



Effect of Migrant Remittances on Inclusive Growth in Africa

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Abstract

This study assesses the effects of migrant remittances on inclusive growth in Africa. We applied the ordinary least squares method on a sample of 48 countries in Africa with daily data from 1996 to 2021. The results show that remittances from migrants contribute negatively to inclusive growth. In addition, the results show that an interaction between migrants' remittances and ease of doing business contributes to improving inclusive growth in African countries. From a policy perspective, we suggest creating a conducive business environment so that migrants' remittances are used optimally.

Subject Areas

Managerial Economics, Socioeconomics

Keywords

Africa, Remittances, Inclusive Growth

1. Introduction

Today, remittances from emigrants are still an external source of capital that is steadily increasing in developing countries [1] while foreign direct investment and capital flows have fallen dramatically in recent years due to the recession that has hit high-income countries, remittances from migrants have continued to increase [1]. Long-standing literature shows that in the early 1980s, the importance of remittances in compensating for the loss of human capital in developing countries due to migration was already recognized.

Remittances sent by migrants to their countries of origin are perhaps the most tangible element in the relationship between migration and development.

These shipments have been identified by [2] as one of the consequences of migration in the world. Since 2009, the IMF has considered that remittances consist of only two components: workers' compensation and personal transfers. Remittances received by developing countries, estimated at US\$325 billion in 2010, far exceed the volume of development aid flows and constitute more than 10 percent of gross domestic product (GDP) in many developing countries. According to statistics, the number of migrants has risen sharply over the past two decades. It reached the 281 million mark in 2020 [3] between 2000 and 2010, this number increased by nearly 48 million worldwide, with a further 60 million between 2010 and 2020 [3]. Developing countries are the main providers of this migration, attracting the attention of academics and policymakers [4]. To this end, academics and policymakers are looking for more positive and proactive migration flow management processes that can ensure a better and more sustainable future. Although the Millennium Development Goals pay little attention to the importance of migrants' remittances in the sustainable transformation of societies in migrants' countries of origin, the Sustainable Development Goals (SDGs) have formally recognized migration as an important factor in poverty reduction, protection of human rights and inclusive development by 2030.

Thus, an intense debate took place on the causes and consequences of such a phenomenon. With the availability of new migration datasets, a new generation of research is now able to empirically address various aspects of migration. A large literature focuses on brain drain [4]. According to this recent literature, brain drain positively influences the economy of origin through a set of feedback effects such as remittances, return migration, and the effect of migration prospects on education [4] [5]. However, work on the direct effects of migration remains marginally explored in the literature, especially in the context of African countries. Thus, this article attempts to fill this gap in the literature by analyzing the effect of migrant remittances on inclusive growth in Africa.

2. Stylized Facts and Literature Review

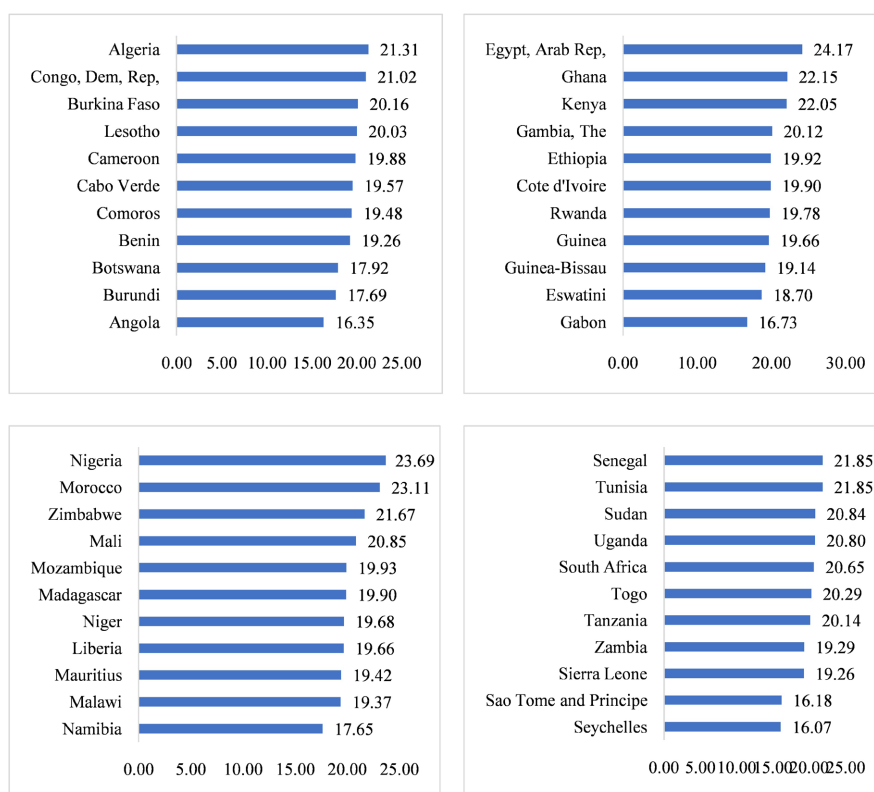
The aim of this section is to take stock of the literature that has dealt with issues related to remittances in relation to inclusive growth. This will lead to the state of the empirical work that has analysed the link between migrants' remittances and inclusive growth.

2.1. Stylized Facts

Four stylized facts emerge from the effect of migrant remittances on inclusive growth in Africa, namely: Migrant remittances represent an important source of income for many families and communities in Africa. According to the World Bank, remittances from migrants to Africa reached \$78 billion in 2019. Migrant remittances can have a positive effect on economic growth by boosting consumption and increasing investment in the production of goods and services.

Migrant remittances can contribute to poverty reduction and inclusive growth by supporting the economic activities of the most vulnerable households, improving access to education and health, and increasing investment in small businesses. However, remittances from migrants can also have negative effects on the economy by encouraging dependence on remittances rather than job creation and economic development. In sum, while being an important source of income for families and communities in Africa, the effects of migrant remittances on inclusive growth depend on how these remittances are used and managed.

Figure 1 traces the evolution of migrants' remittances in 2021; it shows a downward variation in these remittances as we see that the highest bottom remittance score is 24.17% belonging to Egypt, Arab, Rep; followed by Nigeria with 23.69; on the other hand, we see that the lowest remittance score is 16.07 for Seychelles followed closely by Angola with 16, 35; the average remittances are therefore 19.72, thus showing a downward variation in these remittances in Africa as a whole. This downward variation shows that these remittances have been influenced by several economic, social and political factors, including: The COVID-19 pandemic: The global health situation has affected migrants' remittances by reducing expatriates' income and ability to send remittances. Travel restrictions, border closures and lockdown measures have also impacted migrant flows and their ability to work abroad. Economic conditions: Economic growth, employment conditions, and incomes in countries of origin and destination can



Source: Author based on WDI data (2022)

Figure 1. Evolution of migrant remittances (in%), in 2021.

also influence remittances. For example, a decline in economic growth or a sharp increase in the unemployment rate in the country of origin can reduce migrants' ability to send money. Public policies: National and international public policies, such as exchange rates, taxes on remittances, and immigration policies, can also affect migrants' remittances. In general, the evolution of migrants' remittances in 2021 can be explained by a combination of these economic and political factors. However, the situation is complex and varies from country to country and region to region.

2.2. Brief Literature Review

In the literature, the relationship between remittances and economic growth in countries of origin is still ambiguous. Indeed, [6] shows us, under the hypotheses of indivisibility and imperfections in the capital market, that intergenerational transfers promote a positive impact of temporary emigration and capital accumulation on the prosperity of the countries of origin. A World Bank study published in 2006 shows, based on a general equilibrium model that the well-being gains associated with cash transfers increase with the share of wages earned in developed countries and spent in underdeveloped countries. Reference [7] with a view to studying the transmission channels of Migrants' Financial Remittances (TFMs) on economic growth, find that there are three main types of transmission channels: positive effect on productive investment, increase in the labour force and effect of the total productivity of the factors of production. In the next section, we present the relationship between remittances and economic growth based on existing theory. The literature on the motives (causes) of remittances can be summarized in four approaches:

The empirical literature on the effects of migrants' remittances on economic growth also appears inconclusive. It covers results that are sometimes negative, positive or positive effects conditionally. For example, many studies highlight the positive relationship between household investment and migrant remittances in developing countries; [8] examines the relationship between remittances, savings and investment in Tonga and Samoa based on microeconomic data. He finds that remittances make a significant contribution to saving and investment in island economies. Reference [9], using a large set of panel data on different countries; they conducted a study of the impact of migrant remittances on the growth of Latin American and Caribbean countries, and to address the problems of endogeneity of remittances, they used the generalized time method. Using both internal and external instruments, they demonstrated that higher remittances would lead to higher growth for Latin American and Caribbean countries. They used a binary variable that can control whether or not a country is Latin American or Caribbean. The interaction term between remittances and the binary variables is not statistically different from zero, implying that the impact of remittances on growth is the same in Latin America and the rest of the world.

Reference [10] found a positive impact of remittances on GDP per capita growth. The authors examined the impact of remittances on the economic

growth of 21 developing countries. The study used panel data for the period from 1992 to 2012 controlling for fixed and random effects from each country. The results show that remittances have a positive and significant impact on the country's GDP per capita growth. The study indicates that remittances from migrants ease families' immediate budgetary constraints by increasing critical needs for spending on consumption, health care and school fees.

Reference [11] assessed the impact of remittances and their volatility on economic growth in 24 countries in Asia and the Pacific over the period 1980-2009. They used, on the one hand, a static model on panel data estimated by double least squares and, on the other hand, a VAR model on the same data to examine respectively the impact of transfers and their volatility on economic growth. The panel VAR model has the advantage of overcoming any endogeneity problems present in the model. Their results reveal, for the first estimate, first a positive impact and then a negative impact of transfers on economic growth.

All these studies demonstrating the positive impact of remittances on recipient economies are part of the optimistic thesis that highlights the beneficial effects of remittances. Studies that emphasize the negative consequences of remittances form the pessimistic thesis or the "emigration syndrome". Reference [12] considered that the impacts of migrants' remittances are still marginal; for them, an increase in remittances of 1% is associated with an increase in economic growth of only 0.03%. The marginal impact suggests that the government should not view remittances as the key instrument on an equal footing with traditional growth drivers like exports and FDI.

