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Remittances, inclusive finance and governance in selected African countries: empirical insights from the COVID-19 pandemic

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Abstract: This research intends to explore the effects of inclusive finance on remittances and how these international flows impact economic growth in selected countries from Africa from 1996 to 2020. As per the results of panel dynamics estimation, inclusive finance positively impacts remittances. Furthermore, remittances significantly and positively impact economic growth in countries with solid governance effectiveness. However, they do not affect economic growth in weak governance effectiveness groups. Finally, COVID-19 positively affects remittance receipt, and negatively affects economic growth. Inclusive finance offerings are a crucial transmission channel in receiving remittances to African countries, and governance effectiveness plays a substantial role here.

Keywords: *African Countries, COVID-19, Governance, Inclusive finance, Remittances.*

1. Introduction

Remittances play an important role in contributing to people's general welfare. This effect is expected to operate through a number of different pathways. The inclusive finance canal is one of the primary routes. Research has been evident that inclusive finance increases migration's remittances, and migration, in turn, generates improvements in economic development via productivity growth, technology and social transfers. Hence, remittances are considered to have a transitional role between the financing of development as well as migration and are also thought to be a convenient additional income source in the origin states, alleviating unemployment and poverty, enhancing living standards, improving consumptions, and expanding and attracting investments. Recently, World Bank data revealed the resilience and dependability that remittances represent for families during the COVID-19 pandemic and its financial/economic and health crisis.

The current study is primarily intended to evaluate the extent to which inclusive finance-induced remittances impact the economic growth of the origin country through its effects on income per capita growth as the central measure of welfare. The study will be beneficial as it contributes to the debate over the interlinkage between welfare and remittances in a principled way. The current study initiates by assuming that the impacts of remittances on welfare in the nation of origin are entirely distinct for states with bad governance contrasted to nations with a high level of governance, a standpoint that has been relatively unexplored in the longer term.

The paper will examine the role of remittances-induced inclusive finance on welfare in selected African countries, taking into account the effect of the COVID-19 pandemic. The study uses the Generalized Method of Moments (GMM) estimates grounded upon a dynamic panel for correcting the data for the duration of 2005-2020 and the simultaneity bias.

In the following section, we examine the main empirical work on the underlying association between remittances inclusive finance and governance effectiveness. The third section will be devoted to exploring the data collected and the different models estimated. Section four will present the different

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models; it will highlight and discuss the main results obtained. Finally, we conclude.

2. Literature Review

2.1. Remittances, Inclusive Finance and Governance

Among the many works of literature that helped to explain the complex relationship between financial inclusion and remittance inflow in migrant-transmission states for raising their financial or economic development. Recently, migrants' remittances have emerged as significant one-off sources of financial inflows, particularly in developing nations where they constitute a substantial amount of their Gross Domestic Product (GDP). Chuc et al. (2022) investigated a sample comprising 60 low and middle-income countries for the period 1996-2017 to examine the composite effect of international remittances inflow and financial inclusion on economic development. The outcomes of their study revealed that financial inclusion has the potential to fortify the "growth-enhancing impact" of remittances. In another study, Saydaliyev et al. (2020) examined the moderating roles of financial inclusion and human capital using the dynamic panel data technique on data from 96 developing states covering the period 2007-2018. The findings of their GMM analysis concluded that remittance inflows have an essential role about determining economic growth in developing nations. The authors further concluded that the positive impact is clear with high-quality human capital and more financial inclusion.

The long-run impacts of remittance inflows on financial inclusion were also thoroughly explored by Issabayev et al. (2020). Their findings from the GMM method using a panel dataset of 87 developing states covering the period 2011-2017 revealed that financial inclusion has a tendency to intensify with improved quality of institutions in recipient countries, and remittances alone are not able to enhance financial inclusion. Bindu et al. (2021) evaluated the influence of remittances on financial development by applying yearly data from several countries, including China, Russia, South Africa, India, and Brazil, for the period 1990-2019. Their findings show that remittances positively impact bank deposits. In addition, their study explored the association between the absenteeism of a short-run correlation between remittances and financial development and its relation to remittances in bank deposits.

