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Tax Revenue Mobilization in Sub-Saharan Africa: Does political Legitimacy Matters?

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Abstract

The mobilization of substantial domestic resources is required to finance human and physical capital in order to achieve the sustainable development goals. In developing countries like those of Sub-Saharan Africa, the mobilization of tax revenues remains a great challenge. In this context, identifying the determinants of fiscal capacity remains crucial to guide the adoption of appropriate fiscal reforms. Therefore, as part of the wave of literature on the institutional and political determinants of fiscal capacity, this article explores the effect of political legitimacy on tax revenues in a sample of 41 SSA countries over the period 1996-2017. The system GMM in two steps estimator is used for empirical investigation. The result shows that tax revenue increases with political legitimacy. This result suggests that political legitimization in SSA remains crucial to mobilize more resources in order to adequately finance the development.

Keywords

tax revenue, political legitimacy, panel data, Sub-Sahara Africa

1. Introduction

The mobilization of substantial financial resources is necessary to achieve the Sustainable Development Goals (SDGs) by 2030. Given the volatility and unpredictability of official development assistance and the need for sustainable public debt, the focus in developing countries will be on domestic tax revenues. The mobilization of domestic tax revenue makes it possible to fund the accumulation of physical and human capital, the ingredients necessary for robust economic growth.

Likewise, it enables the provision of public services, in particular to the poorest sections of the population, and in turn to ensure inclusive development (Babatunde, Ibukun, & Oyeyemi, 2017).

In view of its pivotal role in the development process, researchers questioned the determinants of tax revenues. In this vein, the first works looked at structural and macroeconomic factors such as per capita income, the size of foreign trade sector, the sectoral composition of Gross Domestic Product (GDP), inflation, trade openness and population (Lotz & Morss, 1967; Shin, 1969; Lotz & Morss, 1970). For these authors, these factors, in determining the tax base, explain the difference in tax revenues across countries. However, they recognize that these factors alone do not explain the difference in fiscal capacity between countries. For example, in his empirical analysis, Shin (1969) found that per capita income, the rate of change in prices, the population growth rate, the foreign trade and the agricultural share in GDP explain 73% of total variation in the tax ratio in a sample of 47 high and low income countries, 18.9% in the high income countries and 47.4% in the 31 low income countries. Other factors must therefore be explored.

In this context, the authors have highlighted the relevance of institutional and governance factors in the ability of countries to raise taxes. Empirical evidence show that corruption, the voice and accountability and the political stability among others influence tax revenues (Ghura, 1998; Gupta, 2007; Bird, Martinez-Vazquez, & Torgler, 2008; Epaphra & Massawe, 2017). In the same logic, to better understand the gap in fiscal capacity between countries, DiJohn (2007) suggests taking into account the political nature of taxation. Indeed, a country's tax system is a reflection of its political institutions (Bird, Martinez-Vazquez, & Torgler, 2014). In accordance with his point of view, it is increasingly recognized that theoretically, political legitimacy, by improving voluntary tax compliance, facilitating the broadening of the tax base and the success of tax reforms, affects tax revenue (Fauvelle-Aymar, 1999; DiJohn, 2007; Bird, Martinez-Vazquez, & Torgler, 2014). This paper contributes to the literature by empirically investigating the effect of political legitimacy on tax revenue in Sub-Saharan Africa (SSA).

In Africa, especially in its sub-Saharan part, mobilizing tax revenue to fund public services provision and infrastructures to achieve the SDGs remains a great challenge. The average tax-to-GDP ratio was 17.2% in African countries in 2017, against 22.8% and 34.2% respectively for Latin America and Caribbean and OECD countries (OECD/ATAF/AUC, 2019). Moreover, the International Monetary Fund (2018) reported that SSA has the lowest revenue-generating capacity compared to other regions in the world, despite its progress in recent years. Similarly, there are significant differences in fiscal capacity between the countries of the region. In 2017, the share of tax revenue in the GDP ranged from 5.7% in Nigeria to 31.5% in the Seychelles (OECD/ATAF/AUC, 2019).

