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Migrant Remittances and Tax Mobilization in Morocco: The Transmission Channels of the Value-Added Tax and Institutional Quality

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Abstract:

This paper empirically assesses remittances' effect on tax mobilization in Morocco. The study also addresses the role of VAT adoption and institutional quality as channels of transmission of the said effect. The estimates cover the period 1985-2019. The Generalized Method of Moments (GMM) modeling results show that migrant remittances positively influence consumption tax mobilization, including VAT and foreign trade revenues. On the other hand, remittances have a negative impact on income taxes. In interaction with the VAT tax reform variable, remittances allow for the collection of consumption taxes, mainly import VAT. However, the impact of this interaction negatively affects the income tax base. Finally, the moderating effect of institutional quality indicates that migrant remittances cause tax demobilization.

Keywords: Remittances; Tax Mobilization; Value-Added Tax; Institutional Quality; GMM.

JEL Classification : F24, H20, D02

1. Introduction

The question of the financing of economies opens the debate on several avenues of research. These avenues also represent important questions facing economic decision-makers in developing countries. However, the funding of public expenditure depends essentially on the capacity of the financial resources of each country. Hence, in a bad environment characterized by the instability of these resources, the economic recovery finds financial difficulties. Faced with this dilemma, the only possible economic resources are the increase of public borrowing, the debt, or the widening of the debt by enlarging the tax base to increase tax revenue.

As a result, finding ways to improve tax mobilization is a significant priority for developing countries to create fiscal maneuvers (IMF, 2018). Such a maneuver is an instrument that makes it possible to revive economic development in general and ensure the sustainability of public finances in particular. Faced with the complexity of the conditions of access to external debt and the low contribution of foreign aid to the development of countries, transfers of migrants' funds are an essential source of funding. According to Ratha (2005), remittances from migrants represent an alternative financial source that is crucial to the question of financing economies. Some developing countries are even more significant than financial inflows from foreign aid, bank loans, or foreign direct investment (Ratha, 2009).

Several empirical pieces of evidence have analyzed the effect of migrant remittances on various socioeconomic variables of recipient countries, including the impact on investment, consumption, economic growth, poverty and inequality. Acosta et al., (2009) assert that an increase in remittances from migrants leads to a decrease in labor supply and a rise in consumption destined for non-tradable goods. Adams et al., (2010) show that remittances contribute more to improving human and physical capital in recipient countries. Singer (2010) indicates that remittances lead to stable prosperity and benefit countries with a fixed exchange rate regime. Migrant remittances also promote financial sector development and mitigate the costs of relinquishing national monetary policy autonomy in recipient countries (Aggarwal et al., (2011)). More importantly, Lubambu (2014) suggests that remittances reduce the impact of economic recessions and boost the level of domestic production.

Few studies have addressed the link between migrant remittances and tax revenue in recent literature. Chami et al., (2008) point out that in the absence of the adoption of value-added tax, remittances from migrants hurt the tax base. In contrast, Ebeke (2010) argues that remittances lead to higher tax revenues by consuming imported goods. In 2012, Ebeke added that the flow of remittances significantly affects the indirect fiscal base because a large portion of these shipments is used for consumption.

Although this empirical work confirms that the relationship between remittances and tax revenue is rare, in a Moroccan context, few studies have focused on the determinants of remittances. Other studies have addressed the effect of remittances on economic growth and poverty reduction. To our knowledge, these research questions have received virtually no empirical attention to Moroccan tax revenues. Thus, to put the figures in perspective, remittances from the Moroccan community recorded an average of 7,42%[1] of GDP from 2000-2019. That is to say there is a significant increase compared to 1985-1999 (4.89% of GDP).

Given the above and the importance of taxation as a pillar for the new Moroccan development model, two main questions arise: To what extent do transfers from Moroccans residing abroad affect tax revenue? What about the role of VAT adoption transmission channels and institutional quality?

The main objective of this study is to examine the impact of migrant remittances on tax mobilization in Morocco while taking into account the moderating effects of VAT tax reforms and institutional quality.

Although tax is not directly imposed on remittances from migrants in most developing countries, including Morocco, the latter can be indirectly generated through the consumption of domestic and imported goods. Therefore, our work is based on specific research hypotheses that we pose as follows:

H1: Remittances from migrants positively impact indirect tax revenues and negatively impact direct tax revenues.

H2: VAT tax reforms moderate a positive relationship between remittances from migrants and tax revenues, especially those from consumption.

H3: In solid institutional quality, migrants' remittances positively impact tax revenues.

Our study will be subdivided into four parts. The first part deals with the literature review. The second is devoted to the presentation of the main stylized facts. The work methodology and the source of the variables are presented in the third part. The last part of the work will be devoted to results and discussions.

2. Literature Review

Several researchers have discussed the determinants of tax mobilization in their work. These represent the tax base level that a country can use to meet its own public expenditures. Tax revenues are affected mainly by the level of economic development, the structure of production, and socio-demographic parameters. These three determinants, among others, are considered the main factors in creating fiscal space.

The study of the determinants of tax revenues goes back to the work of Lotz and Mors (1967). These authors reveal that the most frequently used determinant is the level of economic development, as measured by GDP per capita. Indeed, countries with a high income tend to collect more taxes. Thus, the demand for public services is income elastic, so the share of

[1] Data published by the Haut-Commissariat au Plan (Morocco): https://www.hcp.ma/Effectif-des-Marocains-residant-a-l-etranger-MRE_a705.html.