Reference [13] in his study on the macroeconomics of remittances in Tajikistan argues that remittances cannot be considered as a solid basis for longer-term growth, nor as a sustainable development strategy since consumption, not investment, tends to be the primary objective of remittances. Using panel data from 83 developed and developing countries, [14] supported the idea that remittances hinder economic growth. They stipulated that remittances could lead to moral hazard. While transfers provide a regular and reliable income for households, they could discourage members from participating in the labour market. Reference [15] demonstrates such negative effects in Haiti on working hours and labour market participation. This was stated in a study by [16]. These authors demonstrated the existence of a negative impact of migrants' remittances on El Salvador's economy. Their study shows that remittances lead to the appreciation of the real exchange rate, which hurts growth. Remittances can thus significantly reduce the work efforts of recipient households [17], creating moral hazards [18] [19], accelerating inflation [20] and reducing a country's competitiveness (the "Dutch disease", *i.e.* an appreciation of the real exchange rate accompanied by a reallocation of resources from the commercial to the non-commercial sector; [16] [21] [22]). The study also found that remittances lead to a decrease in the supply of labour, leading to an increase in the costs of production in the non-tradable sector.

A third category of studies states that remittances are mere compensatory in-

comes, often used to finance consumer expenditures, and which have no significant effect on economic activity in migrants' countries of origin. This thesis is therefore that of the "neutrality" of transfers.

Indeed, [23] study the impact of remittances on economic growth, they choose a group of 83 countries over a period ranging from 1970 to 1998. In an attempt to correct the endogeneity problem and using instrumental variables of the remittances variable, the ratio of remittances to GDP appears with a non-significant sign. Reference [24] in the same logic, are developing a new instrument for remittances that makes it possible to capture the effects of change in the micro-economic determinants of remittances. The authors define several specifications where, in most estimates, the variable remittances is statically insignificant.

Reference [25], agree with the idea of [24] by keeping the same sample of countries while extending the study period by 5 years (1970-2003). They find the same result: no conclusions can be drawn about the relationship between remittances and economic growth. However, in the model where they deal with the problem of endogeneity, the impact becomes positive, but still remains very marginal. The International Monetary Fund has looked into the issue in the same way in 2005 the results of his study were consistent with those of the above-mentioned studies: no direct statistically significant link between real GDP per capita growth and remittances. One of the most important cash transfers that developing countries receive is development assistance. It is therefore useful to look at its effectiveness in relation to their impact on the growth of these products.

Reference [26] finds a positive effect of remittances on economic growth. On the other hand, [24] find a negative correlation between remittances and growth. For the author, remittances encourage recipients to reduce their efforts or time spent on work (moral hazard). However, this study has been criticized by [27] who shows that the estimates of [23] did not take into account the endogeneity of remittances. In the Philippines, using annual data for the period 1985-2002 and using simple correlations and the Autoregressive Vector (VAR) method, [28] argue that the long-term economic effects of remittances are ambiguous. However, they note a stabilizing effect on private consumption. For the same country, [29] finds that the overall impact of remittances on growth is positive. Reference [30] provides results suggesting that the effect of remittances on economic growth is stronger in low-income countries (*i.e.*, incomes below US\$1,200 per capita).

In addition, the author shows that the presence of these transfers would increase the growth rate by two percentage points. For Latin American countries, [31] using domestic bank credit as a regressor, also finds a positive effect of transfers on economic growth. According to the author, a 10% increase in remittances (measured as a percentage of GDP) helps increase GDP per capita by 3.49%. Once domestic bank credit is removed from the equation, GDP per capita increases by only 3.18% more recently, in sub-Saharan African countries (SSAs),

[32] find that the impact of international remittances on economic growth is negative. However, in countries with good governance, remittances can improve economic growth. In a related study using annual panel data for 64 countries in Africa, Asia, and Latin America and the Caribbean from 1987 to 2007, [33] find that remittances stimulate growth in countries with underdeveloped financial systems, providing an alternative solution for financing investments and helping to overcome liquidity constraints. On the other hand, [34] show that remittances do not stimulate growth in 20 sub-Saharan African countries: for the authors, these transfers do not act on physical capital investment. Reference [35], using the Generalized Moments Method estimation technique, examine the effect of remittances and the sustainability of the regime on economic growth and find no evidence that these transfers have contributed to economic growth in the SSA region. Until the last decade, most empirical studies seemed to overlook other channels through which remittances can boost economic growth. Thus, as discussed earlier, remittances can increase the volume of disposable income and savings. In this way, they can stimulate the rate of investment, and therefore economic growth. In Pakistan, [36] shows that international remittances have a positive effect on the savings rate. For the author, the marginal propensity to save on international remittances is 0.71, while it is only 0.085 on domestic income. In addition, the author demonstrates that Pakistani households receiving remittances have a very high propensity to save, and that the effect of remittances on growth could be amplified if remittances were channeled through the banking sector.

In Kyrgyzstan [37] also finds that remittances have a positive influence on economic growth, with about 10% of remittances being invested. Using survey data from Mexico, [38] find that 5% of remittances received are invested in microenterprises. For the authors, remittances have a positive effect on economic growth because they stimulate long-term investment. Finally, in five Mediterranean countries, [39] studies the impact of exogenous shocks on remittances on consumption, investment, imports and production. Building a Keynesian model in which he included remittances in disposable income, he demonstrated that remittances stimulated growth. For the author, the effect of remittances on growth is through the channels of disposable income and investment. Thus, [40], who explore these effects on per capita growth in Latin American countries, include terms of interaction between remittances and human capital, political institutions, and financial development. They get a negative sign of the remittance coefficient and a positive sign of the interaction term when human capital and institutions are included. However, the transfer coefficient has a positive sign and the interaction term has a negative sign when the level of development of the financial system is included. The authors conclude that the accumulation of human capital and the improvement of institutional quality reinforce the positive effect of remittances on economic growth. But financial development is replacing remittances to stimulate economic growth. Based on these results, remittances are seen as ineffective in enhancing economic devel-

opment in countries with weak financial institutions or low human capital accumulation.

Reference [41] conducted a study similar to that of Mundaca. They introduced remittance-interacting financial development among their regressors and found that remittances are another way to finance investment, and help overcome liquidity constraints (a substitute in the absence of financial development). Similarly, [42], which include an interaction variable (remittances multiplied by the bank efficiency index), find a complementary relationship between remittances and financial development. As [25] [41] use political and institutional variables in interaction with remittances. Using the Anderson-Hsio estimator, these authors found a positive relationship between remittances and growth. However, [7] using microeconomic variables as instruments to address the potential endogeneity between remittances and growth, obtain non-significant direct effects of remittance growth in an estimate for a panel of 84 developing countries.

3. Data and Methodological Approach

In this section, the different stages of the theoretical and empirical strategy adopted are presented. First, the theoretical and empirical model is presented, and second, the different estimation techniques used and their different specifications are presented. Third, these data sources and the choice of dependent and independent variables are presented. Finally, the results and their interpretations are presented.

3.1. Variable Choice and Definition

The choice and definition of variables are important steps in the design of a study or analysis. Variables are characteristics, properties, or measures that can be observed, measured, and analyzed as part of a research or study. The different steps we will follow to choose and define our variables are: identifying the research problem, defining the concepts, selecting the variables, operationalizing the variables, and distinguishing between controlled and explanatory variables. By following these steps, we will be able to choose and define the variables in an accurate and relevant way, which is essential to conduct a meaningful and rigorous analysis or study.

❖ The dependent variable: Inclusive Growth Quality Index (IQCI)

The measurement of inclusive growth is debated in the literature because it is based on several aspects and is based on several dimensions [43]-[45]. Thus, the economists of the International Monetary Fund (IMF) provide six indicators of inclusive growth based on two dimensions that are commonly used in the literature. Firstly, the economic fundamentals, namely: sustainability captured by the growth rate of GDP per capita; stability as measured by the inverse of the coefficient of variation in the level of growth or by economic volatility [46]. The sources of diversification captured by the diversification index and the external orientations captured by the share of net external demand. Second, the social

outputs of growth or social dimension, namely: access to health care (long life and good health) as measured by health care expenditures and decent education captured by the primary education completion rate. These above variables are used to construct a composite index of the quality of inclusive growth using principal component analysis (PCA).

❖ Explanatory variables

This is the variable of interest and the control variables used to explain the effect of migrants' remittances on inclusive growth.

❖ Variable of interest: Migrants' remittances (Transf)

Migrants' remittances, also known as remittances, refer to the sums of money sent by migrants to their family or relatives in their home countries. These transfers are usually made through money transfer services such as banks, currency exchanges, money transfer companies, or online platforms. Migrants send money to support their families financially, to contribute to expenses such as education, health, housing or to invest in economic or social projects in their country of origin. These transfers represent personal remittances, received in relation to GDP. There is some consensus in the existing literature that personal remittances are key to economic growth [10] [47]. The latter can be a source of capital, trade, investment, knowledge and technology transfer, which will undoubtedly increase the level of economic development as well as the level of economic growth.

❖ Control variables

Control variables are variables used in an experimental study to compare results between different groups or conditions in the experiment. They make it possible to ensure that the differences observed between the groups are indeed due to the independent variable studied and not to other factors. Control variables are therefore those that are kept constant or controlled to prevent it from influencing the results of the experiment. In order to better highlight the effect of migrants' remittances on inclusive growth, we capture the following variables as control variables: current expenditure on health (DCS), access to arable land (% of area), household final consumption expenditure (DepM), current account balance (SCC in % GDP), GDP per capita (GDPp), foreign direct investment (FDI), money supply (MM%GDP), effective governance (GE), domestic government health expenditure (DSAP), government final consumption expenditure (DCFAP), Internet (Internet), inflation rate (Inflat), and natural resource (RNAT).

3.2. Data Sources

The data comes from two main sources. The data used to construct the Inclusive Growth Index are extracted from the World Bank Database (WDI; 2022) with the exception of the Diversification Index, so the data comes from the United Nations Conference on Trade and Development [48]. Data on migrants' remittances also come from the WDI (2022) and data on institutional variables also come from the World Bank Data Indicator (WDI, 2022). In this trial, the study

is looking at a sample of 48 African countries. The time horizon covering the period 1996-2022 is dictated by the availability of data obtained simultaneously for the countries in the sample. **Table 1** lists the descriptive statistics and **Table 2** provides a description of the variables in the study.

From **Table 1** presenting the descriptive statistics, we can see that the variables of the model are summarized according to several measures. **Table 1** shows that the average growth rate of the Inclusive Growth Quality Index (% GDP) is 0, which means that the variables are centered; In addition, the value of the standard deviation, which is a measure of the dispersion of a variable around its mean is 0.054, which means that the variable has a small variation. Average personal remittances, received and average gross fixed capital formations are 18.456% and 21.912% of GDP respectively and their standard deviations are relatively small, so it can be concluded that the variables show small variations that suggest unbiased results.