Kim (2021) explored the effects of institutional quality and migrants' remittances on developing nations' financial development. The author employed an unobserved dynamic factor model on a sample of 64 states from 1996-2016. The findings indicated that institutional quality tends to have a considerable role in the enhancement of the remittances' impacts on financial development, particularly once the institutional quality attains a specific high level. Su et al. (2021) assessed the influence of remittances and the quality of institutions in enhancing private investment in emerging economies during the period from 1990 to 2019. Their findings show that the increase in remittance inflow has a role in causing Dutch disease. However, the joint effect of improved remittance inflow and institutional quality on private investment was positive and aggravated the Dutch disease. Furthermore, an increase in GDP induces an increase in private investments. In contrast, an increase in the financial risk in the developing economies decreased private investments.

Bkwayep (2020) examined the effect of financial inclusion and remittances on income inequality using a sample of forty-seven states covering the interval from 2004 to 2014. The findings revealed that emigrant remittances and financial inclusion reduced inequality. Emara and Zhang (2021) examined the influence of digitization (as Fintech's proxy) on the remittance inflow in a sample of thirty-four developing and developed nations for the period 2004-2018. Employing a System GMM panel, their analysis provides interesting findings on Brazil, Russia, India, China, and South Africa (BRICS), regarded as five evolving markets having large sums of overseas workers but below the average level of digital transfers. Their results detect a significant non-linear relationship between the inflow of remittances and advanced digitization measures with an exact skill level. This indicates that digitization's marginal effect is greater at its lower level prior to the threshold.

The study of Issahaku et al. (2018) contributed to the body of literature by testing the way domestic institutional capacity acts in determining the developing nations' potential to draw benefits from remittance inflows. The study applies data from 106 developing states (1996 to 2013). Their findings

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show that remittances boost economic growth in the lower-middle-income and low-income states but do not foster growth in high-income and upper-middle states. In addition, the findings also confirm that the domestic institutions in lower-middle-income and low-income states endorse growth only when allied with remittances. In contrast, in high-income and upper-middle states, the institutions are stable enough to stimulate growth and play as alternates for remittances in the process of economic growth. Muntasir et al.'s (2023) research findings confirm that lower corruption levels better financial inclusion, whereas financial inclusion is prevented by higher economic growth in South Asia. Moreover, the findings of the study show that settling internal conflicts indirectly boosts financial inclusion by mediating the association between financial inclusion and remittance inflows.

A study by Bucevska and Naumoski (2023) on six South-East European countries depended on remittances as a ward source of finance during a business cycles period (2008q1-2021q2) showed that for most six countries, there was a bi-directional underlying association between economic growth and remittances.

The impacts of COVID-19 on the refugee workers and remittances flow to Bangladesh have been examined by Chowdhury and Chakraborty (2021). Their findings conclude that many workers have been laid off due to the spread of COVID-19, which was expected to reduce the overseas employment and remittances inflow to the country. However, remittance inflows to Bangladesh increased from December 2019 to July 2020 by about 54%. In addition, an annual rise in remittances was recorded, even after a fall in employment in 2020 in comparison to 2019. The rise in the inflow of remittances was owing to the Government's proactive measures.

A study by Ciarlone (2023) concluded that even after the lowering of their incomes due to the COVID-19 recession in Italy, financial support for emigrating workers to their families increased to cushion the impact of the pandemic. Moreover, the digitization of financial services during COVID-19 had a significant effect on shifting migrants' remittance channels from informal to formal.