goods and services provided by the government should increase tax revenues (Chelliah, 1971). The tax base is also affected by the structure of production. Stotsky and WoldMariam (1997) pointed out that countries with a very high share of agriculture in national output may have a fiscal underperformance. Furthermore, because of subsistence farming, economies typified by small farmers are notoriously difficult to tax. As a result, several countries exclude significant agricultural activity from taxation (Bird et al., 2008). Foreign trade is also identified as one of the most important structural variables through which governments might generate revenue. Agbeyegbe, Stotsky, and WoldeMariam (2006) investigate the link between trade openness, the currency rate, and tax revenue in a study of Sub-Saharan African nations. The authors used the generalized method of moments (GMM) to examine a panel of 22 countries from 1980 to 1996. According to the study, trade openness does not influence total tax collections and has a small positive effect on trade taxes. They also discover that the exchange rate does not affect tax collections. Gnangnon (2017) examined the effect of global trade liberalization on government income using a panel data set spanning 169 countries from 1995 to 2013. The findings of this study revealed that the influence is positive and reliant on a country's degree of development and domestic trade policy. Demographic variables might also have an impact on tax mobilization. According to Bahl (2003), high population expansion leads to tax revenue losses since it inhibits governments from recognizing new taxpayers. Thus, the difference between older and younger generations in terms of attitudes towards the state may affect tax collection. According to Kirchler et al., (2007), older taxpayers are characterized by a very high level of tax civic-mindedness compared to younger ones. The author argues that young people do not have the high level of necessary needs (social security and health care) that older people have. The latter might be in a better financial state. Therefore, it is easy for them to be fiscally compliant.

Beyond the factors discussed in the studies above, tax revenues are also generated by the flow of remittances. A few studies have shown that even if remittances are not taxed directly by the recipient country's government, they can increase tax revenues, particularly indirect taxes in the countries of origin. Empirical evidence from Chami et al., (2005) confirmed that remittances decrease labor supply and increase people's leisure time. This reduces income taxes. Later, Chami et al., (2008) found that the value-added tax positively impacts remittances on tax revenues, especially consumption tax. The authors, therefore, conclude that the VAT is a smoothing parameter between migrant remittances and tax revenue mobilization.

For his part, Ebeke (2010) studied the effect of migrant remittances on developing countries' tax revenues while incorporating the role of VAT. The method used is to apply the system generalized moments approach over the period 1980-2006. The estimation results showed that remittances have a positive impact on the tax base of these countries. This conclusion is explained by the fact that remittances are increasingly utilized for consumption and aid in the smoothing of private spending. The author stated that tax revenues increase significantly in countries that have adopted the value-added tax. He added, therefore, that VAT represents a crucial smoothing factor and leads to stability of the tax base of recipient countries.

In another study, Ebeke and Ehrhart (2011) examined the role of value added tax (VAT) in tax revenue stability. The authors used a sample of 103 developing countries over the period 1980-2008. Using the generalized method of moments to control for endogeneity bias, the estimation results provided evidence that VAT adoption leads to low tax revenue instability. They also claimed that countries that adopt the VAT experience 40 to 50 percent instability in tax revenues. However, this instability is much lower than in countries that have not adopted VAT in the tax system. Finally, they found that tax base instability declines with increasing levels of economic development and trade openness.

Abdih et al., (2009) examined the effect of remittances on public debt sustainability. The main finding of their study is that the inclusion of remittances in the debt sustainability analysis changes the level of fiscal adjustment required. The inclusion of remittances puts the debt on a sustainable trend. The authors added that the level of public debt sustainability needs to be increased for remittances to affect the tax base positively.

In addition, in a sample of countries in the Middle East, North Africa, and Central Asia, Abdih et al., (2012) attempted to identify the effect of remittances, which transmit exogenous shocks, including business cycles in remittance-sending countries, to public finances in remittance-receiving countries. The study suggested three findings. First, remittances appear to be highly pro-cyclical with respect to home country income. Second, remittances tend to be spent on the consumption of imported and locally produced goods rather than on investment. Third, shocks in home countries are transmitted through remittances to host countries' public finances - specifically tax revenues.

Ahlerup et al., (2015) simulated the effect of tax innovations (value-added taxes and Autonomous Tax Authorities (ARAs)) on government revenues in Sub-Saharan Africa. The dataset covered 47 countries over the period 1980-2010. The authors find that value-added tax does not impact total tax revenues in the short or long run. In contrast, the study stated that autonomous tax authorities increase the tax base in the short and medium term, but the impact dissipates in the long run. The authors concluded that tax innovations do not close the tax gap in African countries but are helpful in the short and medium term.

Astryan et al., (2016) studied the link between remittances and tax revenues. Their work also puts remittances in interaction with oil price changes. Based on a sample of 84 oil countries covering the period 1997-2005, the estimation results indicated that remittances positively and significantly impact VAT revenues via consumption. In contrast, income tax is not affected by remittances. Thus, they noted that the tax base is susceptible to oil shocks. These shocks lead to lower VAT rates and higher income tax rates.

Annen et al., (2016) assessed the macroeconomic effects of official aid and migrant remittances. Based on a panel of 85 recipient countries, the results showed that migrant remittances promote the development of foreign direct investment in the countries of origin. These investments contribute to the increase of the employed population and, consequently, an increase in direct and indirect taxes. The authors also added that public aid plays a vital role as it stimulates the transmission channels of migrant remittances.

In another study on the macroeconomic consequences of migrant remittances, Bahadir et al., (2018) suggest that remittances have two effects on economic activity. The first effect is detrimental in that migrant entrepreneurs are credit constrained. This makes their remittances contractionary. This scenario leads to a contraction in economic activity and, consequently, a decline in tax revenues. The second effect is favorable because it is linked to an expansionary situation. In this respect, the authors find that taking into account credit constraints allows encouraging young migrants' projects, which contributes to the improvement of their welfare. Thus, this second scenario stimulates the destination of migrant remittances towards productive and formal economic activity, hence increasing tax revenue collection.

Regarding Simionescu and Dumitrescu (2017), they analyzed the influence of migrant remittances on the sustainability of tax revenues in middle-income countries. The data used from 74 developing countries and collected for the period between 1989 and 2015. The estimation results highlighted a positive relationship between remittances and tax revenue. This relationship is strongly elevated when open countries have a competitive tax system.

Alabede and Ogbole (2018) treated in the case of Nigeria the effect of diaspora remittances on indirect tax revenues. The authors used the error correction model as an empirical investigation technique over the period 1980-2014. The results of the econometric analysis reveal that diaspora remittances positively impact indirect tax revenues through the consumption of business activities. However, the effect was more significant in the short run than in the long run.

