Effects of Cross-Border Remittances on Financial Inclusion: Evidence from Selected Arab Countries

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Abstract

The study investigates the relationship between three financial inclusion indicators and cross-border remittances for a set of ten Arab economies over the 2013-2019 period in the framework of dynamic panel data models. The obtained findings comply with expectations, thus enhancing the understanding of the nexus between financial inclusion and remittances. They reveal that cross-border remittances exert a significant and positive impact on financial inclusion, regardless of the indicator included into the analysis, albeit the effects are weak for two out of three financial inclusion indicators.

The findings may be of great interest for policymakers, as they could help them make relevant policies to enhance financial inclusion through improving remittances, depending on the magnitude for each financial inclusion proxy and on the intrinsic features of each Arab country. The policy recommendations may be important not only for the Arab countries under study, but also for the other Arab economies, especially those that are important sources of expatriate workers to abroad.

Background and introduction

Rising migration and its linkages to human, socio-economic and political development has for a number of years been a prominent theme on the international development policy dialogue. As a result, over the past 20 years, remittances have become apparent as a key topic in the global development agenda and have attracted significant attention, not least because they are supporting poverty reduction, improving health and education, and expanding investment opportunities. Indeed, for many, particularly low-income households who are susceptible to severe variations in income or expenses, remittances represent a steady income stream to increase spending for housing, healthcare, education and income-generating activities, and to build a cushion against shocks given otherwise volatile income sources. Actually, the possibility for the migrant worker to send money immediately in secure and affordable conditions can play a significant role in smoothing consumption, responding positively to adverse shocks, and easing working capital constraints.

In this regard, remittances, both foreign and domestic, can be used as an important driver to increase financial inclusion, given their nature of recurrent low-value payments, largely intended for consumers usually without access to a transaction account enabling them to manage their routine financial transactions.

There are challenges, however: cross-border retail payments are usually costly for banks, slow, inefficient and less transparent than domestic payments, given historically loosely grown domestic payment systems and the broad range of intermediaries that are required to bridge those. Indeed, the cost of sending remittances stands globally at nearly 6.8% in the second quarter of 2019, more than double of the objective of 3% stated in the Sustainable Development Goals (SDG) by 2030 (SDG target 10.c). Several reasons are impacting this trend, including commercial banks de-risking practices along with exclusive arrangements established between national post offices and a few global Money Transfer Operators (MTOs). Furthermore, the ongoing outbreak of the COVID-19 pandemic is considered as a serious concern due to the negative impact it will have on financial inclusion by reversing the expanding trend of remittance inflows, which are projected to decline globally in 2020 with a significant impact across local economies and vulnerable communities. According to the World Bank, the amount of remittances that migrants from developing countries can send home are likely to fall by 19.7% in 2020, which would be the sharpest global decline in recent history, then impact on financial inclusion.

In fact, many previous empirical studies have examined the relationship between financial inclusion and cross-border remittances for some regions and countries. This study continues in the same momentum by examining such relationship with three main financial inclusion indicators, namely the number of bank branches per 1,000 km, the outstanding deposits with commercial banks, and the outstanding loans from commercial banks for a panel of ten Arab countries over the 2013-2019 period based on Generalized Method of Moments (GMM) estimators in the framework of dynamic panel data models.

The obtained results reveal that the application of the dynamic panel data approach enhances the understanding of the relationship between financial inclusion and cross-border remittances for the selected Arab countries under the study period based on a number of financial inclusion indicators. Indeed, the results related to all financial inclusion proxies are aligned with expectations, as cross-border remittances are a relevant driver of financial inclusion, albeit the effects are low, especially for bank branches and loans. These outcomes support the view that the links between financial inclusion and cross-border remittances are relevant for Arab policymakers. Indeed, the significant and positive nexus between financial inclusion and cross-border remittances could help decision-makers establish pertinent policies to enhance financial inclusion through promoting cross-border remittances, depending on the magnitude for each

financial inclusion indicator and on the intrinsic features of each Arab economy.

The rest of the study is organized as follows. Section 1 reviews related empirical studies in the field. Section 2 provides a preliminary analysis of data. Section 3 presents the model and estimation issues adopted to assess the nexus between financial inclusion and cross-border remittances. Section 4 analyses the empirical findings. Concluding remarks and policy recommendations are presented at the end of the study.