Table 1. Descriptive statistics.

Variables	Obs	Mean	Std. Dev.	Min	Max	Sources
IQCI	1248	0	0.054	-0.17	0.21	WDI (2022)
LnTFM	1094	18.685	2.233	9.348	24.173	WDI (2022)
DCS	998	5.284	2.176	1.505	20.413	WDI (2022)
SEE ALSO	1248	14.3	13.218	0.293	52.25	WDI (2022)
DepM	1062	21.088	23.662	0	142.422	WDI (2022)
SCC	1060	-5.352	9.706	-65.257	43.396	WDI (2022)
GDPP	1237	1.558	4.376	-36.557	28.676	WDI (2022)
HITHER	1191	3.881	7.365	-18.918	103.337	WDI (2022)
MM	1191	33.486	24.404	2.857	160.059	WDI (2022)
GE	1244	-0.677	0.606	-1.887	1.161	WDI (2022)
DSAP	998	7.171	3.321	0.734	31.908	WDI (2022)
DCFAP	1090	14.628	6.594	0.911	46.262	WDI (2022)
RM	1239	1.068	2.756	0	28.813	WDI (2022)

Source: Author.

The correlation matrix is presented in **Table 2**. The analysis of this matrix reveals three essential pieces of information. The first observation is that the correlation coefficient between the explanatory variables of the model is less than 80%. This indicates that the model does not suffer from multicollinearity issues. The second piece of information highlights the negative relationship between migrants' remittances and inclusive growth. The most recent information concerns the contribution of migrants' remittances to fluctuations in inclusive growth. The relationship between the linear correlation coefficient (ρ) and the coefficient of determination (R^2) is given by:

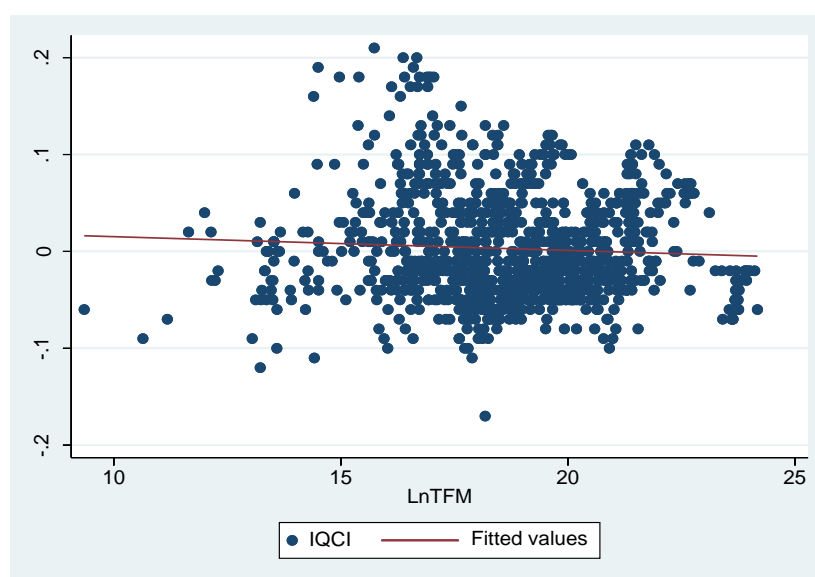
$$\rho_{x,y} R^2 \rho_{x,y} = \sqrt{R^2} \Rightarrow R^2 = \rho_{x,y}^2 \Rightarrow R^2 = (-0,179)^2 = 0,032041 = 3,2041\% \quad \text{for remittances of migrants' remittances.}$$

Table 2. Correlation matrix.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) IQCI	1.000												
(2) TFM	-0.179	1.000											
(3) DCS	-0.056	-0.045	1.000										
(4) ATA	-0.460	0.057	0.042	1.000									
(5) DepM	0.135	0.180	0.164	0.042	1.000								
(6) SCC	0.026	0.025	-0.268	-0.080	-0.021	1.000							
(7) GDPP	-0.082	0.068	-0.031	0.046	-0.015	0.009	1.000						
(8) HERE	0.272	-0.084	0.029	-0.152	-0.043	-0.478	0.115	1.000					
(9) MM	0.322	0.131	0.094	-0.055	0.741	-0.049	-0.057	0.074	1.000				
(10) GE	0.398	-0.059	-0.005	-0.075	0.634	0.008	0.093	0.086	0.650	1.000			
(11) DSAP	0.326	0.017	0.403	-0.179	0.392	-0.031	-0.006	-0.063	0.241	0.420	1.000		
(12) DCFAP	0.460	-0.189	0.340	-0.313	0.242	-0.134	-0.076	0.171	0.360	0.417	0.356	1.000	
(13) RM	-0.035	0.087	-0.080	-0.037	-0.008	-0.025	0.098	0.041	-0.107	-0.161	-0.196	-0.119	1.000

Source: Author.

Figure 2 shows that there is a negative correlation between remittances and inclusive growth. It can be inferred that high migrant remittances are closely linked to lower inclusive growth. However, correlation does not imply causation, hence the empirical consideration of this relationship in the next section.



Source: Author.

Figure 2. Trend scatter plot.

3.3. Econometric Approach and Estimation Technique

Our model is inspired by the work of [49] who tested the Kuznets inverted U

hypothesis between inhabitant inequality and urbanization, GDP per GDP in Indonesia with panel data. Thus, the reduced form is illustrated by the empirical model represented by equation 1:

$$Y_{i,t} = \alpha_i + \beta_1 X_{i,t} + \mu_i + v_t + \varepsilon_{i,t} \quad (1)$$

where Y_{it} represents the dependent variables, α_i constitutes the fixed effects of the countries, X_{it} represents the explanatory variables, β denotes the estimation of the coefficient; μ_p and v_t ε_{it} are respectively the temporal fixed effects, the country fixed effects and the perturbation, i represents the transverse units and t this is the period. In view of this model and the fact that our sample is based on a set of countries, we can assume that there is a heterogeneity related to our panel.

Thus, to ensure that this heterogeneity linked to each country is controlled, we will use the fixed-effect model, which takes into account the existence of a fixed-effect linked to each country. However, fixed effects are only taken into account at the level of the residue and leave the errors always homoscedastic. We would like to estimate the following theoretical model:

$$IQCI_{i,t} = \alpha + \beta_1 TFM_{i,t} + \beta_2 X_{i,t} + \mu_i + V_t + \varepsilon_{i,t} \quad (2)$$

In the above equation, $IQCI_{it}$ is the index of the quality of inclusive growth in region i for year t , represents remittances from migrants in region i for period t , $TFM_{i,t}$ X_{it} represents the set of control variables and ε_{it} the random term; $I = 1.2 \dots 48$ representing the sample size; $t = 1996-2022$ the time horizon. This sample is selected on the basis of the availability of data for all countries at the same period.

In a complete way, the model to be estimated is as follows:

$$\begin{aligned} IQCI_{i,t} = & \alpha + \beta_1 TFM_{i,t} + \beta_2 DCS_{i,t} + \beta_3 ATA_{i,t} + \beta_4 DepM_{i,t} \\ & + \beta_5 SCC_{i,t} + \beta_6 GDPP_{i,t} + \beta_7 IDE_{i,t} + \beta_8 MM_{i,t} + \beta_9 GE_{i,t} \\ & + \beta_{10} DSAP_{i,t} + \beta_{11} DCFAP_{i,t} + \beta_{12} RM_{i,t} + \mu_i + V_t + \varepsilon_{i,t} \end{aligned} \quad (3)$$

Here, QCI represents the index of the quality of inclusive growth delayed by a period.

The estimation of our model above by ordinary least squares (OLS) will give us fallacious and non-convergent results because the optimization of our panel is dynamic and moreover because the OLS do not take into account the fixed effects by country and can also suffer from the omitted variables. Therefore, to correct this, we will use the generalized least squares (GCM) method developed by [50]. Indeed, this method makes it possible to better deal with econometric problems, particularly endogeneity problems [51]-[53], heteroscedasticities [54]-[56], instrument over-identification and validation [57] [58]. The use of this method (GCM) in our model will allow us to solve at least three problems that need to be solved to arrive at robust estimators. First, the problem of endogeneity may remain, particularly between inclusive growth and FDI. Secondly, the problem of double causality between inclusive growth and the informal sector on the one hand, and FDI on the other hand, in the same way that the in-

formal sector can affect inclusive growth, the latter can hinder the informal sector. Finally, the existence of a multicollinearity problem results from the autoregressive nature of the model and the error term due to the presence of a minimal variance.

In addition, the GCM method has several variants, including the following, namely: There are several variants of generalized least squares, among which we can mention: Weighted least squares, which consist of assigning different weights to observations according to their importance or reliability. The most reliable or significant observations can thus have a greater weight in the estimation process. Penalized least squares, which consists of adding penalty terms to the least-squares objective function in order to favor solutions with specific characteristics, such as lasso, ridge, or model selection (elastic net). Mixed-distribution generalized least squares that allow to model correlated data or data with a dependency structure using mixed-distribution regression models in combination with generalized least squares and constrained generalized least squares that incorporate additional constraints into the generalized least squares optimization problem, to ensure certain properties of the solutions, such as the positivity of coefficients or predicted values near a certain target value. Thus in this work we will use this method (M CG) to show the effect of migrants' remittances on the index of the quality of inclusive growth in Africa. (Comment on control variables). In order to draw more precise and reliable conclusions, we will use the Feasible Generalized Least Square (FGLS) analysis method to analyze the robustness of our results because of its advantages in terms of robustness, flexibility and precision. It is used here to improve the quality and reliability of the results of our analysis because of its consistency and efficiency because this method allows us to obtain estimates of the model parameters that are consistent, *i.e.* that converge to the true value of the parameters when the sample size increases. This ensures high-quality and reliable estimates of the model parameters.

4. Presentation of Results and Discussion

Here, the results of the basic model are presented. OLS (Ordinary Least Squares) were used to make this first estimate. Then, we test the previous results and the robustness of the model using the GCM (Generalized Least Squares) technique.

