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# Migrants' Remittances and inclusive growth in sub-Saharan Africa

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## Abstract

This study assesses the contribution of remittances to the improvement of inclusive growth in sub-Saharan Africa, taking into account the role of institutions. Based on panel data of 24 countries for the period 1985-2014, results show that remittances positively contribute to the inclusiveness of economic growth in sub-Saharan Africa. Controlling for quality of institutions, it came out that poor institutions rather hamper this contribution in the short run with the risk of neutralizing it in the long run.

**Key words:** remittances, inclusive growth, institutions, Sub-Saharan Africa

**JEL:** F24, O15, O43, O55

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## 1. Introduction

In developing regions, the wide gap between saving and investment needs as well as budget deficits have often been presented as the main obstacles to growth (Ndikumana, 2014). Among these regions, sub-Saharan Africa (SSA) is considered as the one where these obstacles are the most pronounced especially because of very low income and large budget and current account deficits (UNCTAD, 2014). However, during the last two decades, precisely since the mid-nineties, SSA witnessed a regular growth. The real GDP of the whole region has on average increased by 4.6% on average per year over the period 1995 - 2016 while the real GDP per capita increased by 1.6% over the same period (World Bank, 2017). It is important to underline that since the Seventies, this appears to be the first time such a large number of countries witness a regular growth. IMF (2008) has explained this regularity of growth, at least partially, by the fact that while enjoying an overall macroeconomic stability, controlled inflation, and a sustainable debt, SSA countries succeeded in implementing healthy economic policies while gradually reinforcing their institutions. The additional borrowing avenues, thanks to the drop in debt servicing within the framework of the HIPC initiative, contributed to this growth recovery (Martinez and Mlachila, 2013). Following this reasoning, the financing of the growth achieved is strongly related to external sources brought by non-nationals. It is therefore important for countries of the region to seek new levers which are both complementary and possibly alternative forms of financing in order to ensure the regularity of this growth which constitutes a precondition to poverty reduction.

Migrants' remittances are one of these levers. In fact, during the period mentioned, an important increase in the total inflow of remittances was witnessed in various countries. Remittances entering developing countries increased from approximately 30 billion US dollars in 1990 to more than 466 billion US dollars in 2017 (World Bank, 2017). The same trend was witnessed in SSA where the inflow of remittances increased from 3 billion US dollars in 1990 to 38 billion US dollars in 2017. In gross values, the most important recipients were: Nigeria (22 billion USD), Senegal and Ghana (2.2 billion USD each), Kenya (2 billion USD), Uganda (1.4 billion USD) and Mali (1 billion USD). As a proportion of GDP, the highest beneficiaries were: Liberia (27%), the Comoros Islands (21%), Gambia (21%), Lesotho (15%) and Senegal (14%). As a whole, migrants' remittances outclassed public development aid to become the second foreign source of funding after foreign direct investments (FDI). This makes migrants' remittances one of the main sources of external development finance for the beneficiary countries, thus reinforcing the importance of reflections on its contribution to growth.

However, since remittances largely contribute to increase households' income, taking them into account when analyzing growth naturally brings us to consider the inclusive nature of growth. This

concern is the focus of this study which, following OECD (2014), associates the concept of inclusive growth to the idea of a large increase in the welfare of all the segments of the population, with an equitable distribution of the fruits of growth between the individuals and groups. We thus seek to answer the following question: do migrants' remittances favour inclusive growth in SSA countries? In order to provide a relevant answer to this question, five year interval panel data on a sample of 24 SSA countries for the 1985 - 2014 period is used for the empirical assessment. The estimation technique used to evaluate the contribution of remittances to inclusive growth in these countries is the difference generalized method of moments (DGMM) which makes it possible to control for the bias of omission of important variables, endogeneity, measurement errors, and non-observable heterogeneity between countries. The dynamics of the institutions is also taken into account by using variables that capture the quality of bureaucracy and the investment profile.

The remaining is organized in four sections. Section 2 presents a brief summary of literature review on the remittances – growth nexus by highlighting the various variables of the analysis. Section 3 presents the methodology and section 4 presents the main findings as well as their discussion. Section 5 presents our concluding remarks as well as policy recommendations.

## **2. Literature review**

Studies on migrants' remittances can analytically be classified into three main categories based on whether they are optimistic, pessimistic or inconclusive in assessing the role of remittances on growth.

### **2.1. Migrants' remittances and growth: optimistic views**

According to this first class of studies, the IMF and World Bank (2009) recognize that remittances are a stable and counter cyclical source of external finance in developing countries. This is in line with Ratha and Mohapatra (2007) who showed that migrants' remittances tend to increase when the receiving countries face economic recession following a shock (financial crisis, natural disaster, political instability, etc). Migrants then tend to transfer more during hard times to help their families and friends. The transfers by this channel make it possible to support consumption and thus contribute to the stability of the receiving economies albeit the risk of using the money received for imported goods exist (Lipton, 1980).

As pointed out by the IMF and the World Bank (2009), these large volumes of migrants' transfers can constitute securities for these economies, enabling them to have a greater access to external debt financing. This additional borrowing potential can then be used to fund productive investment which will in the long run make it possible to have a faster and more sustained economic growth. In fact, the debt sustainability framework launched in 2009 jointly by the World Bank and the International

Monetary Fund enables receiving countries to have access to higher levels of debt, especially when remittances represent more than 10% of their national income or more than 20% of their exports of goods and services.

According to Ratha (2013), when remittances enable the receiving households to escape from poverty, they can devote less time and effort to the satisfaction of their basic needs. They thus have more time to allocate to productive activities with a higher added-value and more suitable to increase the wealth of the community or country. From a Keynesian perspective, an increase in remittances leads to an increase in consumption and production. On this basis, Ramirez (2013) holds that remittances have a positive effect on the growth of the receiving countries, especially when they improve the stock of domestic savings and the amount of financial resources available for investment. Mishra (2005) shows that a 1% increase in remittances in 13 Caribbean countries leads to an increase in private domestic investment of 0.6% while according to Yang (2004), remittances reduce the credit constraints of receiving households in Philippines and encourage entrepreneurship. Following this same reasoning, Mesnard (2001) notes that through the Tunisian workers abroad, migration favours investment in more productive activities in Tunisia. Also, the tests performed by Leon-Ledesma and Piracha (2001) on 11 Central and East European countries and Drinkwater et al. (2003) on 20 developing countries show that remittances inflows leads to an increase in the level of investments in source countries. Although these studies establish a positive relationship between remittances and growth, many other studies find opposites results.