The rest of the paper is organized as follows. The section 2 presents literature review. The section 3 describes the methodology used for empirical investigation. The section 4 presents and discusses the empirical findings. The last section concludes.

2. Political Legitimacy and Tax Revenue: A Brief Literature Review

In this section, the concept of political legitimacy is reviewed before the link between it and tax revenue is established.

2.1 Concept of Political Legitimacy and Its Components

According to Tyler (2006), legitimacy is «the belief that authorities, institutions, and social arrangements are appropriate, proper, and just». For the author, by virtue of legitimacy, citizens feel that they ought to defer to rulers' decisions and rules, following them voluntarily out of obligation rather than out of fear of punishment or anticipation of reward. A trustworthy government that operates according to procedural justice spawns legitimacy beliefs (sense of obligation and willingness to obey or value-based legitimacy), which thereafter leads to greater compliance (behavioural legitimacy) (Levi & Sacks, 2009; Levi, Sacks, & Tyler, 2009; Levi, 2019). Political legitimacy is then a popular approval of rulers by citizens and their compliance with government regulations and laws (Fauvelle-Aymar, 1999; Levi & Sacks, 2009; Levi, Sacks, & Tyler, 2009). This means that a legitimate government is one whose selection, the exercise of power and policies are widely accepted (Levi, 2019).

Political legitimacy has two components: procedural justice and trustworthiness of government (Levi, Sacks, & Tyler, 2009). Beside, in the literature, it is sometimes conceptualized as the rule of law (Tamanaha, 2012; Ramcilovic-Suominen & Epstein, 2015; Canevaro, 2017), sometimes as trust or confidence in government (OECD, 2013; Berggren, Bjørnskov, & Lipka, 2015).

The first facet of government legitimacy, procedural justice, modulates the people behaviour. Indeed, citizen behaviour is a function of the extent to which the procedures of government are consistent with the principles of the rule of law (Levi, Sacks, & Tyler, 2009). Thereby, the rule of law is a major source of legitimation for governments in the modern world (Tamanaha, 2012; Canevaro, 2017). It means that government officials and citizens are both bound by and abide by the law (Tamanaha, 2012) and has two aspects (Levi, Sacks, & Tyler, 2009). The first is that the government procedures are neutral, transparent, and rule based. The second aspect means that these procedures are respectful both of citizens as people and of their rights as members of the political community. A government that abides by the rule of law is seen as good and worthy of respect and is more legitimate when its actions is viewed by citizens to be consistent with fair procedures and rules (Tyler, 2006; Tamanaha, 2012). In addition to shared values, legitimacy requires the proof that rulers act in accordance with commonly accepted principles (Levi, 2019).

In general, the legal framework of taxation requires that its collection comply with the rule of law (Vanistendael, 1996). Therefore, no tax can be collected unless the law expressly provides for it, and it must be applied impartially. Taxation according to the rule of law gives citizens protection from arbitrary taxation by tax authorities, assures them certainty or predictability in taxation and reinforce power credibility and legitimacy.

The second dimension of legitimacy, trust, is a form of general social capital associated with a society and means holding a positive perception about the actions of an individual or an organization (OECD,

2013; Anderson, 2017). According to OCDE (2013), trust in government matters because it is one of the most important foundations upon which the legitimacy and sustainability of political systems are built. Moreover, it affects governments' ability to govern and enables them to act without having to resort to coercion.

2.2 Link between Political Legitimacy and Taxation

Political legitimacy matters for mobilizing greater tax revenue domestically to ensure public investments required for economic and social development. It does not only improve moral and tax compliance but also expands the tax base and reduces tax evasion through the use of resources by taxpayers.