1. Literature review

The literature analyzing the macroeconomic effects of remittances has long centered on the relationship between remittances and economic growth. It emerges from this literature that remittances support economic growth, but this result remains fragile and strongly conditioned by the development level of financial sector, the quality of the institutions of the recipient countries, the composition of the samples as well as the estimation methods. In addition, the adoption of the "millennium" declaration by the United Nations and the SDGs which consider financial inclusion as an essential foundation of economic development, have gradually encouraged researchers to examine the effects of Remittances on financial inclusion. The following discussion is intended as a summary of this literature. We first present the main findings of work relating to the relationship between remittances and the development of financial sector, then we

assess those that have addressed the link between remittances and financial inclusion.

1.1. Remittances and financial development

The relationship between cross-border remittances and financial sector development has given rise to an abundant literature, which provides controversial results. From one hand, as revealed by Orozco and Fedewa (2006) and Aggarwal et al. (2011), remittances allow households to access financial services. In addition, to the extent that remittances also appear to be more durable and stable than other foreign capital flows and often move counter-cyclically, they can increase bank lending funds and thereby domestic credit. On the other hand, by relaxing the financial constraint on households, remittances are likely to decrease the demand for credit and reduce the development of this market. In this case, remittances can be seen as a proxy for financial development. Due to the divergence of existing theoretical arguments, studying the relationship between remittances and financial development becomes an empirical question. This empirical literature has taken two main directions. The first and most significant is the analysis of the implications of financial development on the link between remittances and economic growth. In general, the results of these studies lead to the conclusion that the impact of remittances on growth are not direct, but rather pass through the channel of financial sector development.

The link between remittances and growth would not be linear, but conditional on the different situations of the economies. Thus, Giuliano and Ruiz-Arraz (2009) show threshold effects, depending on the financial sector development's level. Drawing on a sample of 100 developing countries, the authors conclude that remittances support economic growth in countries where the financial sector is weakly developed. More recently, Sobiech (2019) shows that remittances can promote growth, but the impact is only significant if the recipient countries have low levels of financial sector development. These results support the work of Giuliano and Ruiz-Arranz (2009), who found that remittances and financial sector development can be substitutes. Olayungbo and Quadri (2019) reach similar conclusions using Pooled Mean Group (PMG) type regressions on a sample of 20 countries in sub-Saharan Africa over the 2000-2015 period.

From another hand, Bettin and Zazzaro (2012) take into account the interaction between remittances and banking efficiency and find rather that remittances are complementary to financial development. Similar results are obtained by El Hamma (2018), which highlights a complementarity between remittances and financial sector development from a study covering a sample of 14 countries in the Middle East and North Africa and based on the double ordinary least squares method to treat a possible endogeneity of remittances. Similarly, the study performed by Eggoh et al. (2019) on a sample of 60 developing countries argues for the complementarity between

remittances and financial sector development. Thus, remittances support economic growth in countries where financial sector is relatively developed. The second direction taken by the empirical literature concerns the direct impact of remittances on financial development.

Thus, Gupta et al. (2009) use a panel of 44 countries in sub-Saharan Africa and test the direct effect of remittances on financial development. After having controlled the possible endogeneity of remittances in their econometric estimation, they find that remittances affect in a positive way the financial sector development. Aggarwal et al. (2011) also find a positive link between remittances and financial sector development for emerging economies over the 1975-2007 period. Based on data on 19 African economies, Coulibaly (2015) also shows a positive and significant link between the banking sector and remittances over the 1980-2010 period. Despite their interest, these studies provide little information on the link between remittances and financial inclusion. Financial development in developing countries is also a multifaceted process, which relies on the banking system, microcredit institutions, etc.

However, in these countries, the banking services of the populations are low, and financial exclusion affects the most vulnerable households to varying degrees. Within this framework, an area of particular interest for academics and policymakers has been to

directly study the potential impact of remittances on financial inclusion.