2.2. The African Context

Many recent works of literature have investigated the role of remittances-induced inclusive finance on welfare in selected African countries. Using panel data from 27 selected Sub-Saharan African countries, Oyelami (2019) explored the connection between migrants' remittances and inclusive finance. Their results of Pooled Mean Group (PMG) panel ARDL employed on remittances account ownership and income per capita showed that remittances have no significant effect on financial inclusion in Sub-Saharan African countries. Kacou et al. (2022) tried to explore the dynamic relations between remittances and financial development from a multidimensional perspective in 22 sub-Saharan African countries from 2004–2017. Their results proposed that remittances harm overall financial inclusion; meanwhile, financial inclusion increases remittance inflows. Moreover, concerning the different dimensions of financial inclusion, the findings showed a direct (positive) dynamic relationship between financial efficiency, financial access, and remittances conversely with financial depth. Adekunle et al. (2020) examined the relationship between remittances and the advancement of the financial sector in Africa. Using Panel data from 53 African countries during the time 1986 to 2017 and Appling the PMG estimation procedure. Their result showed a positive short-run and long-run relationship between remittances and financial development. Arthur et al. (2020) investigated the impact of diaspora remittances on financial inclusion in Kenya using a quarter of data covering the time 2008 to 2018 on 3 million Kenyans living in the diaspora. They employed longitudinal and explanatory non-experimental designs. Their results show that formal diaspora remittances received had a positive and significant impact on financial inclusion. Barnabe (2021) tested the impact of migrant remittances on financial inclusion in Africa for the period 2004 to 2017. Constructing a composite index of financial inclusion, using Principal Component Analysis and using a system GMM and PMG. The study's findings showed that remittances harm financial inclusion in the short run, whereas they positively influence it in the long run. Furthermore, in the long run, remittances positively impact financial services accessibility but negatively impact financial services usage.

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The study of Bolarinwa and Akinbobola (2021) investigated the causal relationship between remittances and financial development among the four most developed financial sectors in Africa (South Africa, Nigeria, Kenya, and Egypt) during the period 1999 and 2017, using panel causality based on PVAR and the Toda-Yamamoto causality tests. Their results showed bio-directional causality between remittances and financial development in heterogeneous models, and the homogeneous model shows that unidirectional causality runs from financial development to remittance inflows. Akpa et al. (2020) assessed the influence of the global financial crisis on remittances in eight Sub-Saharan African countries during the period 1999 to 2019. Their findings pointed out that the global financial crisis significantly and positively impacted remittances. On the other hand, the per capita income of migrant residence state exerts an impact on remittances negatively but insignificantly, whereas per capita income in the remittance-origin state had significant positive impacts.

Kamalu and Ibrahim (2021) investigated the impacts of foreign remittances and governance on human development. The authors chose a sample of twenty Sub-Saharan Africa (SSA) states, and the data surrounded the period 1996-2019. DOLS and FMOLS models were employed for estimating the longer-run coefficients. In accordance with their outcomes, foreign remittances and governance endorse human development in SSA in the long run. In addition, the researchers noted that human development in SSA bears positive long-run effects of financial development as well as the negative long-run impacts of military expenditures, population growth, and inflation. A study by Akobeng (2021) investigated the direct impact of institutions on poverty and investigated if organizations in SSA nations could increase the link between remittances and poverty. The findings imply that a nation with healthy financial progress, a good and stable administration, and systems to deter corruption would create the favorable conditions necessary to lessen the incidence, intensity, and extent of poverty.

Using the GMM method, a study by Timbi et al. (2023) investigated remittances' impacts on financial inclusion and the way governance chaunts the remittances' influences on financial inclusion in twenty-nine SSA states. The data covered the period between 2004-2018. Their finding revealed that remittance dynamics constantly impact financial inclusion either in a negative, positive, or neutral manner. However, dynamics and governance modify the remittance dynamics to induce adverse impacts on financial inclusion.

A paper by Acheampong et al. (2021) explored the impacts of financial development and international remittances on alleviating poverty in forty-four SSA states, covering the duration between 2010-2019. The findings of the Instrumental variable GMM technique specified the role of remittances in increasing and the role of financial development in reducing poverty.

Akçay and Karabulutoglu (2021) investigated in what way remittances temperate the impacts of financial development on the informal economy. The focused population was North African states. Using the PMG panel ARDL approach on balanced panel data of 4 selected countries covers the period 1980–to 2015. Their results reveal that financial development negatively affects the informal economy, remittances moderate the negative relationship between financial development and the informal economy, and the marginal impacts of financial development on the informal economy are large at higher levels of remittances. A study by Adekunle et al. (2021) used numerical weights for examining remittances' impacts on African economies' future by taking into account the cross-sectional dependence and regressors' endogeneity. A positive association was reported between financial development and remittances aside from the influence of technological change, inflation, and population exchange rate on financial development.