2.2.1 Political Legitimacy and Tax Compliance

The legitimacy of government is an essential determinant of the fiscal capacity of countries through its effect on taxpayers' behaviour. Indeed, a strand of literature revealed that the extent to which countries can extract revenues through taxation at any given level of economic activity depend on taxpayers' compliance (Papp & Takáts, 2008; Alabede, Ariffin, & Idris, 2011; Gaber & Gruevski, 2012; Besley & Persson, 2013; Varotsis & Katerelos, 2020). Tax compliance refers to the willingness of individuals and other taxable entities to act in accordance with the spirit as well as the letter of tax law and administration without the application of enforcement activity (James & Alley, 2002). Otherwise, it is the compliance with reporting requirements, meaning that the taxpayer files all required tax returns at the proper time and that the returns accurately report tax liability in accordance with the internal revenue code, regulations and court decisions applicable at the time the return is filed (Devo, 2005).

However, taxpayers' perceptions of the government's legitimacy determine tax compliance attitudes and behaviours. As political legitimacy theorists so well point out, citizens are all the more inclined to pay the tax when they consider that public authorities are legitimate (Fauvelle-Aymar, 1999; Tyler, 2006; Bird, Martinez-Vazquez, & Torgler, 2008; Berggren, Bjørnskov, & Lipka, 2015; Castañeda-Rodríguez, 2018). This is all the truer since many tax systems around the world rely on voluntary compliance of taxpayers (Jimenez & Iyer, 2016). When the governments and the institutions are legitimate, citizens have a predisposition to consider obedience to them as reasonable and appropriate and comply with tax law (Bird, 2013). Tax compliance becomes, in some ways, a habit. In this case, peoples are more likely to entrust public officials with their money. Thus, legitimacy boosts quasi-voluntary tax compliance (Lledo, Schneider, & Moore, 2004), and subsequently the level of tax revenue. In addition, Yogo and Njib (2018) argued that a more political competition induces more political legitimacy and increases the consent of citizens to pay taxes.

Conversely, low legitimacy of government increases citizens' tax opposition and reduce tax revenue. The less the citizens believe that the government is legitimate, the less they will accept their obligation to give it the revenue it needs to govern (Fauvelle-Aymar, 1999). The positive link between political legitimacy and tax compliance proxy variables is broadly supported by many survey-based empirical evidences (Birskyte, 2014; Gobena & Dijke, 2016; Anderson, 2017; OECD, 2019). For example,

OECD (2019) reveals that in Africa, trust in government positively influence tax moral and in turn voluntary tax compliance and tax revenues. However, in a study based on four SSA countries, Ali, Fjeldstad and Sjursen (2014) found that there is no significant link between political legitimacy and tax compliance.

Moreover, as Torgler (2012) pointed out, the relationship between taxpayers and government is a relational contract. This contract based on taxation needs to be maintained and validated continuously, which in turn is more likely when the government is seen as legitimate by a majority of taxpayer (Castañeda-Rodríguez, 2018).

2.2.2 Political Legitimacy and Success of Tax Reforms

A substantial increase in tax revenue in developing countries requires the adoption and implementation of sustainable tax policy reforms (Akitoby, Baum, Hackney, Harrison, Primus, & Salins, 2020). To be successfully implemented, these reforms require the approval from a variety of social actors and must be endogenous (Lledo, Schneider, & Moore, 2004; Bird, 2013; Hassan & Prichard, 2016). In other words, the success of reforms depends on their legitimacy and therefore stands for political legitimation (Lledo, Schneider, & Moore, 2004; DiJohn, 2007; Bird, Martinez-Vazquez, & Torgler, 2014). In the case of Bangladesh, Hassan and Prichard (2016) reported that failure to reform the tax system repeatedly is linked to resistance to change in the business, political and administrative community.

2.2.3 Political Legitimacy, Tax Base and Tax Evasion

In addition to voluntary tax compliance and tax reforms success, political legitimacy affects tax revenues by expanding the tax base and limiting tax evasion. Indeed, as Berggren, Bjørnskov and Lipka (2015) suggested, in an environment marked by the weak legitimacy of leaders, individuals are more encouraged to take measures in the form of rent seeking or tax evasion to protect their income.