1.2. Remittances and financial inclusion

Theoretically, the relationship between remittances and financial inclusion is insufficiently developed. Nevertheless, Anzoategui et al. (2014) identify two channels through which remittances can affect financial inclusion. First, remittances could create a need for financial products among recipient households and make these people eligible to access savings products offered by financial institutions. Second, remittances would increase the likelihood of recipient households obtaining loans. Indeed, by reducing the problems of asymmetry of information between lenders and borrowers, financial institutions would be more willing and in a better position to grant loans to beneficiaries of remittances. This can therefore improve the financial inclusion of recipient households. In this configuration, Anzoategui et al. (2014) show that remittances increase the probability of opening a bank account by at least 11%.

Empirically, few researches have studied the determinants of financial inclusion and in particular its relationship with remittances. Some of this work has been carried out in the South American context and at the microeconomic level. For example, Demirgüç-Kunt et al. (2011) show from a survey conducted in Mexico that remittances support increasing financial depth very significantly, in particular the number of bank branches and accounts per capita as well as the

volume of deposits. Likewise, Ambrosius and Cuecuecha (2016), using data from Mexican households, explored the impact of remittances on the way of formal and informal financial services are used. The authors find positive and significant impact of remittances on the opening of savings accounts and bank loans. In the case of El Salvador, Anzoategui et al. (2014) use data from household survey to assess the effect of remittances on financial inclusion. The authors conclude that remittances have a positive impact on financial inclusion by supporting the use of deposit accounts. In Africa, most of the existing work focuses on Nigeria. Thus, Efobi et al. (2015) use a logistic regression to examine the link between remittances and financial inclusion in Nigeria. The results lead to the conclusion that remittances do not expand the demand for banking services. On the other hand, the work of Ajefu and Ogebe (2019) carried out in Nigeria using household survey data shows that remittances increase the probability of endorsing formal financial services, such as deposit accounts, banking services by internet, or mobile banking.

Despite the growth in volume of remittances in recent years, little work has analyzed the effect of remittances on financial inclusion at the macroeconomic level. However, over recent periods, data relating to financial inclusion is provided by the World Bank and the International Monetary Fund. They have thus enabled the occurrence of a few unusual researches on the effect of remittances on financial inclusion. In this perspective, Inoue and Hamori (2016) analyze the effect of remittances on access to financial services from formal

channels, based on 38 emerging countries in Asia and Oceania between 2001 and 2012. Their results reveal that remittances support to expand the national network of commercial banks. Likewise, from a sample of 61 emerging countries, Machasio (2018) also concludes that remittances have a positive effect on financial inclusion. The study shows that remittances increase financial inclusion by around 2.49%.

In contrast, the results of Gautam (2019) question the ability of remittances to stimulate financial inclusion in developing countries. His study covers 107 countries and leads to pessimistic conclusions. Remittances lead to a substantial decrease in demand for deposit accounts with financial institutions in formal sector. Furthermore, they have no major effect on the demand for credit from these same institutions.

2. Data and preliminary analysis

There is limited evidence in the economic literature on the responses of financial inclusion to the changes in the cross-border remittances in the Arab region. Accordingly, the current study explores the empirical evidence of the link between financial inclusion and cross-border remittances for ten Arab economies (Egypt, Iraq, Jordan, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, and Sudan) over the 2013-2019 period.

Data are annual and collected from different sources. Indeed, data on the number of bank branches per 1,000 km are gathered from World Data Atlas; data on the outstanding deposits with commercial banks and the outstanding loans from commercial banks are gathered from the Financial Access Survey published by the International Monetary Fund, and data on the cross-border remittances are collected from the World Development Indicators published by the World Bank.

The descriptive statistics reported in Table 1 reveal that Egypt records the highest average cross-border remittances (2.162E+10) followed by Lebanon (7.328E+9) and Morocco (6.919E+9), which is due to the large number of migrant workers abroad compared to the other countries under study. By cons, Kuwait records the lowest average cross-border remittances (1.756E+7) followed by Oman (3.901E+7) and Saudi Arabia (3.007E+8), which is explained by the weak number of migrant workers abroad from Gulf Cooperation Council (GCC) countries.[1] It values to note that the average cross-border remittances for Egypt (Kuwait), Lebanon (Oman) and Morocco (Saudi Arabia) are higher (lower) than the average cross-border remittances over the full panel of countries (4.293E+9). The volatility of the cross-border remittances differs across countries, as indicated by the values of standard deviation, where Egypt is the most volatile (3.875E+9). Additionally, the statistics show evidence of

[1] See also Figure 1 that plots the evolution of cross-border remittances in the selected Arab economies over the 2013-2019 period.

discrepancy in the averages and volatility of the financial inclusion indicators across the selected economies. Indeed, Lebanon records the highest average financial inclusion indicators compared to the other countries. However, Oman (Sudan) records the lowest average deposits and loans (bank branches).