4.1. Presentation of Preliminary Results of the Baseline Estimates

Estimating the effect of migrants' remittances on inclusive growth using the OLS method yields the results that are reported in **Table 3**. Therefore, a reading of the twelfth column of **Table 3** shows that remittances significantly slow down inclusive growth in Africa. Thus, an increase in these transfers by one unit leads to a decrease in inclusive growth of 0.003%. This finding is consistent with the findings of [32] who find that the impact of international remittances on economic growth is negative in Sub-Saharan African (SSA) countries.

Indeed, in the context of African countries, several arguments can be put forward to explain the negative effect of migrant remittances on inclusive growth in these countries. First, remittances tend to be used primarily for consumption rather than investment in productive economic activities; which means that these funds do not directly contribute to long-term economic growth. Reference [10] finds a negative correlation between remittances and growth; for him, remittances create a moral hazard for recipients by lowering their productivity, which encourages them to reduce their efforts or their time spent on work. Moreover, these funds can create economic dependence of recipient countries on these revenue streams; This can lead to a decrease in motivation to undertake structural reforms and foster local job creation, as individuals rely on remittances rather than internal economic development.

In addition, remittances can also lead to increased economic and social inequalities, as remittances are likely to benefit mainly the wealthiest segments of the population, thereby increasing income inequality within recipient countries as well as frustration between households [59]. If a significant portion of the population depends on remittances rather than finding formal employment, this can widen income and wealth gaps through their influence on exchange rate appreciation; [60] shows that transfers lead to an expansion of the non-tradable sector to the detriment of the productive sector. Thus, by generating an expenditure effect and a resource orientation effect in the short and long term, these remittances deteriorate the competitiveness of countries and promote the existence of a Dutch disease, *i.e.* an appreciation of the real exchange rate accompanied by a reallocation of resources from the commercial to the non-commercial sector [16] [21] [22]; their negative effect on the quality of institutions [61] or their disincentive effect on the labour market participation of recipient households [17] [18].

It is also imperative to understand that remittances can trigger inflation in an economy through the channel of aggregate demand. The inflow of funds can intensify the money supply that fuels the demand for services and goods and improve the structure of spending on services and goods. Escalating demand creates increasing price pressures that increase demand-driven inflation [62] [63]. On the other hand, inflation has always been one of the main macroeconomic challenges due to its negative effects on the economy that increase the cost of doing business and, as a result, discourage investment and saving. It also negatively influences consumption patterns and affects the fixed and low-income strata of the population by reducing their purchasing power [64] [65].

Reference [66] examined the links between remittances and family entrepreneurship in Ethiopia, and report that remittances can serve inclusive growth when recipients choose to use them for informal business activities instead of investing in productive sectors. In sum, while remittances from migrants can be a critical source of support for many families and communities, they can also have adverse effects on public spending by undermining governments' ability to mobilize.

Table 3. Effect of migrant remittances on inclusive growth: estimated by OLS.

Variables	IQCI											
	1	2	3	4	5	6	7	8	9	10	11	12
LnTFM	-0.00142 *	-0.00223 **	-0.00163 **	-0.00393 ***	-0.00419 ***	-0.00421 ***	-0.00427 ***	-0.00438 ***	-0.00256 ***	-0.00293 ***	-0.00283 ***	-0.00294 ***
	(0.000744)	(0.000866)	(0.000809)	(0.000836)	(0.000848)	(0.000846)	(0.000837)	(0.000802)	(0.000793)	(0.000763)	(0.000783)	(0.000779)
DCS		-0.00328 ***	-0.00344 ***	-0.00350 ***	-0.00309 ***	-0.00303 ***	-0.00286 ***	-0.00233 ***	-0.00139 *	-0.00416 ***	-0.00544 ***	-0.00536 ***
		(0.000850)	(0.000792)	(0.000820)	(0.000876)	(0.000872)	(0.000863)	(0.000828)	(0.000797)	(0.000838)	(0.000925)	(0.000920)
SEE ALSO			-0.00153 ***	-0.00170 ***	-0.00174 ***	-0.00174 ***	-0.00163 ***	-0.00149 ***	-0.00145 ***	-0.00123 ***	-0.00108 ***	-0.00103 ***
			(0.000131)	(0.000132)	(0.000135)	(0.000134)	(0.000136)	(0.000131)	(0.000125)	(0.000123)	(0.000130)	(0.000130)
DepM				0.000486 ***	0.000478 ***	0.000470 ***	0.000488 ***	-0.000177 *	-0.000492 ***	-0.000629 ***	-0.000524 ***	-0.000589 **
				(7.33e-05)	(7.29e-05)	(7.24e-05)	(7.17e-05)	(0.000103)	(0.000104)	(0.000101)	(0.000101)	(0.000102)
SCC				0.000405 **	0.000345 *	0.000879 ***	0.000884 ***	0.000728 ***	0.000696 ***	0.000760 ***	0.000784 ***	
				(0.000191)	(0.000191)	(0.000227)	(0.000217)	(0.000208)	(0.000200)	(0.000220)	(0.000218)	
GDPP						-0.00116 **	-0.00141 ***	-0.00121 ***	-0.00184 ***	-0.00170 ***	-0.00124 ***	-0.00138 ***
						(0.000475)	(0.000474)	(0.000454)	(0.000442)	(0.000425)	(0.000431)	(0.000431)
HITHER							0.00116 ***	0.00103 ***	0.000960 ***	0.00130 ***	0.00264 ***	0.00261 ***
							(0.000276)	(0.000264)	(0.000252)	(0.000246)	(0.000363)	(0.000361)
MM								0.000897 ***	0.000577 ***	0.000727 ***	0.000636 ***	0.000677 ***
								(0.000103)	(0.000105)	(0.000102)	(0.000104)	(0.000104)
GE									0.0339 ***	0.0219 ***	0.0116 ***	0.0130 ***
									(0.00385)	(0.00398)	(0.00413)	(0.00413)
DSAP										0.00504 ***	0.00510 ***	0.00544 ***
										(0.000622)	(0.000637)	(0.000643)
DCFAP											0.00172 ***	0.00172 ***
											(0.000298)	(0.000297)
RM												0.00247 ***
												(0.000803)
Constant	0.0294 **	0.0647 ***	0.0777 ***	0.114 ***	0.120 ***	0.122 ***	0.119 ***	0.0998 ***	0.101 ***	0.0708 ***	0.0390 **	0.0363 **
	(0.0140)	(0.0174)	(0.0163)	(0.0166)	(0.0169)	(0.0168)	(0.0166)	(0.0160)	(0.0153)	(0.0151)	(0.0165)	(0.0164)

Continued

Observations	1,094	900	900	820	786	785	785	783	782	782	698	698
R-squared	0.003	0.022	0.152	0.219	0.233	0.240	0.257	0.324	0.386	0.434	0.511	0.517
r2_a	0.00240	0.0194	0.149	0.215	0.228	0.235	0.251	0.317	0.379	0.427	0.503	0.509
F	3.634	9.910	53.39	57.21	47.35	41.04	38.47	46.34	53.98	59.22	65.11	61.22
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Source: Author; Note: Figures in parentheses give standard deviations corrected for heteroscedasticity. *** significant at 1%, ** significant at 5% and * significant at 10%. Source: author's construction.

Despite the satisfactory performance of the MCO estimation method, it remains subject to significant constraints in terms of autocorrelation and heterogeneity of errors, which limit its relevance. Thus, previous results can no longer be considered relevant. To overcome these limitations, we use the generalized least squares method, the results of which are reported in **Table 4** and which is more resistant to these problems; the results obtained are recorded in the following table.

From the outset, it is noted that migrants' remittances have a negative and significant effect on the Inclusive Growth Index in Africa. Indeed, the results show that a policy of increasing remittances is likely to be detrimental to inclusive growth. Thus, an increase in remittances by one unit contributes to reducing inclusive growth by 0.0029%. The same is true for current health expenditure, where an increase of one unit contributes to reducing the inclusive growth index by 0.0053%. The application of an alternative estimation technique by the GCM method leads to the same results as the results obtained by the MCO method, allowing us to validate our basic assumption that remittances from migrants will have a negative impact on inclusive growth. These findings corroborate with the findings of [67] who highlight that remittances can encourage recipients not to seek economic opportunities at the local level due to the constraints of the business climate in their country because it creates a dependency on remittances and reduces incentives to undertake and create jobs locally.

It is in the same vein that [68] in their study suggest that the high costs of sending remittances can lead to a reduction in the use of funds for productive investments, which can negatively impact overall economic growth and create dependence on remittances. The same is true for [69], who points out that remittances can have negative effects on economic growth in Africa by promoting consumption rather than investment. According to them, the shortcomings of the business climate in Africa can limit the ability of beneficiaries to invest wisely. These studies highlight the importance of considering the shortcomings of the business climate in recipient countries as a factor that can create dependence on remittances and reduce incentives to do business. It is therefore necessary for us to question the role of the business climate on inclusive growth in Africa.

In order to better understand the negative effect of migrant remittances on inclusive growth in Africa, we estimated our basic model using the generalized

least squares method by summoning an interaction variable that is ease of doing business (FAA) to capture the role of business in Africa. Indeed, the variable “ease of doing business” (or “business climate”) is a measure that assesses the quality and effectiveness of the regulatory and institutional environment in which companies operate in a country. It therefore reflects the degree of ease with which companies can start, manage and grow their business activities. This variable is often used to measure the quality of a country’s business environment, as it reflects the quality of regulation, compliance costs, governance practices, legal certainty, and the quality of infrastructure. Economies that have a favorable business environment tend to attract more investment, generate more jobs and be more competitive in global markets. This variable is captured here with reference to the work of [70]-[72] who examine the potential benefits of regional trade integration in Africa; they found that ease of doing business is an important factor in encouraging regional economic integration and development.