Alavuotunki et al., (2019) estimated the effects of the value-added tax on tax revenue and inequality. The study includes a panel of 90 countries covering the period 1975-2010. After controlling for the endogeneity bias of the value-added tax (VAT) and inequality, the results reveal - in contrast to previous work - that the impact of the VAT on tax revenues has not been positive. The results also indicate that income inequality increased due to adopting the VAT, while consumption inequality was unaffected.

Kodjo (2019) assessed the role of VAT and excise taxes as channels for tax transition in developing countries. The study focuses on a sample of 96 countries during the period 1985-2013. The results of the modeling, conducted by GMM in the system, suggest that the adoption of value-added tax allows these countries to increase the level of tax transition. The study concludes, for example, that excise duties and VAT compensate for the loss of tax revenues associated with trade openness.

In a study of government's reaction to remittance flows, Ambrosius (2019) finds that remittance flows decrease public finances. The author explains this result by the fact that in the absence of pressure on public spending, remittances are directed towards unproductive sectors. This discourages investment and thus decreases the financial resources of the state

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budget. He noted, for example, that migrant remittances are allocated to municipal budgets and public administration expenses.

Gnangnon (2020) examined the relationship between remittance flows and fiscal space in receiving countries. The author uses panel data on a sample of 109 receiving countries covering the period 1980-2015. The estimation reveals that remittance flows contribute to the creation of fiscal space in receiving countries. In contrast, in advanced countries, remittance flows lead to a shrinking of the fiscal space. Finally, the author observes that countries with strong economic growth systematically experience an increased creation of fiscal space via remittance flows.

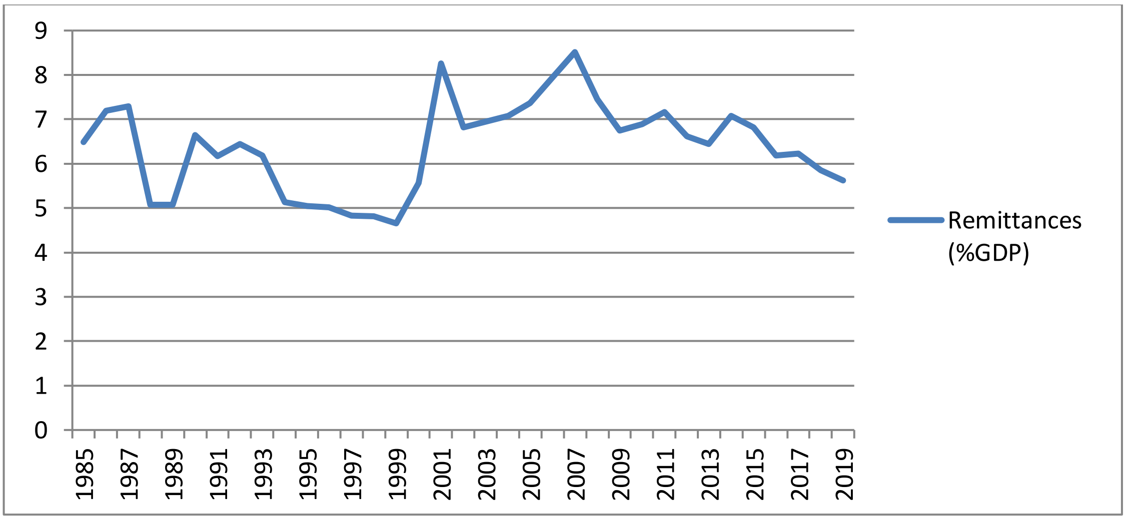
3. Stylized facts

It is appropriate to present the findings in the form of stylized Moroccan facts before proceeding to an empirical demonstration of the hypothesized relationship between remittances and tax revenues. This part of the paper analyzes the evolution of Morocco's remittances, value-added tax, and institutional quality profile.

3.1. Remittances from Moroccan migrants

Remittances are a vital source of income for thousands of households and a vital source of foreign exchange for the Moroccan economy. The community of Moroccans living abroad has undergone a remarkable evolution throughout the history of Moroccan migration. From 1.7 million in 1985, the size of this population has grown to 3.3 million in 2006 and 5.1 million in 2019. Figure (1) shows the evolution of migrant remittances as a percentage of GDP.

Figure 1: Remittances as a percentage of GDP



Source : Elaboration of the authors based on the World Bank data, (2019)

During the period 1985-1998, we note that migrant remittances followed a downward trend. This trend is linked to the abolition of the parity premium between the dirham and foreign

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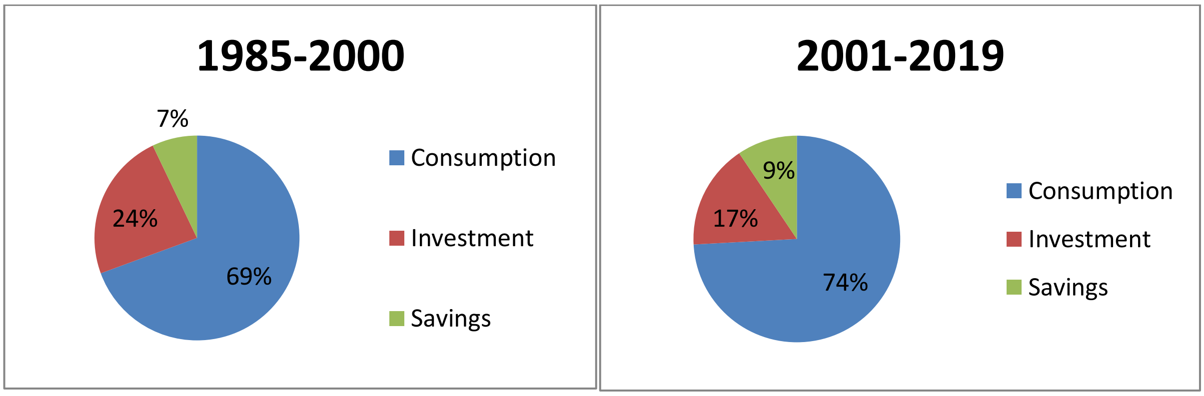
currencies in 1982, the further abolition of the exchange premium in 1988, and the reduction that took place between 1993 and 1995 (the campaign against cannabis cultivation). The average share of remittances in GDP during this period is 5.73 percent. In contrast, migrant remittances increased during the period 2000-2006. That is an average contribution of 6.87% to GDP. This increase is favored by a low inflation rate (less than 2%) and by the presence of a well-developed banking network in various host countries that can still compete with the banks of the countries of residence. From 2007 onwards, remittances have gradually declined, but they are still well above 2000. This decline is due to the international crisis of 2008 that affected the world's economies. The economic crisis brought about a change in the mentality of the second-generation youth by adopting their lifestyle on European style, resulting in a decrease in investment and, therefore, an increase in consumption (Figure 2). Indeed, according to the distribution of remittances, the level of consumption increased from 65% to 78% during the two decades. Conversely, the level of investment dropped by two points from 17% to 15% during the said decades, mainly due to the complexity of administrative procedures and high tax rates.