The correlations between the cross-border remittances and the financial inclusion indicators are presented in Table 2. The values by country provide evidence of mixed (positive and negative) correlations between the cross-border remittances and the selected financial inclusion measures across economies. For the full set of countries, the cross-border remittances are positively and weakly correlated with the financial inclusion indicators, as the correlation coefficient is around 0.11. This correlation analysis is not conclusive about the nature of the link between the cross-border remittances and the financial inclusion indicators for the selected Arab countries, showing the need to conduct an in-depth study of such relationship based on pertinent model and estimation issues to achieve the objectives of the study.

3. Model and estimation issues

For the purpose of assessing the reactions of the above financial inclusion indicators to the changes in the cross-border remittances in the Arab region, we make use of the difference GMM method, developed by Arellano and Bond (1991), to estimate the following dynamic panel data model:

$$\begin{cases} FI_{it} = \alpha_i + \beta FI_{i,t-1} + \gamma REM_{it} + u_{it} \\ i = 1, 2, \dots, N, \ \ t = 1, 2, \dots, T \end{cases} \quad (1)$$

where i stands for country and t for time; FI_{it} is the financial inclusion indicator (BRA_{it} or DEP_{it} or LOA_{it}); REM_{it} is the cross-border remittances,[2] and u_{it} is the error term. Regarding the model coefficients, α_i measure the country-specific effects; the coefficient β assesses the effects of past own values of the financial inclusion on its current values, and the coefficient γ measures the responses of financial inclusion to the fluctuations in the cross-border remittances.

In the context of GMM estimators, the dynamic panel data model can be transformed into its first difference form by removing the country-specific effect as follows:

$$\Delta FI_{it} = \beta \Delta FI_{i,t-1} + \gamma \Delta REM_{it} + \Delta u_{it} \quad (2)$$

To overcome the correlation between the disturbance term, Δu_{it}, and the variable, $\Delta FI_{i,t-1}$, Arellano and Bond (1991) suggest the first-differenced GMM estimator that considers two or more lagged values of the regressors as instruments by assuming no serial correlation in the disturbance term u_{it} and weak exogenous regressors. The first-

[2] Note that the variables are converted into natural logarithm and, therefore, the model coefficients represent the elasticities of financial inclusion with respect to cross-border remittances.

differenced GMM estimator is determined based on the following moment conditions:

$$E\left[Y_{i,t-j}\Delta u_{it}\right] = 0, \;\; j \geq 2, t = 3, 4, \ldots, T \qquad (3)$$

where $Y_{i,t-j} = FI_{i,t-j}, REM_{i,t-j}$.

Based on these conditions, Arellano and Bond (1991) develop one-step and two-step GMM estimators, which are largely employed in empirical studies. The current study opts for the two-step GMM estimator, as it is asymptotically more efficient than the one-step GMM estimator, as proven by Arellano and Bond (1991).

4. Analysis of the results

We report results from the estimation of three models. First, we assess the impact of the cross-border remittances on the number of bank branches by setting $FI_{it} = BRA_{it}$ in the model given by Eq. (1). Second, we assess the reactions of the outstanding deposits with commercial banks to the fluctuations in the cross-border remittances by setting $FI_{it} = DEP_{it}$ in the model given by Eq. (1). Third, the responses of the outstanding loans from commercial banks to the changes in the cross-border remittances are measured by setting $FI_{it} = LOA_{it}$ in the model given by Eq. (1).