The results of this analysis are recorded in columns 13 and 14 of **Table 4**, highlighting the role of the business climate on inclusive growth in Africa. The ease of doing business has a significantly positive effect on the inclusive growth index. This means that an increase in the ease of doing business of a unit is likely to increase inclusive growth by 0.000156%. The ease of doing business has a significantly positive effect on the Inclusive Growth Index in Africa as it fosters an environment conducive to investment and entrepreneurship. By simplifying administrative procedures, reducing transaction costs, promoting access to credit, and improving investment security, improved ease of doing business can stimulate economic growth and promote a more equitable distribution of its benefits. In Africa, where many countries face challenges in terms of bureaucracy, corruption, and burdensome regulations, improving the ease of doing business can be key to boosting the economy and fostering inclusive growth-growth that benefits all segments of society. This result is consistent with those of [73] who highlight the importance of the ease of doing business for the investment rate in sub-Saharan Africa and emphasize that the quality of the business environment directly influences the level of investment in the region. They argue that reforms to improve the ease of doing business can boost investment by reducing transaction costs, enhancing investment security and fostering a more entrepreneurial environment. These reforms are key to encouraging economic growth and reducing barriers to investment in Africa. They also highlight the positive impact of the ease of doing business on overall economic growth and job creation in the region. They highlight the importance of policies aimed at improving the business climate and encouraging investment, particularly in key sectors for the economic development of sub-Saharan Africa. In its annual “Doing Business” report, the World Bank assesses the ease of doing business in more than 190 countries around the world by analyzing various indicators such as business creation, obtaining building permits, access to credit, investor protection, paying taxes, cross-border trade and contract enforcement. Based on

quantitative data and comparative analysis, the Doing Business report measures and tracks countries' progress in reforms to facilitate economic activity, attract investment, and boost growth. Countries that succeed in improving their ranking in this report can benefit from improved attractiveness for foreign investors, stronger economic growth and increased job creation.

Ease of doing business therefore has a significantly positive effect on the Inclusive Growth Index in Africa by encouraging investment: Simplified regulations and procedures for starting and growing a business promote investment and entrepreneurship, which in turn stimulates economic growth. Businesses can more easily create, grow and innovate, which contributes to job creation and economic inclusion. Better efficiency of administrative processes and regulatory policies can increase the productivity of companies. This promotes stronger and sustainable economic growth, which can benefit more people. Reducing poverty and inequality is an encouraging factor in doing business, because inclusive economic growth means that the benefits of economic growth are shared equitably with the entire population. Reference [74] has looked at the African economy and the opportunities for inclusive growth in various reports and articles. Their analysis highlights the challenges facing Africa in terms of economic and social development, while identifying opportunities and levers to foster inclusive growth. They highlight the importance of promoting entrepreneurship, investing in education and vocational training, strengthening infrastructure, fostering innovation and technology adoption, and promoting public policies conducive to a business environment conducive to economic growth and job creation. Their work also highlights the importance of collaboration between the private sector, governments, civil society and international institutions to address development challenges and opportunities in Africa. Their approach aims to contribute to the development of effective strategies and policies to foster inclusive and sustainable economic growth on the continent. Indeed, improving the ease of doing business creates opportunities for employment, training and access to services for the most vulnerable populations, thus helping to reduce poverty and inequality. Improved ease of doing business can attract foreign investors by providing a favorable environment for investment. This can foster technology transfers, boost the competitiveness of local firms, and strengthen regional value chains, which can also have a positive impact on inclusive growth. Thus, they highlighted the importance of the ease of doing business in fostering inclusive economic growth in Africa and highlighted the need for reforms and policies to improve this indicator in the region.

So improving the ease of doing business in Africa can help support inclusive economic growth by promoting investment, productivity, job creation, and reducing poverty and economic inequality. This can lead to more balanced and sustainable economic development for the entire population. In addition, the interaction between migrants' remittances and the ease of doing business gives a variable (TFMFAA) that has a positive effect on the composite index of inclusive growth; this means that an increase in TFMFAA is likely to increase the inclu-

sive growth index by 0.00281%.

Ease of doing business has a positive effect on inclusive growth in Africa for several reasons, including encouraging entrepreneurship: Improved ease of doing business can encourage business creation and facilitate the expansion of entrepreneurial activities. This can boost job creation and promote economic inclusion by providing employment opportunities for local people. Investment promotion: Improving the ease of doing business can encourage domestic and foreign investment by reducing costs and barriers to investment. This can stimulate economic growth, create employment opportunities and contribute to a more equitable distribution of economic benefits. Supervision and regulation of the private sector: A good ease of doing business implies a clear and transparent regulatory framework for the private sector. This promotes competition, encourages innovation and reduces monopolistic practices, thus contributing to more balanced and sustainable economic growth. And access to financial services: Improved ease of doing business can make it easier for small and medium-sized enterprises to access financial services, which can support their growth and ability to create jobs. It can also strengthen financial inclusion by enabling more people to access banking and credit services.

This finding is consistent with those of [75] who examine the impact of governance and ease of doing business on mobile phone use and inclusive human development in sub-Saharan Africa and finds that ease of doing business is a key factor in fostering inclusive human development. Reference [71] who examined the effect of ease of doing business on economic growth in selected sub-Saharan African countries and found that ease of doing business stimulates economic growth and should be a primary objective to foster inclusive growth. In sum, improving the ease of doing business in Africa can foster inclusive growth by stimulating entrepreneurship, encouraging investment, promoting effective regulation of the private sector, and facilitating access to financial services. This helps to reduce poverty, create jobs and promote sustainable and equitable economic growth for all people. Reference [76] examine the impact of ease of doing business on inclusive growth in sub-Saharan Africa and find that ease of doing business is positively associated with inclusive growth, suggesting that policies to improve the business environment need to be encouraged with a view to fostering inclusive growth.

The interaction variable migrant remittances ease of doing business provides a positive relationship with the composite index of inclusive growth in Africa for the simple reason that migrants' remittances can be used to create businesses and drive economic growth. Migrants can invest their money in profitable entrepreneurial projects, which can create jobs, generate income, and improve the economic conditions of their home countries thus, the ease of doing business can help businesses grow and thrive. It can reduce costs and administrative barriers for businesses, as well as facilitate access to necessary finance and resources. By combining remittances from migrants with improved business environments, the TFMFAA variable can enhance the positive effects of these two variables and

boost inclusive economic growth. Improving the business environment can help businesses created from migrant remittances grow faster and have a more significant impact on the economy.

The interaction between migrants' remittances and ease of doing business can enhance business creation and economic growth, which can lead to inclusive growth to the extent that the entire population shares in the fruits of this growth. This is why the TFMFAA variable is positively associated with the composite index of inclusive growth in Africa. These results are in line with those of [77]-[80] who studied the interaction between migrants' remittances and the ease of doing business in Africa in relation to the positive effect on inclusive growth it can therefore be inferred from what follows that the business climate plays an important role in the effectiveness of migrants' remittances on inclusive growth. Indeed, a positive business climate can stimulate investment, entrepreneurship and job creation, while a negative business climate can hinder economic growth. A business-friendly environment can encourage recipients of migrants' remittances to invest those remittances in local projects, thereby creating jobs and stimulating economic growth. A good business climate can also help reduce production costs and improve supply chain efficiency, which can boost economic growth prospects.

On the other hand, if the business climate is unfavorable, remittances from migrants may be less effective in boosting inclusive growth. Recipients may find it difficult to invest the funds in local projects due to the difficulty of setting up and running a business in a business-friendly environment. The lack of quality infrastructure, appropriate regulation and a sound tax system can also discourage investment and job creation, reducing the positive impact of migrant remittances on inclusive growth.

In sum, a positive business climate is essential to maximize the effectiveness of migrants' remittances on inclusive growth. Economic policies to improve the business climate should be considered to facilitate investment and entrepreneurship, which can help use remittances to boost inclusive growth.

Table 4. Effect of Migrant Remittances on Inclusive Growth: Estimated by GCMs.

Variables	Effect of Migrant Remittances on Inclusive Growth in Africa									Role of the business climate				
	IQCI									IQCI				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
LnTFM	-0.00142	-0.00223	-0.00163	-0.00393	-0.00419	-0.00421	-0.00427	-0.00438	-0.00256	-0.00293	-0.00283	-0.00294	-0.00370	-0.00541
	(0.000743)	(0.000865)	(0.000807)	(0.000834)	(0.000845)	(0.000842)	(0.000833)	(0.000798)	(0.000788)	(0.000758)	(0.000777)	(0.000772)	(0.000782)	(0.00121)
FAA													0.000596	0.000343
												
													(0.000140)	(0.000156)
LnTFMF														0.00281
AA														..
														(0.00148)

Continued

DCS	-0.00328 ***	-0.00344 ***	-0.00350 ***	-0.00309 ***	-0.00303 ***	-0.00286 ***	-0.00233 ***	-0.00139 *	-0.00416 ***	-0.00544 ***	-0.00536 ***	-0.00602 ***	-0.00621 ***	
	(0.000848)	(0.000790)	(0.000818)	(0.000872)	(0.000868)	(0.000859)	(0.000823)	(0.000792)	(0.000832)	(0.000917)	(0.000911)	(0.000912)	(0.000916)	
SEE	-0.00153 ***	-0.00170 ***	-0.00174 ***	-0.00174 ***	-0.00163 ***	-0.00149 ***	-0.00145 ***	-0.00123 ***	-0.00108 ***	-0.00103 ***	-0.00114 ***	-0.00123 ***		
ALSO	(0.000131)	(0.000132)	(0.000135)	(0.000134)	(0.000135)	(0.000130)	(0.000124)	(0.000122)	(0.000129)	(0.000129)	(0.000130)	(0.000140)		
DepM	0.000486 ***	0.000478 ***	0.000470 ***	0.000488 ***	-0.000177 *	-0.000492 ***	-0.000629 ***	-0.000524 ***	-0.000589 ***	-0.000714 ***	-0.000611 ***			
	(7.30e-05)	(7.26e-05)	(7.21e-05)	(7.14e-05)	(0.000102)	(0.000103)	(0.000101)	(9.97e-05)	(0.000101)	(0.000104)	(0.000109)			
SCC	0.000405 **	0.000345 *	0.000879 ***	0.000884 ***	0.000728 ***	0.000696 ***	0.000760 ***	0.000784 ***	0.000697 ***	0.000741 ***				
	(0.000191)	(0.000190)	(0.000226)	(0.000216)	(0.000207)	(0.000199)	(0.000218)	(0.000216)	(0.000215)	(0.000214)				
GDPP	-0.00116 **	-0.00141 ***	-0.00121 ***	-0.00184 ***	-0.00170 ***	-0.00124 ***	-0.00138 ***	-0.00135 ***	-0.00137 ***					
	(0.000473)	(0.000471)	(0.000451)	(0.000439)	(0.000422)	(0.000427)	(0.000427)	(0.000421)	(0.000420)					
HITHER	0.00116 ***	0.00103 ***	0.000960 ***	0.00130 ***	0.00264 ***	0.00261 ***	0.00246 ***	0.00241 ***						
	(0.000275)	(0.000263)	(0.000251)	(0.000244)	(0.000360)	(0.000358)	(0.000355)	(0.000354)						
MM	0.000897 ***	0.000577 ***	0.000727 ***	0.000636 ***	0.000677 ***	0.000694 ***	0.000665 ***							
	(0.000102)	(0.000104)	(0.000102)	(0.000103)	(0.000103)	(0.000102)	(0.000102)							
GE	0.0339 ***	0.0219 ***	0.0116 ***	0.0130 ***	0.00823 **	0.0106 **								
	(0.00382)	(0.00395)	(0.00410)	(0.00409)	(0.00420)	(0.00423)								
DSAP	0.00504 ***	0.00510 ***	0.00544 ***	0.00584 ***	0.00581 ***									
	(0.000618)	(0.000632)	(0.000637)	(0.000635)	(0.000633)									
DCFAP	0.00172 ***	0.00172 ***	0.00164 ***	0.00143 ***										
	(0.000296)	(0.000294)	(0.000291)	(0.000307)										
RM	0.00247 ***	0.00240 ***	0.00232 ***											
	(0.000795)	(0.000785)	(0.000781)											
SDT														
GDP														
FBCF														
Import														
CC														
Constant	0.0294 **	0.0647 ***	0.0777 ***	0.114 ***	0.120 ***	0.122 ***	0.119 ***	0.0998 ***	0.101 ***	0.0708 ***	0.0390 **	0.0363 **	0.0252 **	0.0648 ***
	(0.0140)	(0.0174)	(0.0163)	(0.0166)	(0.0168)	(0.0167)	(0.0165)	(0.0159)	(0.0152)	(0.0150)	(0.0164)	(0.0163)	(0.0163)	(0.0224)

