p-values in brackets. *** p <0.01; ** p <0.05; * p <0.1. All the exogenous variables are in natural logarithm. F1 is the Fisher test of the linear model (H0) against a PTR with one threshold, and F2 is the Fisher test of the PTR with one threshold (H0) against a PTR with 2 thresholds.

Figure 1. Elasticity of financial inclusion with respect to remittances conditional to financial development



CONCLUDING REMARKS

The role of remittances in fostering economic growth, reducing inequality, and easing financial constraints has been widely discussed in recent years. However, the effects in terms of financial inclusion have been little explored in the empirical literature. This paper analyzes the relationship between remittances and financial inclusion across a panel of 64 countries, based on dynamic panel and Panel Threshold Regression (PTR) methods. In addition, we consider the influence of financial development in the relationship between remittances and financial inclusion.

The empirical investigations suggest that remittances promote financial inclusion in all its dimensions. Furthermore, the relationship between remittances and financial inclusion is nonlinear, since the impact of remittances on financial inclusion is significant only in countries characterized by a low level of financial development. This heterogeneity in the effect of remittances on financial inclusion supports the substitution effect between migrant transfers and financial development.

Our results have some policy implications. Since financial development seems to matter remittances uses, the best way for recipient countries with shallower financial systems to ensure that migrant transfers contribute to financial inclusion is to foster the financial sector. Thus, efforts should be undertaken to improve financial system efficiency because remittance flows through formal channels are more likely to have a positive effect on financial inclusion as opposed to remittances through informal channels. Indeed, developing countries, remain one of the highest-cost regions in terms of receiving remittances from abroad. The high cost associated with receipt of remittances in developing countries from abroad has the potential to reduce the flow or amount of remittances to the region and consequently reduce the extent of financial inclusion. Aiming at reducing remittances costs is also very important. Reducing transaction fees will motivate poor migrants to remit since their disposable income will not significantly drop. Finally, financial education programmes for both recipient countries with shallower financial systems and migrant senders of remittances would be useful to foster financial inclusion.

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Appendix: List of countries (64)

Afghanistan, Algeria, Azerbaijan, Bangladesh, Belize, Bolivia, Bosnia and Herzegovina, Botswana, Brazil, Burundi, Cameroon, Central African Republic, Chad, Colombia, Comoros, Congo Dem. Rep., Congo Rep., Costa Rica, Dominican Republic, Ecuador, Egypt. Arab Rep., Equatorial Guinea, Eswatini, Gabon, Georgia, Ghana, Guatemala, Guinea, Honduras, Indonesia, Kenya, Lao PDR, Lesotho, Liberia, Madagascar, Malawi, Malaysia, Maldives, Mauritania, Mauritius, Moldova, Montenegro, Mozambique, Myanmar, Namibia, North Macedonia, Pakistan, Paraguay, Peru, Rwanda, Samoa, Sao Tome and Principe, Solomon Islands, South Sudan, Suriname, Syrian Arab Republic, Tanzania, Thailand, Tonga, Turkey, Uganda, Yemen Rep., Zambia, and Zimbabwe.