## **2.2. Migrants' remittances and growth: pessimistic view**

Unlike the optimists, pessimists support the hypothesis of a potential negative relationship between migrants' remittances and economic growth in developing countries. According to these authors, remittances are likely to generate negative incentives since they can be perceived as a permanent source of income. From this perspective, Jadotte (2009) highlights the negative effects of remittances on the number of hours worked and labor market participation in Haiti. Its finding suggest that remittances can reduce the labor force participation of beneficiaries and increase their consumption expenditures, especially that of imported goods, rather than increase his savings and financing of investments (Azam and Gubert, 2006; Chami et al., 2003). This phenomenon puts the migrant in a situation of the dilemma of the Samaritan as exposed by Buchanan (1975). In a similar manner, Barajas et al. (2009) and El-Sakka (1999) show that an increase in the consumption of beneficiaries can lead to an increase in prices on the local market and an appreciation of the exchange rate. Such a situation exposes the economy to the "Dutch disease" as it can cause a decline in the country's tradable sector, an increase of its current account deficit. Consequently, this can favored an uncontrolled inflation in case of a lax

monetary policy (Kirejev, 2006). Also, increasing pressure on wages can lead to a decline in labor supply in the tradable goods sector while the sudden increase in prices could lead to an increase in the cost of labor in the sector of non-tradable goods resulting in a sharp decline in competitiveness. These results were observed in Latin America and in Cape Verde (Bourdet and Falck, 2006).

Beside these studies that conclude on the existence of either a positive or a negative relationship between remittances, growth, and poverty reduction, many others conclude that both the existence and the direction of the relationship between these economic phenomena are preconditioned by many factors.

### **2.3. Migrants' remittances and growth: the conditional view**

Despite the optimistic results according to which remittances are likely to directly reduce poverty by putting means to satisfy their basic needs at the disposal of the beneficiary households and indirectly by providing resources that can help to create new productive investments which will benefit the community, other studies show that the effects of remittances can be temporary and conditional both at the micro and macroeconomic levels. Rusell (1995) highlights the fact that the development potential of remittances is likely to be realized at the national level only in the long run while Chami and Fullencamp (2013) hold that there are several channels through which remittances affect economic activity and none of these channels is automatically active at a given time since it depends on many economic, social, and institutional. Moreover, many of these channels have negative effects on economic activity. Consequently, the evaluation of the impact of remittances on economic growth involves a large range of causal and multi-directional relationships which have positive and negative effects that can vary depending on the socio-economic and institutional factors in each country. Thus, according to some authors, the debate on the impact of remittances on economic growth (negative, positive, or neutral) is due to the fact that the remittances-growth nexus is not linear and depends on the context prevailing in the receiving country. Besides the level of development of the financial sector as determinant of the impact of remittances on economic growth (Giuliano and Ruiz-Arranz, 2006; Singh et al., 2011), some authors focus on the role played by the institutional framework (Tamokwe, 2009). A common limitation of the study by Giuliano and Ruiz-Arranz (2006) is that their study does not take into account the institutional aspects. Catrinescu et al. (2006) propose a solution to this limitation through the use of institutional variables extracted from the ICRG (Index Country Risk Guide) database with a system generalized method of moments in a dynamic panel data model. Their results show a positive effect of the interaction variable between remittances and institutions on growth, thus highlighting the positive effect of the remittances on growth in the presence of good institutions. These results also suggest that the most important institutional variables for this interaction are: the rule of law, stability of the

government, and socio-economic conditions. Their study is used as a foundation of this study which modestly ambition to consider the specific situation of sub-Saharan African countries while paying special attention to inclusive growth and accounting from business environment through the investment profile.

### **3. Methodology**

#### **3.1 Data and description of variables**

The absence of many time series on the study period (1984-2014) for some sub-Sahara African countries leads us to exclude them. Consequently, based on the availability of data, we retain 24 countries in the study sample.

##### **3.1.1 The dependent variable**

In order to determine if the growth induced by remittances is inclusive or not, this study retains inclusive growth as the dependent variable. This variable is captured here by the index of quality of growth developed by three economists from the international monetary fund (Mlachila et al., 2014). Using data from World Development Indicators 2017, we apply the methodology developed by these authors to calculate the index of the quality of growth for the 24 countries of our sample over the study period using 5 year intervals. The quality of growth index (QGI) is composed of two sub-indices relating to growth fundamentals and the social dimension of growth.

The growth fundamentals have four properties generally expected from growth in an economy, namely: its strength, its stability, its diversification of its sources, and its degree of outward orientation. The strength of the growth is measured here by the annual change in real GDP per capita which is more related pro-poor growth. Given that the coefficient of variation cancels the relative apparent dispersion and allows direct comparison between countries whatever their level of growth, the stability of the growth is measured by the inverse of the coefficient of variation of the measure of growth. The level of diversification of the sources of growth is captured using the complement to 1 of the Herfindahl-Hirschmann index of the concentration of exports of each country (i.e.  $1-IHH$ ). The sources of growth are more diversified when this indicator is closer to 1. The outward orientation of growth is approximated by the share of net external demand as a percentage of the GDP. By taking into account this characteristic we defend the idea that growth that is outward oriented is more likely to improve domestic productivity through Learning by doing, importation of more advanced technologies, transfer of knowledge, discipline of the world market, FDI, and competition (Diao et al., 2006).

The social dimension of growth incorporates two basic elements of the formation of human capital, namely : health and education which are widely accepted as the main determinants of poverty reduction

(Schultz, 1999). The health component is captured by the aggregation of two sub-elements: the inverse of the infant mortality rate and life expectancy at birth. Faced with the lack of data for all countries of the sample, education is measured by the average number of years needed for the completion of primary education.

Given these different components, the construction of the QGI is done in two stages: the first stage is the standardization of the scale of measurement of the individual components for the calculation of sub-indices while the second is the aggregation of the sub-indices into a single index.