Continued

Observations	1094	900	900	820	786	785	785	783	782	782	698	698	698	691
Number of id	46	46	46	46	46	46	46	46	46	46	42	42	42	42
Chi2	3.641	19.89	160.9	230.2	238.6	248.4	272.1	375.0	492.1	600.6	728.8	748.5	786.4	795.0
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Source: Author; Note: Figures in parentheses give standard deviations corrected for heteroscedasticity. *** significant at 1%, ** significant at 5% and * significant at 10%.

4.2. Testing of Basic Results: Robustness Test

Table 5 presents an alternative economic analysis to **Table 4** using the Feasible Generalized Least Square (FGLS) method. It is a method of estimating coefficients in a linear regression when the data have problems with serial correlation and/or heteroscedasticity.

Three main conclusions can be drawn from these results: i) Migrants' remittances have a negative impact on inclusive growth in Africa. ii) Political will can facilitate the spillover effects of remittances on inclusive growth, as the direct negative effects do not outweigh the positive effects of this interaction, resulting in (0.00643), and iii) the threshold of political will indicators to offset the negative effect of remittances on inclusive growth in our sample is non-negligible. In other words, in terms of administrative efficiency, given the importance of a favorable business climate in an economy, remittances from migrants will have a positive effect on inclusive growth if the funds raised are invested to promote local entrepreneurship because of the ease of doing business.

The negative direct effects of migrants' remittances may outweigh the positive effects of the interaction between remittances and the ease of doing business for several reasons: Over-reliance on remittances: In some countries, migrants' remittances may account for a significant share of national income. If these transfers are used excessively, it can create unhealthy economic dependence and hinder the development of local businesses. Brain Drain: Migrant remittances can lead to a brain drain, meaning that the most skilled workers may be tempted to leave their countries to work abroad, rather than serve their home countries. This can limit the development and progress of the local economy. The substitution effect: Remittances from migrants can also have a substitution effect on local investments. Recipients can choose to consume more, rather than invest in local businesses that could create jobs and stimulate economic growth. Political instability: In some cases, migrants' remittances can contribute to political instability, creating wealth differences between those who receive the remittances and those who are excluded. Lack of regulation: Finally, the lack of appropriate regulation can also contribute to negative effects of migrants' remittances. In the absence of regulation, there can be inappropriate or illegal use of funds, which can lead to adverse effects on the local economy. It is therefore important to ensure that migrants' remittances are used responsibly and in a regulated manner,

in order to maximize their positive impact on inclusive growth.

This reflection is similar to that of several authors who have studied the effects of migrants' remittances on economic growth and have concluded that some negative effects may outweigh the positive ones. Reference [66] investigates the impact of migrants' remittances on the rural economy in Egypt. He notes that remittances have positive effects on poverty reduction, but they also have negative effects on the local economy. He explains that remittances create economic dependence, encouraging people to reduce their participation in the local economy and turn to accrue consumption. Similarly, [67] studies the impact of remittances on natural resource use and agricultural production in Ethiopia. They find that remittances have positive effects on the food security of rural households, but they have negative effects on agricultural development and investment in local economic sectors. Reference [81] also studies the effects of migrants' remittances on El Salvador's economy. They find that remittances have negative effects on the local economy, creating an economic distortion that encourages people to rely on remittances rather than local economic development.

From this it can be said that although these transfers can contribute to the reduction of poverty and the improvement of the living conditions of the beneficiary populations, they can also have negative economic consequences if their use is not properly regulated and coordinated. Considering the above information, it can be concluded that the alternative FGLS estimation method produces robust results.

Table 5. Robustness sensitivity analysis using the Feasible Generalized Least Square (FGLS) method.

Variables	Effect of Migrant Remittances on Inclusive Growth in Africa					Role of the business climate					Robustness					
	IQCI					IQCI					IQCI					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
LnTFM	-0.00142 .	-0.00223 ***	-0.00163 ..	-0.00393 ***	-0.00419 ***	-0.00421 ***	-0.00427 ***	-0.00438 ***	-0.00256 ***	-0.00293 ***	-0.00283 ***	-0.00294 ***	-0.00370 ***	-0.00541 ***	-0.00813 ***	
	(0.000743)(0.000865)(0.000807)(0.000834)(0.000845)(0.000842)(0.000833)(0.000798)(0.000788)(0.000758)(0.000777)(0.000772)(0.000782)(0.00121)(0.00146)															
FAA													0.000596 ***	0.000343 ..	0.000272 .	
													(0.000140)(0.000156)(0.000155)			
LnTFMFA A														0.00281 .	0.00643 ***	
														(0.00148)(0.00175)		
DCS		-0.00328 ***	-0.00344 ***	-0.00350 ***	-0.00309 ***	-0.00303 ***	-0.00286 ***	-0.00233 ***	-0.00139 .	-0.00416 ***	-0.00544 ***	-0.00536 ***	-0.00602 ***	-0.00621 ***	-0.00397 ***	
		(0.000848)(0.000790)(0.000818)(0.000872)(0.000868)(0.000859)(0.000823)(0.000792)(0.000832)(0.000917)(0.000911)(0.000912)(0.000916)(0.000918)														
SEE ALSO			-0.00153 ***	-0.00170 ***	-0.00174 ***	-0.00174 ***	-0.00163 ***	-0.00149 ***	-0.00145 ***	-0.00123 ***	-0.00108 ***	-0.00103 ***	-0.00114 ***	-0.00123 ***	-0.00119 ***	
			(0.000131)(0.000132)(0.000135)(0.000134)(0.000135)(0.000130)(0.000124)(0.000122)(0.000129)(0.000129)(0.000130)(0.000140)(0.000137)													
DepM				0.000486 ***	0.000478 ***	0.000470 ***	0.000488 ***	-0.000177 .	-0.000492 ***	-0.000629 ***	-0.000524 ***	-0.000589 ***	-0.000714 ***	-0.000611 ***	-0.000302 ***	

Continued

					(7.30e-05)	(7.26e-05)	(7.21e-05)	(7.14e-05)	(0.000102)	(0.000103)	(0.000101)	(9.97e-05)	(0.000101)	(0.000104)	(0.000109)	(0.000112)
SCC		0.000405	0.000345	0.000879	0.000884	0.000728	0.000696	0.000760	0.000784	0.000697	0.000741	0.00124				
		..	.	***	***	***	***	***	***	***	***	***				
GDPP																
HITHER																
MM																
GE																
DSAP																
DCFAP																
RM																
SDT																
GDP																
FBCF																
Import																
CC																
Constant	0.0294	0.0647	0.0777	0.114	0.120	0.122	0.119	0.0998	0.101	0.0708	0.0390	0.0363	0.0252	0.0648	0.0947	
	..	***	***	***	***	***	***	***	***	***	0.0252	***	***	
Observations	1,094	900	900	820	786	785	785	783	782	782	698	698	698	691	643	
Number of id	46	46	46	46	46	46	46	46	46	46	42	42	42	42	40	

Continued

Chi2	3.641	19.89	160.9	230.2	238.6	248.4	272.1	375.0	492.1	600.6	728.8	748.5	786.4	795.0	600.0
Prob > F	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5. Conclusions

Inclusive growth is a form of economic growth that aims to ensure that the economic benefits of growth are shared equitably among all members of society, especially marginalized and disadvantaged groups. Unlike traditional economic growth, which is usually measured by the growth rate of gross domestic product (GDP), inclusive growth takes into account other indicators of prosperity and well-being, such as poverty reduction, improved living conditions, access to education and health, and reduced social and economic inequalities. Inclusive growth aims to ensure that economic growth benefits everyone and contributes to improving the living conditions of the entire population, promoting sustainable and balanced development. While it has significant impacts on many dimensions of the SDGs, this study focused on the effect of migrant remittances on inclusive growth (SDG 8) on a panel of 48 countries in Africa. Beyond the total amount of remittances and the amount of these transfers, these indicators are necessary for the achievement of decent work and economic growth, specifically inclusive growth. Thus, the objective of this essay was to analyze the effect of migrants' remittances on inclusive growth. It appears that taking into account the amounts transferred by migrants in addition to the ease of doing business does not allow us to better understand inclusive growth in Africa. The empirical analysis used several estimation techniques: ordinary least squares, generalized least squares, and FGLS. Remittances from migrants have negative effects on inclusive growth, captured here by the Inclusive Growth Index. Although the literature on this issue has largely focused on the micro level, this study is positioned as one of the first to empirically assess the impact of migrants' remittances on inclusive growth with a sample of 48 African countries. In addition, the analysis of transmission channels reveals that there are direct and indirect channels through which these transfers pass, including traditional money transfer services, traditional banks, mobile payment platforms, innovative fintechs and startups, local merchants and money transfer agents to negatively affect inclusive growth.