The search for rent leads to the allocation of resources to unproductive activities, thus limiting economic growth. In a context of distrust atmosphere, citizens and businesses become more risk-averse, delaying investment, innovation and employment decisions (OECD, 2013). This atmosphere reduces individuals' incentives and achievements, and increases the cost of doing business (Birskyte, 2014). Conversely, trust fosters a better environment for the operation of the economy and the creation of businesses (Castro & Camarillo, 2014). Legitimacy creates a psychological effect among the population, leading it to consider a given tax level as less burdensome (Berggren, Bjørnskov, & Lipka, 2015). The authors argue that if the citizens consider government to be legitimate, they are more likely to approve the way that he uses tax revenue, which provides a motivation to work and invest more at given tax rates compared to a situation where government legitimacy is low (Berggren, Bjørnskov, & Lipka, 2015). Accordingly, legitimacy creates an environment for improving the tax base and therefore increasing tax revenue while the deficit of legitimacy erodes the tax base and consequently reduces tax revenues.

Similarly, when citizens consider that the authorities are illegitimate, they are more inclined to carry out tax evasion with the aim of protecting their income. Tax evasion is done either inside or outside the

country. Internally, taxpayers take shelter in the informal sector. However, the shadow economy is difficult to identify and tax, and tax revenues fall with its size (Keho, 2015). At the external level, taxpayers' resort to capital flight, preferring to keep their assets in foreign countries. This has the consequence of reducing the amounts liable to be collected in the form of taxes and consequently tax revenue.

3. Methodology

In this section, the empirical model is first specified. Then the variables used and their source are presented. Finally, the choice of estimation method is justified.

3.1 Empirical Model Specification

To evaluate the link between political legitimacy and tax revenue, we propose the following functional form:

$$TR = f(PL, X) \quad (1)$$

In this equation, tax revenue is a function of Political Legitimacy (PL) and a set of control variables (X). The control variables are chosen in accordance with the literature on the determinants of tax revenue, in particular the first empirical investigations (Lotz & Morss, 1967; Shin, 1969; Lotz & Morss, 1970) and the work devoted to SSA countries (Ghura, 1998; Epaphra & Massawe, 2017). They include per capita GDP, the sectoral composition of output, the degree of trade openness, and the inflation rate.

In general, most fiscal variables are characterised by strong inertia over time (Ebeke & Ölcner, 2013). Likewise, according to Besley and Persson (2013), the stock of fiscal capacity today depends on that inherited from the past. Taking into account the panel dimension, the inertia of tax variables and the control ones, a first-order dynamic panel model is specified as follows:

$$TR_{it} = \beta_0 + \beta_1 TR_{it-1} + \beta_2 PL_{it} + \beta_3 \log PCGDP_{it} + \beta_4 AGR_{it} + \beta_5 TRADE_{it} + \beta_6 INFLATION + \varepsilon_{it} \quad (2)$$

In the equation (2), ε_{it} is the error term; i represents the country and t the period.

3.2 Presentation and Source of Variables

The dependent variable, the explanatory variable of interest and the control variables are successively presented. The dependent variable TR_{it} is total tax revenue of government, excluding social contributions as a share of GDP. They are made up of direct and indirect taxes and taxes on foreign trade. The fiscal capacity of countries is approximated by this variable in several empirical works (Ghura, 1998; Gupta, 2007; Bird, Martinez-Vazquez, & Torgler, 2008, 2014; Epaphra & Massawe, 2017).

Political legitimacy PL_{it} is the independent variable of interest. From the review presented in the previous section, it appears that political legitimacy can be approximated by the rule of law or trust in government. In the model considered as the basic one, the political legitimacy is approximated, as suggested by Tamanaha (2012), Ramcilovic-Suominen and Epstein (2015) and Canevaro (2017), by the rule of law. Rule of law captures the perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the

police, and the courts, as well as the likelihood of crime and violence (Kaufmann, Kraay, & Mastruzzi, 2010). The choice of this proxy is explained by the availability of data covering a large panel of SSA countries and a relatively longer period. Nevertheless, as a robustness test, the second dimension of political legitimacy is also used. In this regard, the Gallup World Poll's measure of confidence in government is considered. The confidence in national government is the national average of the binary responses (either 0 or 1) to the Gallup World Poll question "Do you have confidence in the national government, or not?" (Helliwell, Huang, & Wang, 2019).