Given that the proxy variables used are not measured in the same units, it is necessary to bring them to the same scale. Two approaches can be used to do this: the *Z – Score* approach and the *Min – Max* approach.

The *Z–Score* approach which corresponds to the centered-reduced normalization consists in transforming a variable  $X$  with a mean  $\mu$  and standard deviation  $\sigma$  into a *Z*-score given by :  $Z = \frac{X - \mu}{\sigma}$  which follows a centered-reduced normal distribution if  $X$  is normally distributed. The sensitivity of the transformed variable  $Z$  in the presence of outliers is however a problem in this approach.

The *Min – Max* approach consists in transforming the variable  $X$  into an index  $Z'$  given by

$$Z' = \frac{X - X_{Min}}{X_{Max} - X_{Min}} \text{ where } X_{Min} \text{ and } X_{Max} \text{ respectively represent the minimum of } X \text{ and the maximum}$$

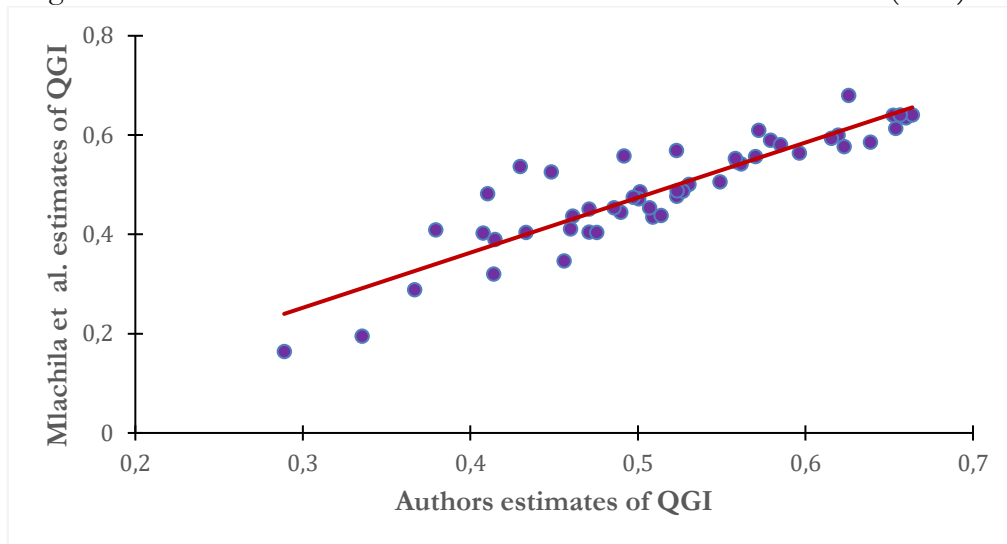
of  $X$ . Unlike the *Z*-score variable,  $Z'$  is bounded by values from 0 to 1 and is therefore less likely to have a much dispersed distribution, thus making it more adapted to countries in view of ranking them.

As concerns weighting, Mlachila et al. (2014) use 50% for fundamental growth and 50% for the social dimension. In the fundamental sources, each sub-index is weighted at 25%. In the social dimension, each of the sub-indices is weighted at 50%. This weighting is based on their simplicity and the transparency although as Guillaumont (2009) puts it, this equal weighting is arbitrary. Other methods of weighting exist in the literature, based for example on Principal Components Analysis (PCA) or regression analysis, but they also have their own limits which including for instance: the difficulty to include more than three variables. This is the case with PCA for the growth fundamentals (Mlachila et al., 2014) or the quality of the regressions in the presence of endogeneity bias.



As depicted on the figure 1 below, for countries present both in our sample and that of Mlachila et al. (2014), figures of QGI are highly similar and the correlation coefficient between the two series stands at 90.01% albeit marginal differences persist for a limited number of countries mainly explain by difference in data sources.

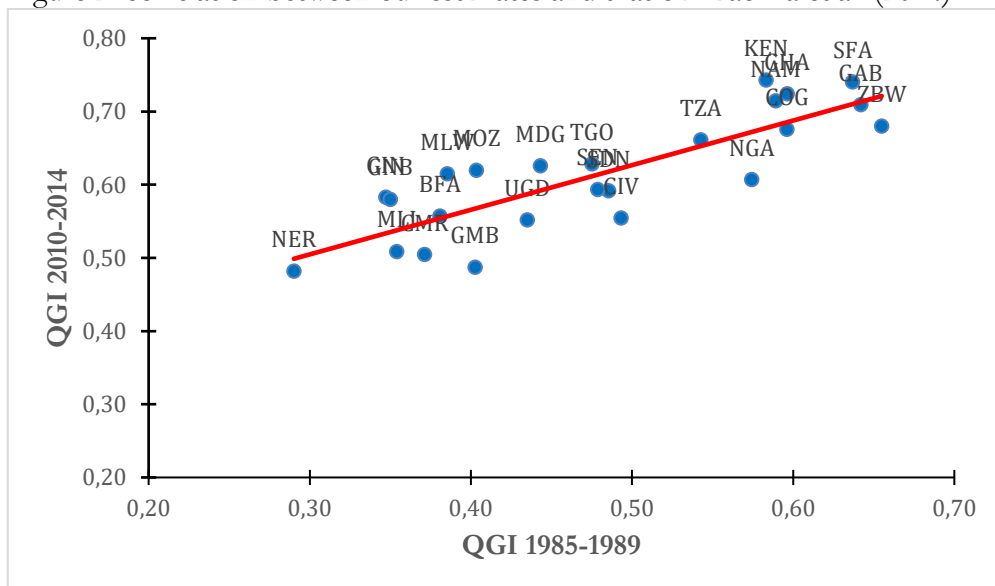
Figure 1: correlation between our estimates and that of Mlachila et al. (2014)



Source: Authors and Mlachila et al. (2014)

Figure 2 show that over the covered period, quality of growth has improved in SSA or at least in the 24 countries covered by our sample. Series exhibit an average improvement rate of 4.2% each five years.

Figure 2: correlation between our estimates and that of Mlachila et al. (2014)



Source: Authors

### 3.1.2 Explanatory variables

The table below presents the list of explanatory variables retained in the analysis.