These results show that total remittances received mainly have direct and indirect effects on inclusive growth. With effects that can be channeled through channels such as employment, gross domestic product per capita or even the control of corruption and financial development. This can inform policymakers about the priority to be given to investments in the economy. Thus, it is necessary to promote a favorable business climate, in particular, to foster political stability, improve infrastructure, simplify administrative procedures, foster vocational training and promote regional cooperation. In short, to overcome these challenges, governments must develop strategies to diversify the economy and encourage investment in productive sectors. This can include policies to pro-

mote exports, boost entrepreneurship, and develop local skills. It is therefore important for governments and development actors to work to improve the business climate to foster entrepreneurship and productive investment, thereby encouraging inclusive growth.

Conflicts of Interest

The authors declare no conflicts of interest.

References

- [1] UNESCO Institute for Statistics, United Nations Children's Fund and The World Bank (2022) From Learning Recovery to Education Transformation Insights and Reflections from the 4th Survey of National Education Responses to COVID-19 School Closures. OECD Publishing.
- [2] Coppel, J., Dumont, J.C. and Visco, I. (2001) Trends in Immigration and Economic Consequences.
- [3] Organisation Mondiale de la Santé (2023) Tendances de la mortalité maternelle 2000 à 2020: Estimations de l'OMS, de l'UNICEF, du FNUAP, du Groupe de la Banque mondiale et de l'UNDESA/Division de la population: Résumé analytique.
- [4] Beine, M., Docquier, F. and Schiff, M. (2013) International Migration, Transfer of Norms and Home Country Fertility. *Canadian Journal of Economics*, **46**, 1406-1430. <https://doi.org/10.1111/caje.12062>
- [5] de Haas, H. (2010) The Internal Dynamics of Migration Processes: A Theoretical Inquiry. *Journal of Ethnic and Migration Studies*, **36**, 1587-1617. <https://doi.org/10.1080/1369183x.2010.489361>
- [6] Mesnard, A. (2004) Temporary Migration and Capital Market Imperfections. *Oxford Economic Papers*, **56**, 242-262. <https://doi.org/10.1093/oep/gpf042>
- [7] Barajas, A., Chami, R., Fullenkamp, C., Gapen, M. and Montiel, P.J. (2009) Do Workers' Remittances Promote Economic Growth? *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.1442255>
- [8] Brown, M.J. and Parker, G.G. (1994) Canopy Light Transmittance in a Chronosequence of Mixed-Species Deciduous Forests. *Canadian Journal of Forest Research*, **24**, 1694-1703. <https://doi.org/10.1139/x94-219>
- [9] Fajnzylber, P. and Lopez, J.H. (2008) Remittances and Development: Lessons from Latin America. World Bank Publications.
- [10] Shera, A. and Meyer, D. (2013) Remittances and Their Impact on Economic Growth. *Periodica Polytechnica Social and Management Sciences*, **21**, 3-19. <https://doi.org/10.3311/ppso.2152>
- [11] Bourre, A., Lmai, S., Laot, C. and Houcke, S. (2013) A Robust OFDM Modem for Underwater Acoustic Communications. 2013 *MTS/IEEE OCEANS*, Bergen, 10-14 June 2013, 1-5. <https://doi.org/10.1109/oceans-bergen.2013.6608003>
- [12] El Yaman, S., Kugler, M. and Rapoport, H. (2007) Migrations et investissements directs étrangers dans l'espace européen (ue-15). *Revue Économique*, **58**, 725-733. <https://doi.org/10.3917/reco.583.0725>
- [13] Kireyev, A. (2006) The Macroeconomics of Remittances: The Case of Tajikistan. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.888147>
- [14] Chami, F. (2005) *In Vitro* Evaluation of the Antifungal Action of Oregano and

- Clove Essential Oils and Their Majority Compounds *in Vivo*: Application in the Prophylaxis and Treatment of Vaginal Candidose on Immunocompromised Rat and Mouse Models.
- [15] Jadotte, E. and Ramos, X. (2016) The Effect of Remittances on Labour Supply in the Republic of Haiti. *The Journal of Development Studies*, **52**, 1810-1825. <https://doi.org/10.1080/00220388.2016.1156089>
- [16] Acosta, P.A., Lartey, E.K.K. and Mandelman, F.S. (2009) Remittances and the Dutch Disease. *Journal of International Economics*, **79**, 102-116. <https://doi.org/10.1016/j.jinteco.2009.06.007>
- [17] El Hamma, I. (2017) Do Political Institutions Improve the Effect of Remittances on Economic Growth? Evidence from South-Mediterranean Countries. *Economics Bulletin*, **37**, 2133-2148.
- [18] Chami, R., Fullenkamp, C. and Jahjah, S. (2005) Are Immigrant Remittance Flows a Source of Capital for Development? *IMF Staff Papers*, **52**, 55-81. <https://doi.org/10.2307/30035948>
- [19] Gubert, F. (2002) Do Migrants Insure Those Who Stay Behind? Evidence from the Kayes Area (Western Mali). *Oxford Development Studies*, **30**, 267-287. <https://doi.org/10.1080/1360081022000012699>
- [20] Akter, S., Islam, M.T., Zulkefeli, M. and Khan, S.I. (2013) Agarwood Production—A Multidisciplinary Field to Be Explored in Bangladesh. *International Journal of Pharmaceutical and Life Sciences*, **2**, 22-32. <https://doi.org/10.3329/ijpls.v2i1.15132>
- [21] Amuedo-Dorantes, C. and Pozo, S. (2010) Accounting for Remittance and Migration Effects on Children's Schooling. *World Development*, **38**, 1747-1759. <https://doi.org/10.1016/j.worlddev.2010.05.008>
- [22] Bourdet, Y. and Falck, H. (2006) Emigrants' Remittances and Dutch Disease in Cape Verde. *International Economic Journal*, **20**, 267-284. <https://doi.org/10.1080/10168730600879323>
- [23] Paterlini-Bréchet, P., Saigo, K., Murakami, Y., Chami, M., Gozuacik, D., Mugnier, C., et al. (2003) Hepatitis B Virus-Related Insertional Mutagenesis Occurs Frequently in Human Liver Cancers and Recurrently Targets Human Telomerase Gene. *Oncogene*, **22**, 3911-3916. <https://doi.org/10.1038/sj.onc.1206492>
- [24] Fullenkamp, C., Cosimano, M.T.F., Gapen, M.T., Chami, M.R., Montiel, M.P. and Barajas, M.A. (2008) Macroeconomic Consequences of Remittances. International Monetary Fund.
- [25] Catrinescu, N., Leon-Ledesma, M., Piracha, M. and Quillin, B. (2009) Remittances, Institutions, and Economic Growth. *World Development*, **37**, 81-92. <https://doi.org/10.1016/j.worlddev.2008.02.004>
- [26] Faini, R. (2002) Migration, Remittances and Growth. In: *Poverty, International Migration and Asylum*, Palgrave Macmillan, 171-187.
- [27] Corrigan, D., Hajnal, Z., Németh, B. and Lucas, S.B. (2005) Tectonic Framework of a Paleoproterozoic Arc-Continent to Continent-Continent Collisional Zone, Trans-Hudson Orogen, from Geological and Seismic Reflection Studies. *Canadian Journal of Earth Sciences*, **42**, 421-434. <https://doi.org/10.1139/e05-025>
- [28] Burgess, R. and Haksar, V. (2005) Migration and Foreign Remittances in the Philippines. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.887980>
- [29] Ashe, M.C., Miller, W.C., Eng, J.J. and Noreau, L. (2009) Personnes âgées, maladies chroniques et activité physique de loisir. *Gérontologie*, **55**, 64-72.

- [30] Ziesemer, T.H.W. (2012) Worker Remittances, Migration, Accumulation and Growth in Poor Developing Countries: Survey and Analysis of Direct and Indirect Effects. *Economic Modelling*, **29**, 103-118. <https://doi.org/10.1016/j.econmod.2011.08.013>
- [31] Mundaca, B.G. (2009) Remittances, Financial Market Development, and Economic Growth: The Case of Latin America and the Caribbean. *Review of Development Economics*, **13**, 288-303. <https://doi.org/10.1111/j.1467-9361.2008.00487.x>
- [32] Suppiah, V. and Singh Sandhu, M. (2011) Organisational Culture's Influence on Tacit Knowledge-Sharing Behaviour. *Journal of Knowledge Management*, **15**, 462-477. <https://doi.org/10.1108/13673271111137439>
- [33] Fayissa, B. and Nsiah, C. (2012) Financial Development and Remittances in Africa and the Americas: A Panel Unit-Root Tests and Panel Cointegration Analysis. Middle Tennessee State Univ., Department of Economics and Finance.
- [34] Ahamada, I. and Coulibaly, D. (2012) Remittances and Growth in Sub-Saharan African Countries: Evidence from a Panel Causality Test. *Journal of International Development*, **25**, 310-324. <https://doi.org/10.1002/jid.2830>
- [35] Adams, S. and Klobodu, E.K.M. (2016) Remittances, Regime Durability and Economic Growth in Sub-Saharan Africa (SSA). *Economic Analysis and Policy*, **50**, 1-8. <https://doi.org/10.1016/j.eap.2016.01.002>
- [36] Adams, J.R., Kelly, B.T. and Waits, L.P. (2003) Using Faecal DNA Sampling and GIS to Monitor Hybridization between Red Wolves (*Canis rufus*) and Coyotes (*Canis latrans*). *Molecular Ecology*, **12**, 2175-2186. <https://doi.org/10.1046/j.1365-294x.2003.01895.x>
- [37] Aitymbetov, S. (2006) Emigrant Remittances: Impact on Economic Development of Kyrgyzstan. ICEG European Centre, WP, NR, 31.
- [38] Woodruff, C. and Zenteno, R. (2007) Migration Networks and Microenterprises in Mexico. *Journal of Development Economics*, **82**, 509-528. <https://doi.org/10.1016/j.jdeveco.2006.03.006>
- [39] Glytsos, N.P. (2005) The Contribution of Remittances to Growth: A Dynamic Approach and Empirical Analysis. *Journal of Economic Studies*, **32**, 468-496. <https://doi.org/10.1108/01443580510631379>
- [40] Acosta, P., Calderón, C., Fajnzylber, P. and Lopez, H. (2008) What Is the Impact of International Remittances on Poverty and Inequality in Latin America? *World Development*, **36**, 89-114. <https://doi.org/10.1016/j.worlddev.2007.02.016>
- [41] Giuliano, P. and Ruiz-Arranz, M. (2009) Remittances, Financial Development, and Growth. *Journal of Development Economics*, **90**, 144-152. <https://doi.org/10.1016/j.jdeveco.2008.10.005>
- [42] Bettin, G. and Zazzaro, A. (2011) Remittances and Financial Development: Substitutes or Complements in Economic Growth? *Bulletin of Economic Research*, **64**, 509-536. <https://doi.org/10.1111/j.1467-8586.2011.00398.x>
- [43] McKinley, T. (2010) Inclusive Growth Criteria and Indicators: An Inclusive Growth Index for Diagnosis of Country Progress.
- [44] David, A., Mlachila, M. and Moheput, A. (2014) Does Openness Matter for Financial Development in Africa? *IMF Working Papers*, **14**, 1. <https://doi.org/10.5089/9781498359290.001>
- [45] Cha'Ngom, N. and Manga, E.E. (2020) Migrants' Remittances and Inclusive Growth in Sub-Saharan Africa.