4.1. Effects of cross-border remittances on financial inclusion

The GMM estimate results of the reactions of financial inclusion to the fluctuations in the cross-border remittances from the full panel of

ten Arab economies over the 2013-2019 period are displayed in Table 3. They reveal that the past own values of the financial inclusion indicators significantly and positively affect the current values, with the impact being different across indicators. Indeed, the past value of deposits has the highest impact (0.994) on the current value, followed by loans (0.851) and bank branches (0.333). Cross-border remittances are a relevant driver of financial inclusion for the Arab countries under study, as the related coefficients are positive and significant, albeit the impacts are weak, especially for bank branches and loans. Indeed, an increase by 1% in the cross-border remittances tends to increase financial inclusion by 0.004% for bank branches, 0.029% for deposits and 0.009% for loans.

4.2. Diagnostic checks

In addition to the statistical significance of the variables, we now check the validity of the fitted models by applying three tests for the consistency of the two-step GMM estimators. Indeed, we first consider the Wald test for overall significance that tests the null hypothesis of nullity of all model coefficients (except the constant term). Second, we conduct the autocorrelation test that tests the null hypothesis of no second-order serial correlation in the first-differenced error term. Third, we employ the Sargan test for overall validity of the instruments that tests the null hypothesis of validity of the over-identifying restrictions. The test results reported in Table 3 support the two-step GMM estimates, as there is evidence of overall

significance of the model, no second-order serial correlation in the first-differenced error term, and valid over-identifying restrictions.

Conclusion and policy recommendations

The relationship between financial inclusion and cross-border remittances for the selected Arab countries over the 2013-2019 period has been meticulously examined based on the GMM estimators in the framework of dynamic panel data models. The results reveal that cross-border remittances have the power to significantly and positively affect financial inclusion, albeit the impacts are weak, especially for bank branches and loans. These results could help policymakers establish pertinent policies to promote financial inclusion through enhancing cross-border remittances:

- Governments could implement appropriate policies in the financial market to be more competitive, as the existence of competing informal networks can canalize transfers in remote areas. For this purpose, governments may have the policy scheme to lower the informal remittances and rise the formal remittances through ensuring reliable, fast, secure and cost-effective official transfer mechanisms.

- Governments could create favorable conditions to turn cross-border transfers to productive investment projects, thus creating job opportunities, which may incite people

(especially women and youth) to open new bank accounts and, thus, their integration into the formal financial system. For this purpose, governments could develop public infrastructure in disadvantaged areas and offer tax exemption for small businesses.

- Governments could develop publicly access market information center, support financial education and literacy improving campaigns that enable consumers to better understand remittances and related financial inclusion issues, increase private-sector awareness on opportunities, all under an appropriate consumer protection framework for remittance, both senders and receivers.

- Governments could create an enabling environment that supports innovative business development models, aiming at providing substitutes to in-cash transfers practices by increasing access points for both senders and receivers through building alliances and partnerships between different types of market players.

Table 1. Summary statistics of the variables

Country	Branches	Deposits	Loans	Remittances
Egypt				
Mean	2.920	2.667E+6	1.189E+6	2.162E+10
Std. Dev.	0.150	1.181E+6	5.770E+5	3.875E+9
Iraq				
Mean	2.197	5.430E+7	2.420E+7	8.767E+8
Std. Dev.	0.259	3.459E+6	1.504E+6	1.505E+8
Jordan				
Mean	10.200	3.224E+4	2.267E+4	4.961E+9
Std. Dev.	0.500	2.549E+3	3.119E+3	7.605E+8
Kuwait				
Mean	25.629	2.692E+4	3.266E+4	1.756E+7
Std. Dev.	1.236	1.465E+3	3.478E+3	1.311E+7
Lebanon				
Mean	107.849	1.860E+8	7.170E+7	7.328E+9
Std. Dev.	3.787	1.500E+7	6.793E+6	2.504E+8
Morocco				
Mean	14.035	8.494E+5	8.227E+5	6.919E+9
Std. Dev.	0.803	8.435E+4	6.820E+4	4.258E+8
Oman				
Mean	1.770	1.095E+4	1.952E+4	3.901E+7
Std. Dev.	0.029	1.645E+3	3.284E+3	0
Qatar				
Mean	20.603	5.489E+5	7.002E+5	5.140E+8
Std. Dev.	2.039	1.030E+5	1.473E+5	9.777E+7
Saudi A.				
Mean	0.957	1.607E+6	1.314E+6	3.007E+8
Std. Dev.	0.077	1.093E+5	9.906E+4	2.653E+7
Sudan				
Mean	0.325	1.014E+5	6.068E+4	3.563E+8
Std. Dev.	0.028	8.607E+4	3.735E+4	1.849E+9
Panel				
Mean	18.700	2.487E+7	1.009E+7	4.293E+9
Std. Dev.	31.161	5.763E+7	2.236E+7	6.560E+9