**Table 1:** Explanatory variables and their sources

Variable	Description	sources
REM	Amount of funds transferred back home by migrants living abroad expressed as a percentage of the GDP	The World Bank (WDI 2017)
OPEN	Trade openness expressed as a percentage of the GDP	The World Bank (WDI 2017)
PLOAN	Loans granted to the private sector by banks and other financial institutions	The World Bank (WDI, 2017)
EDU	Average number of years in primary school	Barro and Lee (2013)
ODA	Official development aid	The World Bank (WDI, 2017)
FDI	Foreign direct investments	The World Bank (WDI, 2017)
IEF	Index of Economic freedom	EFW, Frazer Institute (2017)
CORR	Control of corruption	International Country Risk Guides
INVPR	Investment profile (Captures the specific protection of the property rights of investors)	International Country Risk Guides

**Source:** *authors*

Our analysis thus retains 04 variables, namely: REM, CORR, INVPR and IEF. Since the explanatory variable is calculated for 05 years periods, all the explanatory variables, both basic and control variables, are also used in 05 years averages of their annual observations. Table 2 presents their descriptive statistics.

**Table 2:** Descriptive statistics

Variable	Obs	Mean	Std. Dev.,	Min	Max
Iqc	144	0.53	0.10	0.29	0.74
Rem	143	2.18	2.89	0.00	12.55
Corr	144	2.45	0.96	0.10	5.56
Ief	122	5.55	0.89	2.77	7.36
Edu	144	4.34	2.11	0.78	9.69
Fdi	144	2.49	3.47	-4.17	30.07
Oda	143	10.28	9.36	0.08	51.80
Open	143	62.59	23.73	14.38	142.98
Invpr	144	6.53	1.67	1.15	10.54

**Source:** *Authors*

Given that it is the logarithmic version that is used in the estimations, the variable “Foreign direct investments (FDI)” undergoes a linear transformation.

### 3.2 Econometric specification

Although this study is in line with those by Chami et al. (2003) and Catrinescu et al. (2006), in order to analyse the effects of migrants’ remittances on inclusive growth, we use an endogenous growth model inspired by that of Romer (1986):

$$Y_{it} = K_{it}^{\alpha} (A_{it} L_{it})^{\beta} \quad (1)$$

However, supposing that economic outcomes are the result of the interaction between economic and institutional variables (North, 1990) in order to take into account the moderating role played by the quality of institutions given that institutions affects the capital stock following Gregorio and Lee (1998), we develop the following model:

$$Y_{it} = L_{it}^{\alpha} (A_{it} K_{it})^{\beta} \quad (2)$$

In this study, we split the physical capital stock using Foreign Direct Investment (FDI), Official Development Aid (ODA), and migrants’ remittances (TFM). The model we use takes the following form, where X is the vector of control variables:

$$qgi_{it} = rem_{it}^{\theta_1} (rem * inst)_{it}^{\theta_2} X_{it}^{\kappa} \quad (3)$$

In this equation,  $(rem * inst)$  captures the non-linear effect of remittances on the quality of growth. In other words, this variable reveals how the quality of institutions affects the ability of remittances to affect economic growth, with  $inst \in \{corr, invpro, ief\}$ .

Expressing equation (3) in log-linear form, we obtain:

$$\ln qgi_{it} = \theta_0 + \theta_1 \ln rem_{it} + \theta_2 \ln (rem * inst)_{it} + \kappa \ln X'_{it} + a_i + \gamma_t + \varepsilon_{it} \quad (4)$$

In order to take into account time and country specificities, equation (4) becomes:

$$\ln qgi_{it} = \theta_0 + \theta_1 \ln rem_{it} + \theta_2 \ln (rem * inst)_{it} + \kappa \ln X'_{it} + \gamma_t + (a_i + \varepsilon_{it})$$

For simplicity reasons, we write this equation as:

$$QGI_{it} = \theta_0 + \theta_1 REM_{it} + \theta_2 INST_{it} + \theta_3 (REM * INST)_{it} + \kappa V'_{it} + \gamma_t + (a_i + \varepsilon_{it}) \quad (5)$$

Given the dynamic structure of the model and the short time frame (T=6 observations per country) and the large number of individuals (N=24 countries), given the endogeneity bias and the reverse causality always present in the analysis of remittances and development nexus, we will use a methodological approach which account for these constraints. We have the possibility to use an external instrumentation approach (classic Instrumental Variable approach) as well as internal instrumentation approach (model auto generate its instruments as lag values of explanatories variables to which we can also add some exogenous instruments). The main difficulty with the first approach (IV approach) has been to identify robust and exogenous instruments for remittances. Consequently, we have rely on the second approach for internal instrumentation using the GMM approach. The Difference Generalized Method of Moments (DGMM) approach (Arellano and Bond, 1991) is preferred over the Systems Generalized Method of Moments (Arellano and Bover, 1995; Blundel and Bond, 1998) following the information in columns 1 to 3 of table 3 as recommended by the rule of thumb. The advantage of this method lies in the difficulty in identifying valid instruments for the remittances variable which generally suffers from the problem of endogeneity and reverse causality. Also, this approach corrects for omitted variable bias, measurement errors and the issue of unobserved heterogeneity in the panel. The difference GMM corrects problems of heterogeneity by transforming regressors into differences which are later used as instruments. This differencing also removes fixed effects in the panel.

Operationally, we transform equation (5) into differences to obtain:

$$\Delta QGI_{it} = \varphi QGI_{it-1} + \theta_1 \Delta REM_{it} + \theta_2 \Delta INST_{it} + \theta_3 \Delta (REM * INST)_{it} + \kappa \Delta V'_{it} + \gamma_t + \Delta \mu_{it}$$

With  $\Delta\mu_{it} = \Delta a_i + \Delta\epsilon_{it} \equiv (a_i - a_i) + (\epsilon_{it} - \epsilon_{it-1})$  which clearly shows the neutralization of fixed effects ( $\Delta a_i = 0$ ).