Figure 2: Distribution of remittances by usage

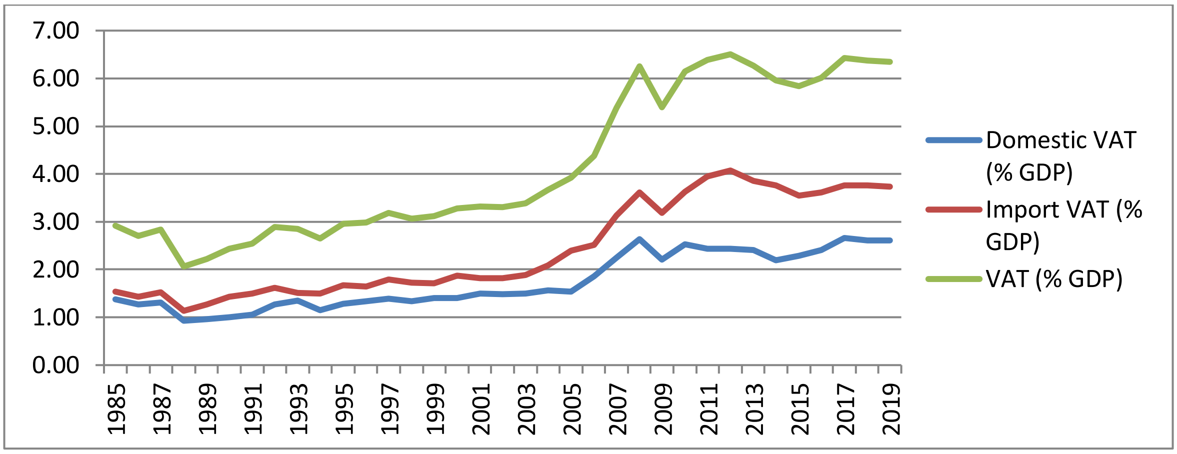


Source : Elaboration of the authors based on data from the High Commission for Planning, Morocco, (2019)

3.2.Review of the evolution of the value-added tax

For a very long time, establishing an efficient tax system that meets the Moroccan economy's requirements has been the government's ultimate goal. The value added tax is the most crucial consumption tax available to the government for raising tax revenues. Figure (3) shows that two different trends characterize value added tax. From 1985 to 2002, the rate of increase in VAT was low, mainly due to the periods of drought that affected consumer goods and, consequently, the purchasing power of consumers. Thus, during this period, the level of per capita income remains low, as it does not allow the acquisition of specific goods and services. As a result, these factors had a negligible impact on the VAT tax base. This represents an average contribution of 2.85% to GDP.

Figure 3: Evolution of the value-added tax (% of GDP)



Source : Elaboration of the authors based on data from the High Commission for Planning, Morocco, (2019)

On the other hand, from 2003 onwards, the value-added tax shows a significant increase. The share of VAT tax revenue in GDP recorded an average of 5.58% during the period 2003-2019. This tax performance is related to the increase in VAT revenue on imported products, the improvement in the national income of citizens, and the appearance of some products that are subject to consumption tax.

Moreover, figure (3) indicates that the tax collection rate of import VAT is higher than that of domestic VAT. From this, we can deduce, a priori, that migrant remittances will impact import VAT more than domestic VAT. This is a plausible descriptive finding because, in the context of globalization and trade, people pay for international products on the recommendation of their families living abroad or for e-commerce services.

3.3.Analysis of the institutional quality profile

In order to shed more light on our research problem, we deemed it appropriate to draw up a profile of Moroccan institutional quality. To do so, we used data provided by ICRG (international country risk guide) on institutional indicators. The following table shows the evolution of these indicators during the period 1985-2019.

Table 1: Evolution of institutional quality indicators in Morocco

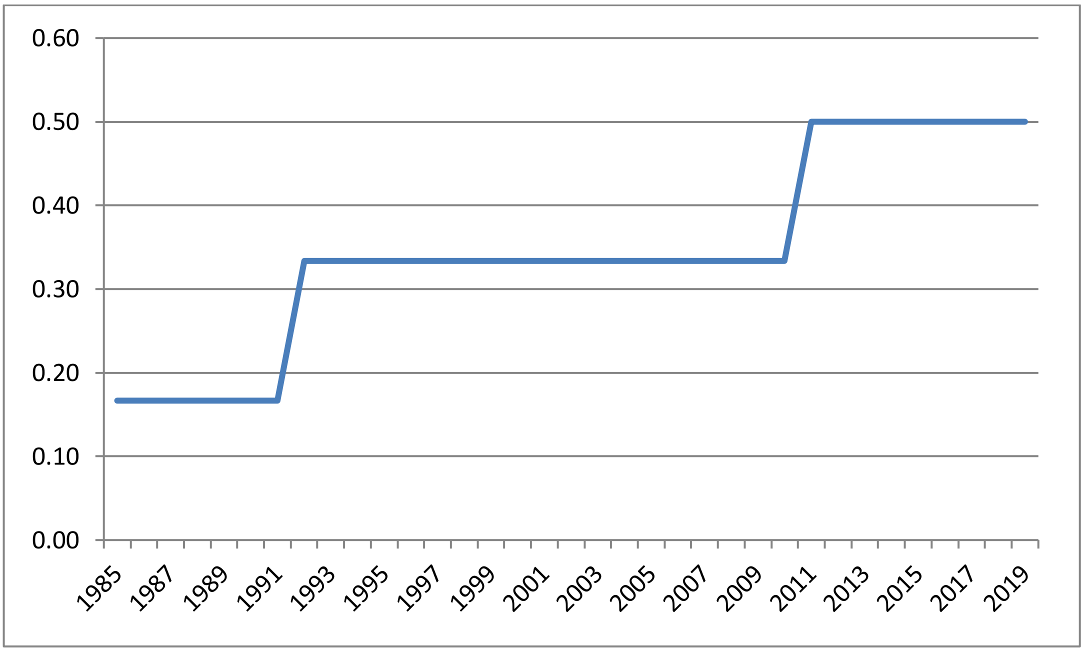
Institutional indicators	Level of performance of institutional indicators (ICRG Score)			
	1985-1994	1995-2004	2005-2014	2015-2019
Corruption	3,60	3	2	1,54
Bureaucracy	2	2,20	2	2,52
Regulatory Quality	5,20	5,84	6,82	6,40
Political Stability	8	8,32	7	8,33
Democracy	3	3	2,24	2