Research by Biyase and Naidoo (2023) examined remittances' asymmetrical and symmetrical impacts on financial development in South Africa. The authors used time series data covering the period 1980-2017. The ARDL model findings showed positive insignificant impacts of remittances on financial development, while the none linear ARDL estimations, in the longer run, imply negative and positive shocks of remittances on financial development. An adverse result was found by Ojeyinka and Ajide (2022) using data on 27 African countries covering the period 1980-2017. Their findings demonstrated that remittance hasn't any significant influence on financial development.

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An empirical investigation of the financial inclusion, governance, and economic growth relationship in the Middle East and North Africa (MENA) region was conducted by Emara and El Said (2021). By employing the GMM dynamic panel model technique on a panel of MENA countries and forty-four evolving markets covering the period 1990-2018, their results suggested that financial inclusion positively influences per capita GDP growth. In addition, for the MENA region, it was further noted that financial inclusion positively influences economic growth. This positive effect needs regulatory and control systems enhanced by judicial independence, political stability, contract enforcement, the rule of law, and corruption control. Likewise, the findings further demonstrated that there is a statistically significant impact of firms' access to finance in the existence of stronger institutions. Lastly, their outcomes inferred that nations having comparatively low levels of financial access services (e.g., MENA region) are anticipated to draw the most benefit from governance-related improvements.

A study by Nyamongo et al. (2012) tests the influence of financial development and remittances on economic growth in a sample of thirty-six countries from Africa for the period 1980-2009. The findings enlightened the significant role of remittances on growth and that the volatility of remittances harms the growth process in African countries. Moreover, their findings show that remittances have a complementary role in financial development.

3. Methodology

This research adopts three-year averages data retrieved from World Development Indicators (WDI, 2021) and Global Governances Indicators Databases (WGI, 2021) during the period 1996–2020. To deal with missing data, we use forecasting and weighted means. The data was available for 36 African countries. The sample is composed of the following countries: Algeria, Benin, Botswana, Cameroon, Cabo Verde, Comoros, Congo Rep., Cote d'Ivoire, Egypt Arab Rep., Guinea, Guinea-Bissau, Kenya, Lesotho, Libya, Madagascar, Malawi, Mali, Mauritius, Ghana, Morocco, Mozambique, Zambia, Namibia, Gabon, Niger, Nigeria, Rwanda, Senegal, Seychelles, Tanzania, Sierra Leone, Uganda, South Africa, Togo, Tunisia, and Sudan.

The panel analytical methods have been employed to assess the connection between remittance, financial inclusiveness, and governance in selected African countries. Two models were appraised by the Generalized Method of Moments, dynamic panel, together with the equations in levels and asymptotic standard errors. The chosen approach enables obtaining robust outcomes and corrects the issue of endogeneity triggered by measurement errors and the simultaneity of certain regressors. The first model is as follows;

$$REM_{it} = \alpha + \delta_1 REM_{it-1} + \delta_2 Inclusive\ Finance_{it} + \delta_3 Governance_{it} + \delta_4 Control\ Variables_{it} + \delta_5\ Covid\_19\ dummy + \varepsilon_{it} \quad (1)$$

REM_{it} is personal remittances received (% of GDP). Inclusive Finance is defined through three pillars: (1) usage pillar explained by bank credit to bank deposits (%), (2) access pillar as deposit money banks assets to GDP (%) and (3) availability pillar designated by mobile cellular subscriptions (per 100 people). Previously research findings are mixed, and remittances and financial inclusiveness can be complemented or substituted. Financial development has the tendency to weaken the reception and the effect of remittances (Barajas et al., 2013). Financial development seems to strengthen the positive effect of remittances on growth (Nyamongo et al., 2012). Concerning governance variables, we keep four indicators.

(1) Government effectiveness apprehends the perceptions of the quality of civil and public services and the extent of its independence from political pressures. It further captures the quality of policy implementation and formulation and the credibility of the government's commitment to those policies.

(2) Political stability and the lack of violence/terrorism measure the perceptions of the odds of politically motivated violence (i.e., terrorism) and/or political instability.

(3) The rule of law is defined as perceptions of the degree to which agents have confidence in and conform to the societal rules, and precise, the quality of contract enforcement, the courts, the

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police, property rights, as well as the probability of violence and crimes.

(4) Voice and accountability capture perceptions of the degree to which the citizens of a state can partake in electing their government, as well as freedom of expression, association, and free media.