The transformed model can thus be written:

$$\Delta QGI_{it} = \phi \Delta QGI_{it-1} + \theta_1 \Delta REM_{it} + \theta_2 \Delta INST_{it} + \theta_3 \Delta (REM * INST)_{it} + \kappa \Delta V_{it}' + \gamma_t + \Delta\epsilon_{it} \quad (6)$$

In order to measure the marginal effect of remittances on inclusive growth in SSA given the institutional framework, we calculate the marginal effects by taking the partial derivative of equation (5) with respect to remittances for the estimated parameters.

We obtain the following expression:

$$\frac{\partial IQG}{\partial REM} = \hat{\theta}_1 + \hat{\theta}_2 * INST \quad (7)$$

## 4. Results, discussions and robustness checks

### 4.1. Results and discussions

Table 3 shows the short run estimates following the two stage DGMM (specifications 1 to 5). These results suggest that the effect of migrants' remittances on inclusive growth is neutral (specification 1) when these financial flows are simply introduced as additional explanatory variables into a standard growth model. This first result contrasts those of some more or less recent studies which provide evidence, at least at the microeconomic level of a positive effect of migrants' remittances on consumption, investment, education and health. This finding raises questions relating to the nature of the relationship between remittances and development. The question whether the effect of remittances is homogeneous for all countries or if it varies according to the context which is not taken into account in specification 1 arises. We thus have to take into account some contextual factors likely to generate differentiated effects of migrants' remittances in ASS. But beforehand, it should be noted that the results also show that the effects of migrants' remittances on the quality of growth is sensitive to the specification of the model. On the other hand, independently of the specification, the sign of variable remittances remains positive.

We particularly explore the role of the existing institutional framework in the SSA receiving countries on the capacity of remittances to generate and maintain an inclusive growth. In order to achieve this goal, we estimate equations 2, 3 and 4 which enable the incidence of remittances on inclusive growth to vary according to the institutional frameworks present in the beneficiary countries. This is done by the interaction between the institutional framework and migrants' remittances ( $REM * INST$ ). The sign of the coefficient of this interaction variable provides information on the contribution of remittances. Specifically, a positive and significant coefficient indicates that remittances play a complementary role

and that the institutional framework functions correctly to increase the capacity of remittances to promote inclusive growth. On the other hand, a negative and significant coefficient indicates that remittances and the institutional framework act as substitutes in the promotion of inclusive growth.

Within the framework of this study, we retain three measures of the institutional quality: the investment profile, the level of corruption (Country Risk Guide Index) and the index of economic freedom (Economic Freedom of the World of the Frazer Institute). Specifications 2, 3 and 4 present the effects of remittances when these various institutional measures are taken into account. It appears that the investment profile does not affect the remittances-inclusive growth nexus significantly although the coefficient of the variable of interaction is negative. According to specifications 2 and 4, the coefficient of the remittances variable is positive and significant at the 5% level and shows that when the level of corruption as well as economic freedom are controlled, remittances contribute to boost inclusive growth in sub-Saharan Africa. In fact, all things being equal, a 1% increase in remittances leads to an improvement of the quality of growth of 0.07% and 0.39% respectively with the control of corruption and the control of the level of economic freedom. Also, in both cases, the interaction variable has a negative coefficient that is significant at the 5% level and has a value of -0.042 for the level of corruption and -0.219 for the level of economic freedom. These results suggest that the effect of remittances on the quality of growth is positive but decreases with poor institutions in SSA. In other words, remittances contribute to reduce the social costs of corruption. Also, they reduce the losses in welfare resulting from the poor business environment and difficulties in protecting private property which, while making it difficult to protect the interests of the small entrepreneurs, reduces their incentives to start income new businesses, thus reducing entrepreneurship and explaining the persistence of unemployment. Taking these institutional configurations into account, the marginal effects evaluated from equation 7 are the following:

$$\begin{cases} \frac{\partial IQG}{\partial REM} = 0.078 + 0.042 * CORR \\ \frac{\partial IQG}{\partial REM} = 0.391 + 0.219 * ILE \end{cases}$$

Hence, overall; given the institutional context of SSA countries, a 1% increase in remittances leads to an improvement of the quality of growth by 0.07% relative to the level of corruption and by 0.37% relative to the level of economic freedom. This indicates that the potential of remittances to enhance an inclusive growth (which is a better vector of the reduction of poverty and inequalities) in SSA exists but is hampered by the level of corruption and the difficulties in starting new businesses freely and effectively.

**Table 3: Contribution of migrants' remittances to inclusive growth in SSA (1985-2014)**

<b>Dependent variable: Index of the quality of growth (IQC)</b>							
	OLS	Fixed effects	2 Stage Difference GMM				
	Upperbound	Lowerbound	(1)	(2)	(3)	(4)	(5)
L.IQC	0.820 *** (0.042)	0.359 *** (0.110)	0.801 ** (0.329)	0.639 ** (0.244)	0.618 *** (0.220)	0.820 ** (0.335)	0.795 ** (0.405)
REM	0.002 (0.006)	0.021* (0.012)	0.015 (0.033)	0.078 ** (0.036)	0.156 (0.103)	0.391 ** (0.199)	0.026 (0.025)
REM*CORR				-0.042 ** (0.021)			
REM*INVPR					-0.083 (0.057)		
REM*IEF						-0.219 ** (0.101)	
EDU	-0.008 (0.006)	0.131 (0.096)		0.069 (0.151)	0.021 (0.077)	0.085 (0.129)	0.045 (0.158)
FDI	0.000 (0.006)	0.163* (0.085)		0.011 (0.018)	0.006 (0.012)	0.005 (0.010)	-0.000 (0.024)
ODA	0.046 (0.060)	-0.019 (0.016)				-0.018 (0.025)	-0.018 (0.027)
OPEN	-0.004 (0.018)	0.004 (0.036)		-0.005 (0.055)			-0.034 (0.069)
INV	0.007 (0.015)	-0.010 (0.021)		0.004 (0.041)	0.015 (0.029)	-0.009 (0.022)	0.029 (0.027)
CORR			0.020 (0.027)	-0.061 (0.060)			0.015 (0.031)
INVPR			0.004 (0.043)		-0.062 (0.064)		-0.005 (0.059)
IEF			-0.098 (0.110)			-0.064 (0.297)	-0.082 (0.269)
Constant	-0.165 (0.108)	-0.051 (0.109)					
<b>LONG RUN IMPACT OF REMITTANCES</b>							
TFM			0.0754	0.2161**	0.4084	2.1722**	0.1268
TFM*INVPR				-0.2299			
TFM*CORR					-0.1099		
TFM*IEF						-0.5167**	
Time effect	yes	yes	yes	yes	yes	yes	yes
Observations	115	118	78	94	91	75	74
F-statistic	118.0	37.9	149.5	63.2	76.8	137.4	79.9
Country (Group)	24	24	21	24	24	21	21
Instruments	N/A	N/A	19	23	22	21	17
AR (2)	N/A	N/A	0.31	0.97	0.68	0.70	0.67
Hansen	N/A	N/A	0.34	0.31	0.16	0.40	0.16
R-square	0.93	0.57	N/A	N/A	N/A	N/A	N/A