Source : Elaboration of the authors, International Country Risk Guide (ICRG), (2019) At the same time, as fiscal resources are considered essential and crucial to boosting the national economy, we can see, a priori, that they are linked to institutional underperformance. Indeed, the scores of the institutional indicators are quite low, indicating a deterioration in Moroccan institutions. This deterioration is related to the increase in corruption and bribery, the low quality of bureaucracy in the provision of public goods and services, the low competitiveness of the private sector in creating high value-added, and the low level of citizen participation in the political environment.

Thus, developing a strong democratic system that responds to the needs of citizens is linked to the government's commitment to enforcing laws. These laws protect the interests of individuals and promote their economic and social well-being.

The figure below shows the evolution of the index constraints on executive power during the period 1985-2019.

Figure 4: Evolution of the index of constraints on executive power in Morocco



Source : Elaboration of the authors, Polity IV Project Dataset, (2019)

We find that the political index does not exceed 0.5 points. In fact, the political authority level remains average regarding the executive's compliance with the constitution. This weak evolution leads us to wonder about the question of the holding of budgetary and fiscal power. Referring to the principle of the separation of power, the answer suggests that it is shared between the legislative and executive branches. Nevertheless, tax privileges indicate that the Moroccan executive's budgetary and fiscal powers are in the hands. It is true that the executive branch implements tax provisions that defend the interests of employers, especially in the industrial, agricultural, marine fishing, and fuel sectors. The organic law on the finance law does not strengthen the role of parliament in the debate on the effectiveness of state revenues and the issue of tax mobilization.

Thus, the evolution of the profile of institutional quality in Morocco has informed us of its dysfunction. The consequences are more serious for the sustainable stimulation of economic activity and the attractiveness of the national territory in terms of investment. Thus, the effects would be harmful to the Moroccan tax base. The latter will be collected based on weak economic activity moderated by institutional dysfunction.

4. Methodological Framework

The review of the literature provides an opportunity to identify the different channels through which remittances can impact tax revenues. These are mainly value-added tax (VAT) and the level of institutional quality. In this section, firstly, we specify the study's models, the source of the variables used, and then present the econometric estimation method.

4.1. Model specification and data source

Based on previous studies, the model specification is as follows:

$$TR\_GDP_t = \alpha_0 + \alpha_1 X_t + \alpha_2 REMT/GDP_t + \varepsilon_t \qquad (1)$$

TR/GDP: Tax revenues as percentage of GDP.

REMT/GDP: The share of remittances in GDP.

X: The explanatory variable vector. These control variables indicate the level of the tax base created by the Moroccan economy's productive capacity in terms of output and economic development.

ε: The error of specification.

The models below represent specification (1) in detail. They provide an appreciation of the relationship between tax revenues and remittances. Thus, these models capture the effect of the interaction terms, in other words, the transmission channels through which remittances affect Moroccan tax revenues.

$$TR\_GDP_t = \alpha_0 + \alpha_1 TR\_GDP_{t-1} + \alpha_2 LogGDP_t + \alpha_3 Agr\_GDP_t + \alpha_4 OPEN_t + \alpha_5 POP\ age\ (15-64)_t + \alpha_6 POP\ age\ (64+)_t + \alpha_7 VAT\ Dummy_t + \alpha_8 REMT\_GDP_t + \alpha_9 REMT_t * VAT\ Dummy_t + \varepsilon_t \quad (2)$$

$$TR\_GDP_t = \alpha_0 + \alpha_1 TR\_GDP_{t-1} + \alpha_2 LogGDP_t + \alpha_3 Agr\_GDP_t + \alpha_4 OPEN_t + \alpha_5 POP\ age\ (15-64)_t + \alpha_6 POP\ age\ (64+)_t + \alpha_7 REMT_t * INST_t + \varepsilon_t \quad (3)$$

With:

INST: The vector of variables that measure institutional quality, including corruption, bureaucracy, regulatory quality, political stability, democracy, and constraints on executive power. This vector is interacted with remittances to derive results on the role of institutional parameters in tax revenue mobilization.

The data used in this modeling are from three databases. The World Bank database is used for the economic control variables. The tax income figures come from the International Monetary Fund's (IMF) database. The factors used to assess institutional quality come from the International Country Risk Guide (ICRG) database.

The following table presents the explanatory variables selected for this study. The table also provides the expected effect of each variable.