The pioneering work (Lotz & Morss, 1967; Shin, 1969) and more recent empirical investigation (Ghura, 1998; Gupta, 2007; Bird, Martinez-Vazquez, & Torgler, 2008, 2014) on the determinants of fiscal capacity has highlighted the role of the level of development, the sectoral composition of domestic product, the trade openness and inflation in explaining the cross-country variation in tax revenue.

In general, the taxation capacity increases with the level of development approximated by per capita income. According to Lotz and Morss (1967) when the income per capita increases, the share devoted to subsistence needs decreases and more "surplus" is available for other purposes, including taxation (broadening of the tax base). This increase rhymes with more consumption of goods and services and subsequently more tax revenue (Yogo & Njib, 2018). In addition to the capacity to pay from taxpayers, the capacity to collect taxes from state, due to economies of scale, increases with the level of development (Bird, Martinez-Vazquez, & Torgler, 2008, 2014). In this paper, GDP per capita in Parity Purchasing Power (PPP) (current international \$) is used as proxy for level of development and is expected to be positively related to tax revenues.

The empirical literature reveals that the sectoral composition of output determines the tax base and therefore tax revenue. Some activities are easy to tax while others are difficult. Taxation of the agricultural sector is difficult, especially if it is dominated by many small subsistence producers, isolated and operating in the informal sector (Ghura, 1998; Gupta, 2007). Ghura (1998) also maintained that the costs of implementing a tax on agricultural activities outweigh the expected gains. In addition, entire sections of agricultural activity are exempt from taxes in certain countries for political reasons (Bird, Martinez-Vazquez, & Torgler, 2008). The share of agriculture in GDP is used as a variable of control and a negative relationship between this and tax revenue is expected.

It has been shown in the literature that trade openness affects the level of tax revenue. Transactions in foreign trade (imports and exports) are administratively easier to tax than domestic transactions, since taxation in this case is made at specified locations, the level of the customs cordon (Lotz & Morss, 1967; Lotz & Morss, 1970; Gupta, 2007; Bird, Martinez-Vazquez, & Torgler, 2008). Therefore, the degree of openness of the economy, measured by the sum of exports and imports as a share of GDP is expected to be positively associated to tax revenue.

Similarly, it is argued that macroeconomic environment, captured by inflation rate, affects tax revenue (Ghura, 1998). In fact, there is a time lag between when the tax is declared and when it is paid, thereby reducing the real tax revenue collected in the event of inflation (Tanzi, 1989). Furthermore, the author

points out that since the tax rates of some excise and import duties are specific and not indexed to inflation, the tax administration loses resources in the event of price increases. High inflation is eroding taxpayers' purchasing power, reduces their demand for goods and services and in turn tax revenues (Yogo & Njib, 2018). Otherwise, Ghura (1998) reported that when the inflation rate is high, economic agents, to protect the real value of their wealth, adjust their portfolio so as to privilege assets that escape taxation, thereby reducing the tax base. In accordance with this literature, inflation is measured by the consumer price index and is expected to be negatively linked to tax revenues.

The data used cover 41 SSA countries over the period 1996-2017. Tax revenue and the rule of law are respectively from Government Revenue Dataset of International Centre for Tax and Development (2020) and Worldwide Governance Indicator (World Bank, 2020b). GDP per capita, inflation, trade openness and the share of agriculture value added in the GDP are taken from the world development indicators database of World Bank (2020a). The confidence in national government is obtained from Helliwell, Huang and Wang (2019).

3.3 Estimation Method

The empirical model to be estimated is dynamic. In this type of model, the lagged dependent variable is correlated with the error term (Bond, 2002). Because of this correlation, the Ordinary least squares estimator is biased (Yogo & Njib, 2018). Likewise, there is a potential reverse causality between political legitimacy and taxation. If the legitimacy of the government allows it to levy more taxes, the revenue from taxation allows it to provide basic social services and increase its legitimacy. To deal with these endogeneity problems, the generalized method of moments (GMM) is used. This method, in addition to endogeneity, addresses the issue of unobserved heterogeneity.