**NB:** the values in brackets are the robust standard errors. \*\*\*, \*\* and \* represent significance at the 1%, 5% and 10% levels respectively. The OLS estimator and the “within” or fixed effects estimator act respectively as “upper bound” and “lower bound” for the coefficient of the lagged dependant variable which shows that the best estimator is that of the difference GMM rather than the system GMM. This position is further consolidated by the non persistence of the lagged dependent variable with its coefficient which is lower than 1. The number of instruments being lower than the number of groups in each specification, this validates the results of the Hansen test which indicates that our instruments are valid for each specification.

**Source:** Authors

The results in table 3 above show the short run effects. Table 3 also presents the long run effects of the remittances on inclusive growth obtained from the short run effects with the DGMM approach. These long run effects are obtained going from the equation

$$\theta_{i(LR)} = \frac{\theta_i}{1-\varphi}$$

Where  $\theta_i$  is the short run value of the coefficient of our variable of interest (i.e. REM or REM\*INST).  $\varphi$  Stands for the coefficient of the lag value of dependent variable.

These results show that in the long run, in the presence of corruption, remittances no longer have any effect on inclusive growth in SSA. However, the coefficient of the interaction variable remains negative showing the direction of the relationship between the variables. On the other hand, the absence of freedom to start a new business has an important negative and significant effect on the capacity of remittances to promote inclusive growth (- 0.51) in the long run.

As a whole, these findings highlight two main problems: (1) in the short run, remittances appear as a substitute for poor institutions and absorb the negative consequences of corruption and the difficulties in starting new businesses on inclusive growth while boosting the latter slightly; (2) in the long run on the other hand, the positive role played by remittances ends up vanishing if nothing is done to improve the institutional framework. Consequently, it appears that beneficiaries of remittances only devote the amounts received to productive activities if some key conditions are met and that migrants will only transfer more if business opportunities are exploitable in total safety.

## 4.2. Robustness checks

In order to find out whether our results are sensitive to the specification made, we have alter the specification of our model by considering only lag values of all the explanatories variables (see table 4 below). Moreover, we have also run two additional estimations in which we have not considered any control variable (see table 5 and 6 in appendix). In the specification without control variables, we have considered two different cases: case in which remittances are contemporaneous and another case in which one period lag value of remittances are used as explanatory variable. Results remain globally unchanged.



Tableau 4. Impact of lag inflows of remittances on the quality of growth in SSA

	(1) QGI	(2) QGI	(3) QGI	(4) QGI	(5) QGI
L.QGI	0.914*** (0.007)	0.945*** (0.052)	0.966*** (0.051)	0.905*** (0.043)	0.963*** (0.043)
L.TFM	0.019*** (0.005)	0.012*** (0.004)	0.008 (0.031)	0.018** (0.007)	0.008 (0.006)
L.FDI		-0.017 (0.052)	-0.061 (0.050)	-0.053 (0.044)	-0.012 (0.051)
L.APD		-0.000 (0.007)	0.005 (0.008)	0.003 (0.008)	0.002 (0.008)
L.SEC		-0.045*** (0.014)	-0.045*** (0.015)	-0.031* (0.018)	-0.037*** (0.012)
L.INV		0.034*** (0.007)	0.025*** (0.008)	0.028*** (0.007)	0.039*** (0.008)
L.INVPR			0.017 (0.015)		
L.TFM*INVPR			-0.000 (0.018)		
L.CORR				-0.042*** (0.012)	
L.TFM*CORR				-0.009 (0.006)	
L.IEF					-0.018 (0.016)
L.TFM*IEF					0.007 (0.010)
<b>LONG RUN IMPACT OF REMITTANCES</b>					
<b>L.TFM</b>	<b>0.2209***</b>	<b>0.2182***</b>	<b>0.2353</b>	<b>0.1895**</b>	<b>0.2162</b>
<b>L.TFM*INVPR</b>			<b>0.0000</b>		
<b>L.TFM*CORR</b>				<b>-0.0947</b>	
<b>L.TFM*IEF</b>					<b>0.1892</b>
Observations	119	119	119	119	119
Number of country	24	24	24	24	24
Wald	19757.04	69910.93	357897.84	134964.19	71313.11
Pvalue (Wald)	0.000	0.000	0.000	0.000	0.000
Instruments	15	19	21	21	21
AR(1)	0.007	0.007	0.006	0.0049	0.007
AR(2)	0.946	0.997	0.969	0.952	0.859
Sargan	0.314	0.287	0.241	0.246	0.274

Standard errors in parentheses.