Indeed, government effectiveness increases personnel remittances received (Lartey and Mengova, 2016), and the institution's high level is helpful in attracting remittances (Ajide and Raheem, 2016). In addition, a negative relationship between remittances and institutional quality implies increased remittances when risk increases (Guetat and Sridi, 2017). However, political instability discourages remittance reception (Abbas et al., 2017). To control the first model, we introduce two variables of control which are Foreign Direct Investment (FDI), net outflows % of GDP and official exchange rate (LCU per US$, period average). The exchange rate is a significant determinant of remittances (Faini, 1994) and may negatively impact remittances. According to Olubiyi (2015), a probable exchange rate depreciation indicates adverse economic conditions for remittances country reception. Finally, we suppose that remittances and FDI can complement or substitute each other (Bang & MacDermott, 2019). In order to control the COVID-19 effect, we introduce the COVID-19 dummy period (2019-2020). Akpa et al. (2020) found that the global financial crisis of 2008 significantly and positively influenced remittances. In the same vein, Abbas et al. (2017) implemented a dummy variable of 2001 terrorist attacks and confirmed that it significantly and positively impacts remittances.

To check the stability of Model (1), we estimate different equations by increasing the number of introduced variables. The model is stable as most variables keep the same sign and significance for most regressions. To test the robustness of the model, we calculate different tests. These include the Sargan test of instrument identification validity, the first- and second-order autocorrelation tests of the residuals from equations in differences, the Wald (joint) test and the Pesaran CD test for cross-sectional dependence. The overall identification Sargan test approves the validity of all instruments used in all estimations. Sargan, AR (1), AR (2), and Wald tests for the joint significance of the regressors show that all specifications are robust. Pesaran CD test for cross-sectional dependence is higher than 5% in most of the regressions and shows that the null hypothesis is rejected, and there is a problem of cross-sectional dependence (except model 5).

4. Results and Discussion

The present study was primarily intended to evaluate the impacts of inclusive finance and governance on received remittances. Results from Tables 1 and 2 show that inclusive finance enhances the receipt of remittances, households that receive the money ensure regular contact with financial institutes, and they enable them to depose the money in their accounts. Detailed analysis by pillar shows, on the one hand, that the access reduces the receipt of remittances, meaning that the remittances are playing an income source role in African countries. On the other hand, the use and availability enhance the receipt of remittances. As an extra income, the remittances increase the possibility of credit obtaining by reducing the need for self-financing. Results confirm those of Chuc et al. (2022), showing that inclusive finance reinforces the growth-enhancing impact of remittances. Compared to other studies, such as Tah (2019), who applied two techniques of estimation, the Arellano-Bond Dynamic Panel Estimation and Pool Least Square Regression, analyze the impacts of remittances on financial access in SSA countries from 2004 to 2015. The findings are similar to ours and illustrate that remittances significantly and positively impact financial access in SSA countries for the two methods of estimation. However, in another study done by Issabayev et al. (2020), in which they examined the interlinkage between remittance inflows and financial inclusion and employed panel data method from high remittance-receiving developing states. Their findings revealed a negative correlation between remittance and financial inclusion for the countries having low remittance levels and a positive association for countries having high remittance levels.

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Table 1.
Models (1-4) dependent variable (REM) personal remittances received (% of GDP).