- [46] Campbell, F.A. and Ramey, C.T. (1995) Cognitive and School Outcomes for High-Risk African-American Students at Middle Adolescence: Positive Effects of Early Intervention. *American Educational Research Journal*, **32**, 743-772. <https://doi.org/10.3102/00028312032004743>
- [47] Siddique, A., Selvanathan, E.A. and Selvanathan, S. (2012) Remittances and Economic Growth: Empirical Evidence from Bangladesh, India and Sri Lanka. *Journal of Development Studies*, **48**, 1045-1062. <https://doi.org/10.1080/00220388.2012.663904>
- [48] Canton, H. (2021) Conférence des Nations Unies sur le commerce et le développement—CNUCED. In: *L'annuaire Europa des organisations internationales 2021*, Routledge, 172-176.
- [49] Sagala, C., Destriani, M., Putri, U.K. and Kumar, S. (2014) Influence of Promotional Mix and Price on Customer Buying Decision toward Fast Food Sector: A Survey on University Students in Jabodetabek (Jakarta, Bogor, Depok, Tangerang, Bekasi) Indonesia. *International Journal of Scientific and Research Publications*, **4**, 1-7.
- [50] Rezgui, H. (2018) In Memory of Professor Andrei Nikolaievitch Tikhonov (1906-1993) on the 25th Anniversary of His Death Hayat Rezgui. *Journal of Humanistic Mathematics*, **8**, 332-349. <https://doi.org/10.5642/jhummath.201801.16>
- [51] Bai, J., Choi, S.H. and Liao, Y. (2024) Standard Errors for Panel Data Models with Unknown Clusters. *Journal of Econometrics*, **240**, Article ID: 105004. <https://doi.org/10.1016/j.jeconom.2020.08.006>
- [52] Semykina, A. and Wooldridge, J.M. (2010) Estimating Panel Data Models in the Presence of Endogeneity and Selection. *Journal of Econometrics*, **157**, 375-380. <https://doi.org/10.1016/j.jeconom.2010.03.039>
- [53] Bound, J., Jaeger, D.A. and Baker, R.M. (1995) Problems with Instrumental Variables Estimation When the Correlation between the Instruments and the Endogenous Explanatory Variable Is Weak. *Journal of the American Statistical Association*, **90**, 443-450. <https://doi.org/10.1080/01621459.1995.10476536>
- [54] Zhang, Z., Hamaker, E.L. and Nesselroade, J.R. (2008) Comparisons of Four Methods for Estimating a Dynamic Factor Model. *Structural Equation Modeling: A Multidisciplinary Journal*, **15**, 377-402. <https://doi.org/10.1080/10705510802154281>
- [55] King, A.A., Nguyen, D. and Ionides, E.L. (2016) Statistical Inference for Partially Observed Markov Processes via R Package Pomp. *Journal of Statistical Software*, **69**, 1-43. <https://doi.org/10.18637/jss.v069.i12>
- [56] McMahon, S. and Dyer, M. (2019) *Pratique avancée basée sur le travail dans la petite enfance*. Routledge.
- [57] Xiao, S., Cao, S., Huang, Q., Xia, L., Deng, M., Yang, M. and Xia, L. (2019) Le paysage des modifications de l'ARN N 6-méthyladénosine des tissus foetaux humains. *Biologie Cellulaire Naturelle*, **21**, 651-661.
- [58] Xu, X., Chen, P., Wang, J., Feng, J., Zhou, H., Li, X., et al. (2020) Evolution of the Novel Coronavirus from the Ongoing Wuhan Outbreak and Modeling of Its Spike Protein for Risk of Human Transmission. *Science China Life Sciences*, **63**, 457-460. <https://doi.org/10.1007/s11427-020-1637-5>
- [59] Gonzalez-Konig, G. and Wodon, Q. (2005) Remittances and Inequality. Mimeo-graphed Document, World Bank.
- [60] Leblond, C.S., Le, T., Malesys, S., Cliquet, F., Tabet, A., Delorme, R., et al. (2021) Operative List of Genes Associated with Autism and Neurodevelopmental Disorders Based on Database Review. *Molecular and Cellular Neuroscience*, **113**, Article

ID: 103623. <https://doi.org/10.1016/j.mcn.2021.103623>

- [61] Abdi, R., Fiorina, P., Adra, C.N., Atkinson, M. and Sayegh, M.H. (2008) Immunomodulation by Mesenchymal Stem Cells: A Potential Therapeutic Strategy for Type 1 Diabetes. *Diabetes*, **57**, 1759-1767. <https://doi.org/10.2337/db08-0180>
- [62] Abosedra, S. and Fakh, A. (2017) Assessing the Role of Remittances and Financial Deepening in Growth: The Experience of Lebanon. *Global Economy Journal*, **17**, Article ID: 20150059. <https://doi.org/10.1515/gej-2015-0059>
- [63] Nishat, M. and Bilgrami, N. (1991) The Impact of Migrant Worker's Remittances on Pakistan Economy. *Pakistan Economic and Social Review*, **29**, 21-41.
- [64] Abdul-Mumuni, A. and Quaidoo, C. (2016) Effect of International Remittances on Inflation in Ghana Using the Bounds Testing Approach. *Business and Economic Research*, **6**, 192. <https://doi.org/10.5296/ber.v6i1.8635>
- [65] Iqbal, Z. and Sattar, A. (2010) The Contribution of Workers' Remittances to Economic Growth in Pakistan. Working Papers & Research Reports.
- [66] Shafiq, M.N. and Gillani, S. (2018) Health Outcomes of Remittances in Developing Economies: An Empirical Analysis. *Pakistan Journal of Economic Studies (PJES)*, **1**, 1-20.
- [67] Beegle, K., De Weerd, J., Friedman, J. and Gibson, J. (2012) Methods of Household Consumption Measurement through Surveys: Experimental Results from Tanzania. *Journal of Development Economics*, **98**, 3-18. <https://doi.org/10.1016/j.jdeveco.2011.11.001>
- [68] Mohapatra, A., Nayak, B., Das, P. and Mohanty, K.B. (2017) A Review on MPPT Techniques of PV System under Partial Shading Condition. *Renewable and Sustainable Energy Reviews*, **80**, 854-867. <https://doi.org/10.1016/j.rser.2017.05.083>
- [69] Ndikumana, E., Ho Tong Minh, D., Baghdadi, N., Courault, D. and Hossard, L. (2018) Deep Recurrent Neural Network for Agricultural Classification Using Multitemporal SAR Sentinel-1 for Camargue, France. *Remote Sensing*, **10**, Article No. 1217. <https://doi.org/10.3390/rs10081217>
- [70] Adela, R. and Banerjee, S.K. (2015) GDF-15 as a Target and Biomarker for Diabetes and Cardiovascular Diseases: A Translational Prospective. *Journal of Diabetes Research*, **2015**, Article ID: 490842. <https://doi.org/10.1155/2015/490842>
- [71] Asongu, S.A. and Nwachukwu, J.C. (2016) Foreign Aid and Inclusive Development: Updated Evidence from Africa, 2005-2012. *Social Science Quarterly*, **98**, 282-298. <https://doi.org/10.1111/ssqu.12275>
- [72] Akinlo, A.E. and Odusanya, I.A. (2016) Effects of Food Prices on Under-Five and Infant Mortality Rates in Sub-Saharan Africa. *African Journal of Economic Review*, **4**, 101-112.
- [73] Arezki, R. and Sy, A. (2016) Financing Africa's Infrastructure Deficit (No. 173). Oxford Centre for the Analysis of Resource Rich Economies, University of Oxford.
- [74] Leke, W.N., Mignouna, D.B., Brown, J.K. and Kvarnheden, A. (2015) Begomovirus Disease Complex: Emerging Threat to Vegetable Production Systems of West and Central Africa. *Agriculture & Food Security*, **4**, Article No. 1. <https://doi.org/10.1186/s40066-014-0020-2>
- [75] Onodugo, V.A., Anowo, O.F. and Ofoegbu, G.N. (2018) The Effectiveness of Monetary Policy in Tackling Inflation in Emerging Economy. *Opción: Revista de Ciencias Humanas y Sociales*, No. 14, 314-355.
- [76] Mejdouli, H., Amor, H., Baali, A., Nacer, N., Chouikh, J. and Ouzennou, N. (2024) Prevalence of Depression among the Elderly in Morocco. *NPG Neurolo-*

- gie-*Psychiatrie-Gériatrie*. <https://doi.org/10.1016/j.npg.2024.02.006>
- [77] Gregg, A.G. and Nafziger, S. (2021) The Births, Lives, and Deaths of Corporations in Late Imperial Russia. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3760595>
- [78] Omrane-Adjepong, M. and Alagidede, I.P. (2019) Multiresolution Analysis and Spillovers of Major Cryptocurrency Markets. *Research in International Business and Finance*, **49**, 191-206. <https://doi.org/10.1016/j.ribaf.2019.03.003>
- [79] Adams Jr., R.H. (2011) Évaluer l'impact économique des envois de fonds internationaux sur les pays en développement à l'aide d'enquêtes auprès des ménages: Une revue de la littérature. *Journal d'études sur le développement*, **47**, 809-828.
- [80] Sewell, M.D., Hanna, S.A., Carrington, R.W., Pollock, R.C., Skinner, J.A., Cannon, S.R. and Briggs, T.W. (2010) Modular Proximal Femoral Replacement in Salvage Hip Surgery for Non-Neoplastic Conditions. *Acta Orthopaedica Belgica*, **76**, 493-502.
- [81] Adjei, M., Bo, Y., Nketiah, E., Adu-Gyamfi, G. and Obuobi, B. (2020) The Effects of Remittances on Economic Growth in West Africa. *Journal of Human Resource and Sustainability Studies*, **8**, 312-329. <https://doi.org/10.4236/jhrss.2020.83018>