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

## 5. Conclusion and recommendations

In this study, we evaluate the effects of migrants' remittances on inclusive growth measured by "the index of quality of growth". This study is done on a sample of 24 countries sub-Sahara African countries over the 1985-2014 period using 5 year intervals. We follow the methodology suggested by Mlachila et al. (2014) to calculate the index of the quality of growth which enables us to assess the

socio-economic benefits of remittances better than the growth rate of the real GDP per capita which is the indicator commonly used in similar studies. We also evaluate the role played by the quality of the institutions in the migrants' remittances-inclusive growth relationship. By applying the estimator of the DGMM, our results show that remittances significantly contribute to inclusive growth in sub-Saharan Africa, although the effect is relatively sensitive to the specification of the model and the indicator of the quality of the institutions used. In fact, it appears that a 1% increase in remittances leads to an improvement of the index of the quality of growth of 0.04% and 0.39% respectively with the control of corruption and the control of the level of economic freedom. On the other hand, the level of corruption and economic freedoms reduces the contribution of remittances to inclusive growth. Institutions thus play a key role in the development of the inclusive growth potential of the countries and SSA governments should consider improving the business environment and reducing corruption since it is well established that an inclusive growth constitutes a major weapon to fight against poverty and inequality and is even better than direct government interventions for this purpose. This is even more important since public policies aimed at reducing poverty by direct government interventions (cash transfers, conditional cash transfers) have shown their limits. Migrants' remittances being financial flows arriving directly into the hands of the target recipients, a better institutional framework will make it possible to better use these funds on the one hand and encourage migrants to transfer more, particularly in a context where capital is scarce (FDI, ODA) and domestic saving is by far insufficient and SSA countries highly indebted.

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## Appendices

**Tableau 5. Impact of remittances on the quality of growth with delay**

VARIABLES	(1) QGI	(2) QGI	(3) QGI	(4) QGI
L.QGI	0.914*** (0.007)	1.005*** (0.029)	0.864*** (0.027)	0.908*** (0.014)
L.TFM	0.019*** (0.005)	-0.008 (0.026)	0.018 (0.011)	0.009 (0.006)
L.INVPR		0.038*** (0.012)		
L.TFM*INVPR		0.011 (0.014)		
L.CORR			-0.042*** (0.016)	
L.TFM*CORR			-0.004 (0.008)	
L.IEF				-0.006 (0.012)
L.TFM*IEF				0.017* (0.009)
Observations	119	119	119	119
Number of country	24	24	24	24
Wald	19757.04	53985.4	287448.49	1.47E+04
Pvalue (Wald)	0.000	0.000	0.000	0.000
Instruments	17	20	22	22
AR(1)	0.0075	0.0079	0.006	0.0054
AR(2)	0.9461	0.9288	0.8742	0.8475
Sargan	0.3137	0.374	0.342	0.2967

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Tableau 6. Contemporaneous impact of remittances on the inclusive growth**

VARIABLES	(1) QGI	(2) QGI	(3) QGI	(4) QGI
L.QGI	0.933*** (0.008)	1.077*** (0.020)	0.921*** (0.014)	1.033*** (0.024)
TFM	0.023*** (0.006)	-0.021 (0.018)	0.025*** (0.009)	0.018* (0.010)
INVPR		0.060*** (0.010)		
TFM*INVPR		0.015 (0.011)		
CORR			-0.014 (0.011)	
TFM*CORR			-0.001 (0.008)	
IEF				0.079*** (0.013)
TFM*IEF				-0.009 (0.006)
Observations	119	119	119	119
Number of country	24	24	24	24
Wald	13750.27	27710.8	20890	7891.85
Pvalue (Wald)	0.000	0.000	0.000	0.000
Instruments	17	15	17	17
AR(1)	0.005	0.01	0.005	0.007
AR(2)	0.767	0.974	0.832	0.629
Sargan	0.347	0.275	0.349	0.315

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

**Tableau 7. Correlation matrix between the variables**

	IQC	TFM	CORR	PRINV	IEF	EDU	IDE	APD	OUV	INV
IQC	1									
TFM	-0.19*	1								
CORR	-0,18*	-0,08	1							
INVPR	0,26*	0,14*	0,28*	1						
IEF	0,39*	0,32*	0,05	0,46*	1					
EDU	0,69*	-0,32*	-0,17*	0,13	0,03	1				
FDI	0,31*	0,17*	-0,09	0,28*	0,25*	0,07	1			
ODA	-0,59*	0,25*	0,14*	-0,13	-0,19*	-0,55*	-0,01	1		
OPEN	0,37*	-0,10	-0,05	0,19*	0,22*	0,29*	0,37*	-0,10	1	
INV	0,21*	-0,15*	0,17*	0,36*	0,18*	0,09	0,28*	0,02	0,27*	1

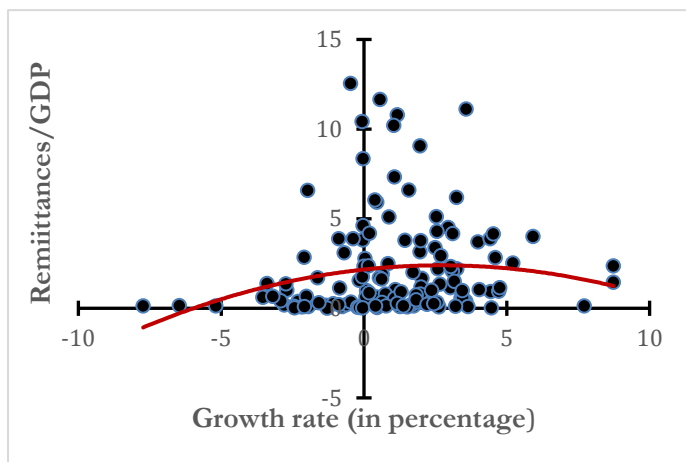
**Tableau 8. Index of the quality of the growth in the 24 countries of the sample**