Constant		Model 1	Model 2	Model 3	Model 4
		−0.8197***	−0.6969***	−0.9289***	−0.3821***
		(0.1857)	(0.1985)	(0.2207)	(0.4368)
REM (-1)		0.7318***	0.7314***	0.7334***	0.7336***
		(0.0006)	(0.0006)	(0.0010)	(0.0020)
Inclusive finance	Usage	0.4484***	0.4111***	0.4138***	0.3645***
		(0.0475)	(0.0408)	(0.0655)	(0.1206)
	Access	−0.1856***	−0.1729***	−0.1143***	−0.1833***
		(0.0288)	(0.0363)	(0.0420)	(0.0491)
	Availability	0.1133***	0.1058***	0.0756***	0.1260***
		(0.0059)	(0.0074)	(0.0137)	(0.0183)
Governance	Government effectiveness	-	-	−1.2992***	−1.1313***
				(0.1280)	(0.1346)
	Political stability and absence of violence/Terrorism	-	-	−0.1272***	−0.1888***
				(0.0425)	(0.0524)
	Rule of Law	-		1.1113***	1.1236***
				(0.1054)	(0.1382)
	Voice and accountability	-	-	0.1622***	−0.0213
				(0.0585)	(0.0784)
Control variables	FDI	-	-	-	−0.0297**
					(0.0134)
	Exchange rate	-	-	-	−0.0605**
					(0.0263)
COVID-19		-	0.2451***	0.1597***	0.1393**
			(0.0328)	(0.0366)	(0.0659)
Test for AR (1)		-2.0201	-2.0181	-2.01225	-1.86317
		[0.0434]	[0.0436]	[0.0442]	[0.0624]
Test for AR (2)		1.3405	1.3495	1.40582	1.34488
		[0.1801]	[0.1771]	[0.1598]	[0.1787]
Sargan over-identification		31.7366	30.9253	29.7378	27.0422
		[0.2020]	[0.2311]	[0.2786]	[0.4071]
Wald (joint) test		9869040	8307540	10630100	4732630
		[0.0000]	[0.0000]	[0.0000]	[0.0000]
Pesaran CD test for cross-sectional dependence (*p*-value)		0.442	0.474	0.234	0.0927
Average absolute correlation		0.378	0.375	0.390	0.441
Number of countries		36	36	36	34

Table 2.
Models (5-8) dependent variable (REM) personal remittances received (% of GDP).

Constant		Model 5	Model 6	Model 7	Model 8
		−1.6020***	−1.2525***	−0.9011***	−1.0370***
		(0.1448)	(0.1274)	(0.2053)	(0.1730)
REM (-1)		0.7395***	0.7376***	0.7336***	0.7349***
		(0.0010)	(0.0008)	(0.0007)	(0.0009)
Inclusive finance	Usage	0.5148***	0.4655***	0.4388***	0.4654***

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		(0.0445)	(0.0531)	(0.0613)	(0.0565)
	Access	−0.0716*** (0.0221)	−0.1061*** (0.0332)	−0.1489*** (0.0265)	−0.1397*** (0.0206)
	Availability	0.1175*** (0.0010)	0.1234*** (0.0078)	0.1236*** (0.0069)	0.1195*** (0.0090)
Governance	Government effectiveness	−0.1884*** (0.0511)	-	-	-
	Political stability and absence of violence/Terrorism	-	−0.0267 (0.0207)	-	-
	Rule of law	-	-	0.1323** (0.0595)	-
	Voice and accountability	-	-	-	0.0622 (0.0420)
Control variables	FDI	−0.0279*** (0.0067	−0.0242*** (0.0077)	−0.0197*** (0.0066)	−0.0204*** (0.0069)
	Exchange rate	0.0032 (0.0234)	0.0085 (0.0245)	0.0037 (0.0152)	−0.0018 (0.0237)
COVID-19		0.2144*** (0.0168)	0.2419*** (0.0561)	0.2373*** (0.0364)	0.2283*** (0.0298)
Test for AR (1)		-1.87731 [0.0605]	-1.87112 [0.0613]	-1.87066 [0.0614]	-1.87081 [0.0614]
Test for AR (2)		1.31179 [0.1896]	1.30461 [0.1920]	1.3026 [0.1927]	1.30012 [0.1936]
Sargan Over-identification		29.798 [0.2761]	29.3579 [0.2951]	30.109 [0.2631]	30.465 [0.2488]
Wald (Joint) test		23332300 [0.0000]	38401200 [0.0000]	33003100 [0.0000]	13084300 [0.0000]
Pesaran CD test for cross-sectional dependence (p-value)		0.040	0.058	0.160	0.160
Average absolute correlation		0.426	0.418	0.416	0.415
Number of countries		34	34	34	34

The prior body of knowledge regarding remittance's influences on financial growth and economic development points out that it may be interlinked with financial growth in receiving regions, but the track of the impact is still vague. A study by Sobiech (2019) showed that the impact of remittances on economic growth is less in the more financially developed states, and the significant influence of remittances in fostering economic growth is associated with low levels of financial development.

In summary, most of the preceding research studies explored the association and influence from the viewpoint of remittance and financial development levels. The current study, as far as the best of our knowledge, is among the foremost to introduce distinct levels of governance effectiveness.