Table 2: Description of variables used

Variables	Title	Expected sign
Control variables		
GDP	GDP per capita	(+)
Agr_GDP	The added value of the agricultural sector/GDP	(-)
Open	Trade openness, percent of GDP	(+)
POP 15-64	Population 15-64 years (% of total population)	(+)
POP 65+	Population 65 years old and over (% of total population)	(-)
REMT /GDP	Remittances as a percentage of GDP	(+)
VAT Dummy	The dummy variable that captures the tax reforms associated with the value-added tax	(+)
Variables associated with the transmission channels		
REMT *VAT Dummy	The interactive term between the remittance ratio and the value-added tax	(+)
REMT *COPT	The interactive term between the remittance ratio and corruption	(-)
REMT *Burc	The interactive term between the remittance ratio and bureaucracy	(+)
REMT *RQ	The interactive term between the remittance ratio and regulatory quality	(+)
REMT *PS	The interactive term between the remittance ratio and political stability	(+)
REMT *Democ	The interactive term between the remittance ratio	(+)

	and democracy	
REMT *CEP	The interactive term between the remittance ratio and constraints on executive power	(+)
Endogenous Variables		
TR_GDP	Total tax revenues, percent of GDP	
ITR_GDP	Income tax revenue, percent of GDP	
CIT_GDP	Corporate income tax revenue, percent of GDP	
VATDOM_GDP	Revenue from domestic value-added tax, percent of GDP	
VATImP_GDP	Revenue from value-added tax on imports, percent of GDP	
TRD_GDP	Trade tax revenue, percent of GDP	

Source: Elaboration of authors

4.2.Estimation method

The problem of the endogeneity of variables is frequently found in economic modeling studies. The risk is to assume that the explanatory variables are exogenous when, in fact, they are endogenous (simultaneity, reverse causality, omitted variable). Indeed, in the previously adopted models, migrant remittances, value added tax (VAT), and measures of institutional quality are endogenous. We address this problem through an instrumental variable estimation technique.

In the presence of explanatory variable endogeneity, the OLS estimator is no longer efficient inasmuch as the regressors are associated with the error term. As a result, in the presence of delayed explanatory or explanatory factors, this estimate approach remains incorrect. To address the hypothesis violation problem, we employ the generalized method of moments (GMM), which entails identifying the endogenous variable and linking it with a set of robust instruments.

The problem of endogeneity of remittances is a major issue in our econometric specifications. It is true that migrants send more money to maintain the purchasing power of their families, especially when disposable incomes are low. Thus, the endogeneity of remittances occurs when individuals leave the country, lowering labor tax revenues and the total tax base.

The adoption of the value added tax is also endogenous as the tax administration carries out tax reforms of this tax. The adoption of VAT in a tax system increases the efficiency of tax mobilization.

We are also careful not to capture an inverse causal relationship between measures of institutional quality and tax revenue. Brid et al., (2014) state that a good institution leads to higher tax collection. In the other direction, increased tax revenue mobilization contributes to institutional improvement.

Since the orthogonality of errors assumption is violated for the OLS method, we use the lagged values of the endogenous variables (remittances, VAT, and institutional quality measures) as instruments in the generalized method of moments estimation.

The first stage in the approach of estimation using instrumental variables is to estimate the models using GMM. The endogeneity test is performed in the second stage using the Wu Hausman test. The final stage is to validate the instruments using the Sargan test.

5. Results and Discussion

In this section of our research, we conduct an econometric analysis of the influence of migrant remittances on the structure of Moroccan tax revenues. We also address the moderating effect of VAT and institutional quality. To do so, we have specified six specifications to keep the estimated models' robustness and avoid the problem of multicollinearity between the explanatory variables.

The statistical results show that the estimated models are globally significant and fit well. In each econometric specification, the coefficient of determination is high.

The Wu-Hausman test confirms the status of endogeneity of the following variables: migrant remittances, VAT tax reforms, and institutional quality indicators. The probabilities associated with the Wu-Hausman test are less than 5 percent, which allows the null hypothesis of the exogeneity of the variables to be rejected.

The Sargan over-identification test allows us to accept the null hypothesis: the instruments are valid. Indeed, the probabilities associated with Sargan's test are higher than 5%.

The economic modeling findings are presented in the tables below:

Table 3: Results of the impact of remittances on Moroccan tax revenues: the value-added tax (VAT) channel

Estimator: Generalized Method of Moments (GMM) Robust Check						
Specifications	(1) TR/GDP	(2) ITR/GDP	(3) CIT/GDP	(4) VATDOM/ GDP	(5) VATImP/ GDP	(6) TRD/ GDP
Lag. Var dep	0,351*** (0,002)	0,572** (0,208)	0,548*** (0,010)	0,862*** (0,006)	0,765*** (0,022)	0,441 (3,050)
LogGDP	9,653*** (0,010)	5,104*** (0,002)	4,107** (0,087)	5,809*** (0,024)	2,471 (1,519)	1,002 (0,950)
Agr/GDP	-1,025*** (0,013)	-0,930** (0,073)	-0,073 (0,904)	-0,142*** (0,011)	-0,281*** (0,019)	-0,098*** (0,010)
Open	-0,215** (0,019)	0,101** (0,017)	0,220** (0,050)	0,178* (0,094)	-0,097*** (0,010)	-0,090* (0,086)
POP[15-65]	0,847*** (0,001)	0,494*** (0,030)	0,421*** (0,031)	0,593*** (0,020)	0,614*** (0,007)	0,597 (4,110)
POP[65+]	0,585*** (0,000)	-0,612*** (0,005)	-0,408*** (0,002)	0,733*** (0,001)	0,250* (0,107)	0,109 (0,731)
VAT Dummy	0,850*** (0,009)	…..	…..	0,178*** (0,000)	0,296*** (0,029)	0,140*** (0,071)

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REMT/GDP	-0,750*** (0,009)	-0,350** (0,401)	-0,527*** (0,004)	0,220*** (0,015)	0,460*** (0,020)	0,440*** (0,010)
REMT* VAT Dummy	0,950*** (0,004)	-0,214 (0,494)	-0,471* (0,900)	0,651** (0,080)	1,473*** (0,016)	0,497*** (0,046)
C (Intercept)	5,329*** (0,040)	7,509* (0,703)	6,327* (0,402)	4,703** (0,407)	5,444 (1,743)	8,310*** (0,040)
R^2	0,875	0,842	0,860	0,826	0,923	0,847
Wu-Hausman	0,000	0,010	0,003	0,027	0,047	0,050
Sargan	0,150	0,274	0,162	0,705	0,104	0,520

Notes :

a. Dependent variables: (1): Total tax revenue/GDP ; (2) Income tax revenue/GDP ; (3) : Corporate tax revenue/GDP; (4) : Revenue from domestic value-added tax /GDP ; (5) : Revenue from value-added tax on imports /GDP ; (6) : Trade tax revenue /GDP.

b. Endogenous explanatory variables: remittances and value-added tax.

c. (.): In brackets the standard deviations of the estimators.

d. Significance levels: *** 1% ; ** 5% ; *10%.