Table 2. Correlations between financial inclusion and cross-border remittances

Country	Branches	Deposits	Loans
Egypt	0.893	0.906	0.879
Iraq	-0.227	-0.788	0.758
Jordan	-0.760	-0.676	-0.836
Kuwait	0.579	0.577	0.663
Lebanon	-0.393	-0.560	-0.549
Morocco	-0.422	-0.419	-0.372
Oman	-	-	-
Qatar	-0.555	0.204	0.152
Saudi A.	0.925	0.835	0.699
Sudan	-0.320	-0.002	-0.102
Panel	0.106	0.112	0.104

Note: The correlation coefficients between financial inclusion indicators and cross-border remittances cannot be computed for Oman, as the standard deviation of remittances is equal to zero (see Table 1).

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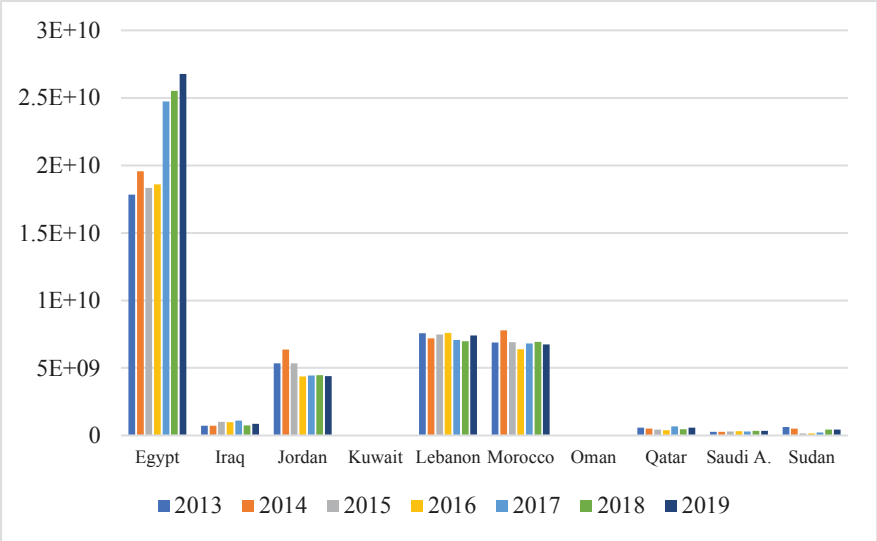
Table 3. Two-step GMM estimates of the effects of cross-border remittances on financial inclusion

Variable	BRA	DEP	LOA
BRA(-1)	0.333***	-	-
	(0.011)		
DEP(-1)	-	0.994***	-
		(0.017)	
LOA(-1)	-	-	0.851***
			(0.008)
REM	0.004**	0.029*	0.009*
	(0.002)	(0.016)	(0.005)
Wald Test	913.430+++	5414.260+++	15727.510+++
	[0.000]	[0.000]	[0.000]
Autocorrelation Test	1.112	0.774	0.959
	[0.266]	[0.439]	[0.338]
Sargan Test	9.777	9.942	8.813
	[0.778]	[0.766]	[0.843]

Notes: Wald test for overall significance of the model, Autocorrelation test for no second-order serial correlation in first-differenced disturbances, and Sargan test for overall validity of the instruments. The values in parentheses are the standard errors, and the values in brackets are the *p*-values of the tests. ***, ** and * stand for statistical significance at the 1%, 5% and 10% levels, respectively. +++ stands for rejection of the null hypothesis at the 1% level.

Figure 1. Evolution of cross-border remittances over the 2013-2019 period



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FIARI FINANCIAL INCLUSION FOR THE ARAB REGION INITIATIVE