To test the governance effect, we introduce all the variables together in one regression, and then we examine the effect of each variable independently. The idea is to control the high level of correlation between the four indicators of governance. Findings indicate that only the rule of law and government effectiveness were significant. Respect for the rule of law positively impacts the receipt of remittances. Conversely, the government's effectiveness negatively impacts the receipt of remittances. These outcomes might be explicated by the heterogeneity of African countries by level of governance effectiveness. The estimation of the lack of terrorism/violence, political stability, and voice and

accountability on remittances indicates a non-significant effect. This result might be explicated in regard to the poor quality of services offered by public administrations, the complexity of administrative procedures, and sometimes linked to macroeconomic factors such as the high tax rate and the high level of inflation.

This finding is surprising to the extent that there is a fusion between lower/higher levels of governance effectiveness and how it impacts differently in receipt of remittances. To deal with the hypothesis, we divide the 36 countries into two sub-samples according to governance effectiveness level. Seven countries have a strong (positive) level of governance effectiveness. This group will be referred to as the "Strong governance effectiveness countries". Analogously, we will call the 30 remaining countries group "Weak governance effectiveness countries" (note that one country is counted in both groups because of mixed values in the same country for different periods). "Strong governance effectiveness countries": Namibia, Seychelles, Mauritius, Cabo Verde, Botswana, South Africa, Tunisia. "Weak governance effectiveness countries": Algeria, Benin, Morocco, Comoros, Sierra Leone, Gabon, Congo Rep., Tunisia, Egypt Arab Rep., Tanzania, Ghana, Cote d'Ivoire, Guinea, Uganda, Guinea-Bissau, Lesotho, Sudan, Libya, Mozambique, Madagascar, Niger, Zambia, Mali, Rwanda, Cameroon, Senegal, Kenya, Togo, Malawi, and Nigeria. We estimate a second model;

$$GDP\ per\ capita\ growth_{it} = \alpha + \delta_1 GDP\ per\ capita\ growth_{it\,it-1} + \delta_2 Inclusive\ Finance_{it} + \delta_3 Control\ Variables_{it} + \delta_4\ Covid\_19\ dummy + \varepsilon_{it} \quad (2)$$

Table 3.
Models (9-10) dependent variable GDP per capita growth (Annual %).

Constant		**Model 9**	**Model 10**
		0.5306 (1.5861)	-0.3429 (0.2635)
GDP per capita growth (-1)		-0.3584** (0.1599)	0.3587*** (0.0372)
REM		0.7424**(0.3731)	-0.0200 (0.0691)
Inclusive finance	Usage	-2.0362 (2.4675)	1.3309*** (0.4017)
	Access	-5.3173*** (1.8593)	-3.8019*** (0.6551)
	Availability	-0.4267 (0.9441)	1.1767*** (0.1434)
FDI		-0.2207 (0.2559)	-0.1115** (0.0491)
COVID-19		-3.1121* (1.8875)	-1.2419*** (0.3727)
Test for AR (1)		-3.02488 [0.0025]	-1.76207 [0.0781]
Test for AR (2)		0.962954 [0.3356]	1.43321 [0.1518]
Sargan over-identification		13.847 [0.6779]	23.109 [0.2835]
Wald (Joint) test		23.4742 [0.0007]	12674 [0.0000]
Pesaran CD test for cross-sectional dependence (p-value)		0.224	0.166
Average absolute correlation		0.374	0.437
Number of countries		7	28

Thus, Model 2 explains the "development dilemma" of governance, financial inclusion, and remittance inflows in "migrant-sending" nations and how it boosts their economic growth. As per the results in Table 3, remittance significantly and positively impacts the economic development of nations having strong governance effectiveness. All the same, the remittances don't affect the economic growth in the other group of countries. An interesting opposite result is found for FDI, showing an impact significant and negative for FDI on economic growth in countries with weak governance effectiveness countries. Tables 4 and 5 present the summary statistics and correlation matrix of the data.

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Table 4.
Summary statistics.