Source: Elaboration of authors

Table 4: Results of the impact of remittances on Moroccan tax revenues: the institutional quality channel

Estimator: Generalized Method of Moments (GMM) Robust Check						
Specifications	(1) TR/GDP	(2) ITR/GDP	(3) CIT/GDP	(4) VATDOM/GDP	(5) VATImP/ GDP	(6) TRD/ GDP
Lag. Var dep	0,614*** (0,001)	0,537*** (0.007)	0,590*** (0.027)	0,843*** (0.000)	0,689*** (0,060)	0,419 (1,807)
LogGDP	9,850*** (0,010)	5,628*** (0.010)	5,149** (0.087)	6,462*** (0.025)	2,972 (2,094)	-0,879* (0,092)
Agr/GDP	-0,940*** (0,007)	-0,846* (0.093)	-0,148* (0.093)	-0,353*** (0,040)	-0,204** (0,097)	-0,127*** (0,007)
Open	-0,190*** (0,009)	0,160*** (0.001)	0,212** (0.037)	0,176* (0.091)	-0,105*** (0,040)	-0,151* (0,094)
POP[15-65]	0,708** (0,530)	0,953*** (0,008)	0,734*** (0,030)	0,633* (0,503)	0,671* (0,076)	0,472 (0,907)
POP[65+]	0,432*** (0,001)	-0,710***	-0,941*** (0,002)	0,470** (0,250)	0,448* (0,807)	0,112 (2.059)

		(0,041)				
REMT*COPT	-0,941*** (0,032)	-0,429** (0,207)	-0,529*** (0,001)	-0,408*** (0,008)	-0,343*** (0,029)	-0,182*** (0.071)
REMT*BURC	-0,845*** (0,002)	-0,586*** (0,030)	-0,414*** (0,010)	-0,307* (0,401)	-0,217*** (0,020)	-0,440 (3.504)
REMT*RQ	-0,950* (0,709)	-0,209 (2,494)	-0,471* (0,911)	-0,651 (1,387)	-0,473*** (0,016)	-0,497** (0.906)
TEMT*PS	-0,790* (0,881)	-0,509** (0,620)	-0,704*** (0,004)	0,206* (0,900)	0,196* (0,70302)	0,093 (6,029)
REMT*DEMC	-0,970*** (0,015)	-0,568*** (0,030)	-0,609** (0,069)	-0,551*** (0,001)	-0,413** (0,141)	-0,219 (4,514)
REMT*CEP	-0,950*** (0,009)	-0,773*** (0,020)	-0,841** (0.107)	-0,553** (0.091)	-0,521** (0.101)	-0,279*** (0,005)
C (Intercept)	12,649** (0,011)	19.358* (0,089)	30,405*** (0.009)	14.954* (0.506)	10,932*** (0.000)	8,310*** (0,040)
R^2	0,923	0,891	0,951	0,884	0,873	0,905
Wu-Hausman	0,006	0,000	0,058	0,017	0,063	0,023
Sargan	0,126	0,292	0,140	0,614	0,910	0,119

Notes :

a. Dependent variables: (1): Total tax revenue/GDP ; (2) Income tax revenue/GDP ; (3) : Corporate tax revenue/GDP; (4) : Revenue from domestic value-added tax /GDP ; (5) : Revenue from value-added tax on imports /GDP ; (6) : Trade tax revenue /GDP.
b. Endogenous explanatory variables: The interactive terms between remittances and indicators of institutional quality.
c. (.): In brackets the standard deviations of the estimators.
d. Significance levels: *** 1% ; ** 5% ; *10%.
Source: Elaboration of authors

The results in a table (3) show that remittances have a negative effect on tax revenues from the ITR and the CIT. Regarding the negative effect on income tax (ITR), this result can be explained by the reduction in labor supply and the increase in leisure (Chami et al, 2005). Certainly, many Moroccan citizens rely much more on remittances from their families, which reduces the willingness of people to work. As for the negative impact on corporate income tax (CIT), this is due to the low level of remittances for investment purposes. This result confirms the work of Chami et al (2008), as low migrant investment leads to a contraction of domestic production and thus a significant decline in tax revenues.

In contrast, both VAT revenues (domestic and import) are positively affected by remittances. This confirms the basic assumption that remittances increase government tax revenues by consuming non-tradable and tradable goods. We also find that trade taxes are positively related to remittances, which proves that external demand plays an important role in tax revenue mobilization.

Thus, the economic modeling results reveal that introducing the value-added tax increases the level of tax collection. A 1% increase in value-added tax leads, all else being equal, to an increase of 0.85% in total tax revenue, 0.178% in domestic VAT, 0.296% in import VAT, and 0.14% in trade revenue.

The moderating effect states that in the presence of the value-added tax, migrant remittances lead to a significant increase in tax revenues, especially those linked to consumption. The interactive term (REMT*VAT) leads, all other things being equal, to an increase of 0.95% in total tax revenues, 0.651% in domestic VAT, 1.473% in import VAT, and 0.497% in trade revenues. However, the said term negatively affects personal and corporate income taxes. These results remain valid for our research hypotheses.

In conducting the objectives of our work, table (4) provides results on the role of institutional quality in the relationship between remittances and Moroccan tax revenues. The modeling results indicate that in interaction with indicators of institutional quality, remittances negatively influence the tax base's structure. This result is mainly explained by the weakness of Moroccan institutions in improving the living conditions of this citizen community residing abroad.

Indeed, the extent of corruption in public administration makes migrant remittances a target for public officials. As a result, the distribution of bribes hinders the level of investment by this community, which reduces the amount of tax revenue for the state and any attempt at national or regional development. He also added that the high rate of tax pressure pushes migrants to practice fraud and tax evasion behaviors while engaging in informal activities. Therefore, in case of detection of these behaviors, migrant taxpayers distribute bribes to protect their funds in informal investment, reducing the state budget's tax base.