		1985-1989	1990-1994	1995-1999	2000-2004	2005-2009	2010-2014
1	<b>Burkina Faso</b>	0,38	0,40	0,43	0,44	0,49	0,56
2	<b>Ivory Coast</b>	0,49	0,47	0,49	0,47	0,50	0,55
3	<b>Cameroon</b>	0,37	0,38	0,41	0,43	0,45	0,50
4	<b>Congo</b>	0,60	0,55	0,51	0,61	0,65	0,68
5	<b>Gabon</b>	0,64	0,63	0,65	0,65	0,66	0,71
6	<b>Ghana</b>	0,60	0,60	0,64	0,62	0,65	0,72
7	<b>Guinea</b>	0,35	0,35	0,40	0,48	0,54	0,58
8	<b>Gambia</b>	0,40	0,41	0,46	0,52	0,49	0,49
9	<b>Guinea-Bissau</b>	0,35	0,39	0,41	0,46	0,51	0,58
10	<b>Kenya</b>	0,58	0,57	0,58	0,62	0,66	0,74
11	<b>Madagascar</b>	0,44	0,43	0,46	0,50	0,59	0,63
12	<b>Mali</b>	0,35	0,41	0,44	0,46	0,51	0,51
13	<b>Mozambique</b>	0,40	0,37	0,42	0,42	0,53	0,62
14	<b>Malawi</b>	0,39	0,41	0,51	0,51	0,55	0,62
15	<b>Namibia</b>	0,59	0,62	0,65	0,66	0,66	0,71
16	<b>Niger</b>	0,29	0,29	0,34	0,37	0,41	0,48
17	<b>Nigeria</b>	0,57	0,56	0,57	0,60	0,60	0,61
18	<b>Sudan</b>	0,49	0,50	0,54	0,56	0,58	0,59
19	<b>Senegal</b>	0,48	0,49	0,52	0,53	0,56	0,59
20	<b>Togo</b>	0,48	0,48	0,53	0,56	0,57	0,63
21	<b>Tanzania</b>	0,54	0,50	0,52	0,56	0,63	0,66
22	<b>Uganda</b>	0,43	0,45	0,49	0,52	0,56	0,55
23	<b>South Africa</b>	0,64	0,67	0,72	0,74	0,70	0,74
24	<b>Zimbabwe</b>	0,65	0,66	0,64	0,57	0,58	0,68

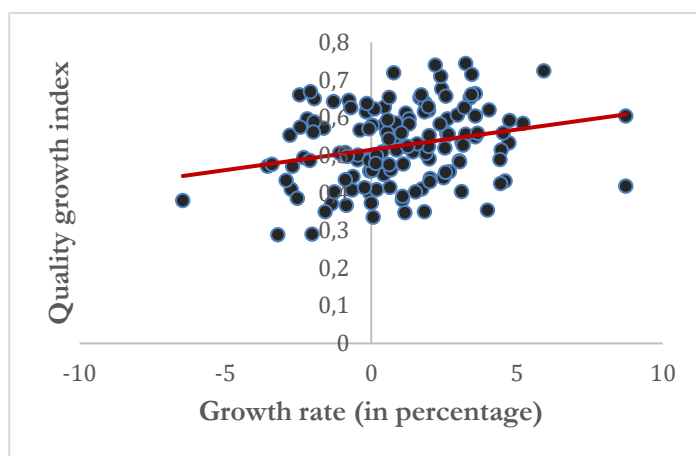
**Source:** calculation of the authors following the approach by Mlachila et al. (2014).

**Figure 3: Quality growth index and some macroeconomic**

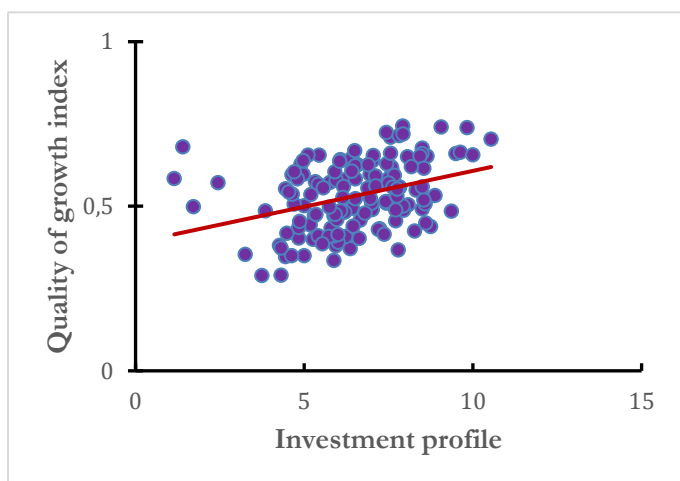
**f. Remittances/GDP by level of growth performance**



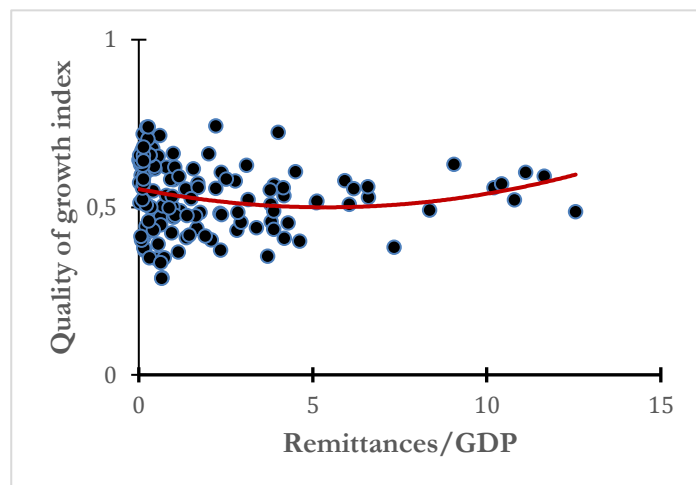
**e. Quality of growth by level of growth performance**



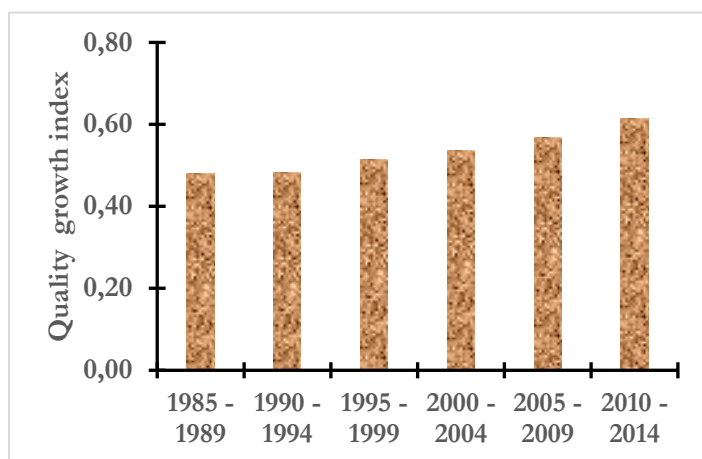
**d. Quality of growth by level of investment profile**



**c. Quality of growth by level of remittances receive**



**b. Quality of growth index in SSA over time**



**a. Quality of growth index in SSA over time**