	Mean	Median	Minimum	Maximum	Std. dev.	C.V.	Skewness	Ex. Kurtosis	Missing obs.
REM	3.7804	1.623	0	84.644	7.5927	2.0085	6.3972	53.905	0
Usage	4.2694	4.2711	2.9159	7.7033	0.63134	0.14788	1.9391	8.3021	11
Access	2.9916	2.8855	0.33321	4.7892	0.88017	0.29421	-0.059756	-0.36374	19
Availability	2.4577	3.5164	-5.385	5.2238	2.5002	1.0173	-1.1013	0.18184	1
Government effectiveness	-0.55145	-0.58185	-1.889	1.0203	0.60624	1.0994	0.32478	-0.52198	0
Political stability	-0.41416	-0.30057	-2.5995	1.1854	0.85068	2.054	-0.25444	-0.49177	0
Rule of law	-0.52361	-0.55989	-1.8473	1.0443	0.63484	1.2124	0.2637	-0.53137	0
Voice and accountability	-0.44622	-0.45538	-1.9308	0.96	0.69665	1.5612	0.13232	-0.76695	0
FDI	0.28842	0.11493	-13.463	14.357	1.6529	5.7308	0.61131	39.544	22
Exchange rate	4.6137	5.8882	-1.6103	9.1338	2.44	0.52886	-0.43434	-0.97166	0
GDP per capita growth	-0.54863	1.8719	-930.95	58.042	55.373	100.93	-16.547	257.71	0

Table 5.
Correlation matrix.

	REM	Usage	Access	Availability	Government Effectiveness	Political Stability	Rule of Law	Voice and Accountability	FDI	Exchange rate	GDP per capita Growth
REM	1	-0.0257	0.0817	0.0005	0.0471	0.0948	0.164	0.1103	0.0167	-0.1268	0.0166
Usage		1	0.3088	0.1803	0.0723	0.0079	0.073	0.0818	-0.0517	0.024	0.1956
Access			1	0.4407	0.5218	0.2791	0.5314	0.3678	0.1296	-0.4732	0.2342
Availability				1	0.0576	0.0684	0.1266	0.1426	0.1697	-0.0296	-0.0121
Government effectiveness					1	0.6314	0.8863	0.683	-0.0542	-0.3294	0.0038
Political stability						1	0.7558	0.6731	0.0747	-0.0789	0.0065
Rule of law							1	0.7874	-0.0026	-0.2157	0.0221
Voice and accountability								1	-0.0434	-0.0142	-0.0337
FDI									1	-0.0772	-0.0017
Exchange rate										1	-0.003
GDP per capita growth											1

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Concerning the exchange rate, the deterioration of the economic situation of the country of origin is often accompanied by a deterioration in the exchange rate, which explains the lack of interest of migrants in sending money. In most regressions, the exchange rate is non-significant except in Table 1, column 4. The exchange rate reduces the sending of money. A possible explanation is the deterioration of the origin money compared to foreign money.

COVID-19 affects positively the remittances receipt and negatively the economic growth. A possible explanation is that the positive impact gives an idea of intentions to return to the country of origin for migrants and/or increases the need for remittances from people left behind in the country of origin. African countries, like other countries affected by the crisis, have experienced a strong economic recession following the combined effect of the COVID-19 crisis.

5. Conclusion

Remittances occupy an essential factor in development strategies, and it is a financial source for migrants in their countries of origin. The study attempts to emphasize the underlying association between economic growth and migrant remittances in an African context by integrating the inclusive finance and governance variables as a transmission channel between these two economic variables.

Results show that inclusive finance positively impacts remittances. In addition, remittances significantly and positively influence economic growth in nations having strong governance effectiveness. All the same, the remittances don't affect the economic growth in the weak governance effectiveness group. Finally, COVID-19 positively affects remittance receipt and negatively the economic growth.

Through this study, we can conclude two crucial implications. First, inclusive finance presents an important transmission channel for receiving remittances to African countries. Secondly, governance effectiveness plays a significant role in receiving remittances to African countries and needs to strengthen the quality of governance because better governance makes it possible to better manage transfers of funds from migrants to productive investment and economic growth.

Abbreviations:

GMM: Generalized Method of Moments; GDP: Gross Domestic Product; PMG: Pooled Mean Group;; SSA: Sub-Saharan African; MENA: Middle East and North Africa; WDI: World Development Indicators; WGI: Global Governances Indicators; FDI: Foreign Direct Investment

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