Thus, the estimation of the interaction of remittances with the bureaucracy index shows a negative effect on the tax structure. This result is due to the poor quality of Moroccan bureaucracy. This is due to the complexity of tax administration procedures, the poor reception of migrant taxpayers, the long process of processing and evaluating projects. As a result, any ambitious investment initiative on the part of migrants finds administrative constraints. In other words, it must be recognized that those who need these resources the most are also those who have the most difficulty mastering tax collection management and developing a culture of citizenship among their taxpayers.

Similarly, the estimated interaction of remittances with regulatory quality negatively impacts tax revenues. This result suggests that government policies to improve the private sector are weak. They do not allow for a revival of economic activity. Given that tax revenues are derived mainly from such activity, the low quality of regulation does not encourage investment by migrants, which reflects a loss of tax revenue.

In interaction with political stability, remittances are positively related to consumption tax revenues. This interactive term proves that Morocco's political stability plays an essential role in tax mobilization, particularly consumption tax mobilization. Nevertheless, the term negatively correlates with income and corporate income tax revenues. This finding asserts that political stability is a necessary but not sufficient condition to improve the level of investment and generate tax revenues for businesses and individuals. The migrant entrepreneur is also looking for a competitive country in terms of skilled labor and high technology. In the absence of these factors, political stability plays no role in tax collection.

The modeling results suggest that democracy moderates a negative relationship between remittances and tax revenues. Admittedly, the level of democracy is low to the extent that it remains neutral for Moroccan economic policy recommendations. It also leads to a distrust of government by migrant investors and hence a lack of tax compliance. When migrant taxpayers observe that interest groups benefit from several tax facilities, this leads to a feeling of tax injustice among them and thus to tax evasion and avoidance behavior. As a result, the level of the tax base of migrants is decreasing due to the absence of the basic mechanisms of tax democracy.

The econometric estimation shows that the negative effect of remittances on tax revenues is associated with weak government execution. This weak implementation is due to the absence of measures to improve the situation of migrants in their country of origin, in particular the facilitation of administrative procedures, the reduction of the tax burden, access to financing, and support for investment projects. In addition, the weakness of legislation and the increase in parliamentary lobbies that only defend their investments do not give young migrants' projects a chance. As a result, remittances do not allow for tax mobilization.

Concerning the control variables, we find that the estimated coefficients largely coincide with previous results in the economic literature. GDP per capita is positively and significantly correlated with the tax structure. This confirms the postulate that the ability to collect and pay taxes increases with the level of economic development. However, GDP per capita has a negative impact on foreign trade receipts and is insignificant for import VAT receipts. This can be explained by the rise in prices of tradable goods, which is also due to periods of exchange rate depreciation. We thus find a negative and significant relationship between agriculture's share and tax revenues' structure. It is true that the Moroccan economy is characterized by a large share of agricultural GDP, tax exemptions, and substantial agricultural activities. These factors reduce the amount of tax revenue. The degree of trade openness is negatively related to trade taxes. This result is due to the effects of free trade agreements and tariff dismantling that weaken the customs base. The loss of trade taxes is offset by an increase in domestic taxes, including domestic VAT, income tax, and corporate income tax. Finally, the estimation was able to show that the proportion of the population aged between 15 and 64 positively affects the tax structure. This finding indicates that young people consume more and engage in economic activities that allow them to deduct taxes. On the other hand, the elderly negatively influence income tax revenues. This is due to the absence of economic activities in this age group. However, consumption tax revenues, mainly VAT, are positively affected by this high consumption age group.

6. Conclusion

Remittances from migrants constitute an important financial flow to their country of origin. Households use this money received from migrants for their private consumption and investments. In this context, the tax revenues collected from this community living abroad represent an important source of income for the state budget.

We recall that the main objective of this study is to empirically assess the effect of remittances on tax revenue mobilization in Morocco. Thus, the study considers the role of VAT adoption and institutional quality in explaining this effect. The estimates cover the period 1985-2019.

Using the Generalized Method of Moments (GMM), the modeling results show that remittances positively impact domestic and import VAT revenues. This impact confirms our central hypothesis that remittances increase government tax revenues through the consumption of non-tradable and tradable goods. In contrast, the relationship between remittances and income tax revenues is statistically negative. It is explained by the reduction in labor demand and the increase in leisure time, which results in a shortfall in the state budget. The econometric results also state that adopting VAT tax reforms increases tax mobilization.

The estimation of our econometric specifications indicates that VAT tax revenues increase when migrant remittances interact with VAT tax reforms. The interaction effect is more significant on import VAT than on domestic VAT. Conversely, the interaction term is statistically negative on income tax revenues. This result proves that remittances are directed to consumption at the expense of the investment level of the Moroccan community living abroad.

Finally, the modeling results reveal that institutional quality plays an unfavorable role in the relationship between remittances and tax mobilization. Indeed, indicators of institutional quality moderate the negative impact of remittances on tax revenues. This finding is due to the weakness of Moroccan institutions, which manifests itself in high levels of corruption, low quality of public services, low competitiveness of the private sector, and weak government execution.

Despite the efforts of Moroccan migrants to integrate massively into the national territory, some challenges hinder the improvement of their socioeconomic status. As a result, our study suggests that improving the quality of institutions remains a top priority for Morocco. The latter allows for the effective shaping of the financial resources of global Moroccans so that they can participate in the country's economic and social development.

In a future perspective of enriching our work, another avenue of research can be pursued: the role of financial development in the relationship between migrant remittances and tax collection. Thus, a comparative analysis between a panel of countries appears interesting for our purposes.

Notes

1 Corruption and democracy take values from 0 to 6 (corruption: 0 high, 6 low; democracy: 0 low, 6 high). Bureaucracy takes values from 0 (low bureaucracy) to 4 (high bureaucracy). Regulatory quality and political stability take on values ranging from 0 (low level) to 12 (high level).

2 The political variable "constraints on executive power" index rank countries between 0: limited political authority and 1: unlimited political authority. This index comes from the Polity IV Project Dataset.

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