In practice, there are two variants of GMM estimators: the difference GMM estimator (Arellano & Bond, 1991) and the system GMM estimator (Arellano & Bover, 1995; Blundell & Bond, 1998). Since the GMM estimator in system is more efficient than that in first differences (Blundell & Bond, 1998), the first is used for empirical investigation. The System-GMM combines the equation in level with the equation in difference in a single system of equations. For the equation in level, lagged variables in difference are used as instruments and for the equation in first difference, lagged variable in level are used as instruments. The estimation is done with the two-step system GMM because it corrects heteroscedasticity unlike the one-step estimator. Two tests are used to validate the model. The first is the autocorrelation test for the absence of autocorrelation in the residuals, AR (2). The second is Sargan overidentifying restrictions test for the validity of the instruments.

4. Empirical Results

Before discussing the empirical results, it is important to study the stationarity and the possible cointegration of the variables and to present the descriptive statistics.

4.1 Summary Statistics, Unit Root and Cointegration Tests

Table 1 below summarizes some descriptive statistics of the variables used over the period 1996-2017.

Table 1. Descriptive Statistics

Variables	Observations	Mean	Standard Deviation	Minimum	Maximum
Tax revenue (% of GDP)	864	14.265	8.002	0.779	56.916
Political legitimacy	778	-0.660	0.660	-2.129	1.077
GDP Per capita (current \$ in PPP)	898	3895.194	5514.009	443.574	38790.9
Agriculture Value Added (% of GDP)	874	23.897	15.007	0.892	79.042
Trade openness (% of GDP)	857	73.491	38.077	17.858	311.354
Inflation (consumer prices, annual %)	834	15.888	147.450	-9.616	4145.106

Source: Authors computation from data.

During the period 1996-2017, the SSA countries mobilized through taxation, an amount representing 14.27% of the GDP. The political legitimacy indicator shows an average score of -0.66 on a scale of -2.5 to +2.5, with -2.5 reflecting a less legitimate government while +2.5 means a more legitimate government, which reflects governance issues in the region. The agricultural sector contributed 23% to the formation of the GDP during the period under review. Imports and exports represented 73% of GDP during the period, reflecting a relatively marked insertion of the region into international trade. Over the period 1996-2017, average GDP per capita in SSA was 3895.19 \$US in PPP. The inflation rate was 15%. It was drawn in particular by Angola which recorded during the period, an average rate of 256.87%.

To verify the stationarity of variables, the tests of Maddala and Wu (1999) and Choi (2002) are carried out. The results of these tests are shown in Table 2 below.

Table 2. Results from Unit Root Tests

Variables	Level			First Difference			Order of integration		
	MW	Choi		MW	Choi				
		Z	L*		Pm	Z		L*	Pm
Tax	100.93*	-0.87	-1.10	1.47*	752.44***	-22.87***	-32.40	52.27***	I (1)
Revenue	(0.076)	(0.190)	(0.135)	(0.069)	(0.000)	(0.000)	***	(0.000)	
							(0.000)		
Political legitimacy	119.97***	-2.37***	-2.37***	2.96***					I (0)
	(0.004)	(0.008)	(0.009)	(0.001)					
log (GDP Per capita)	56.81	6.85	6.55	-1.96	476.12***	-15.66***	-20.30***	30.77***	I (1)
	(0.99)	(1.00)	(1.00)	(0.97)	(0.000)	(0.000)	(0.000)	(0.000)	
Agriculture	124.87***	-2.25**	-2.40***	3.34***					I (0)
	(0.001)	(0.012)	(0.008)	(0.000)					
Trade openness	87.33	-0.82	-0.82	0.41	817.72***	-23.43**	-35.20***	57.47***	I (1)
	(0.32)	(0.20)	(0.20)	(0.33)	(0.000)	(0.000)	(0.000)	(0.000)	
					(0.000)				
Inflation	607.65***	-17.14***	-25.35***	41.04***					I (0)
	(0.000)	(0.000)	(0.000)	(0.000)					

MW means Maddala and Wu. Figures in parenthesis are p-value. ***, ** and * denotes the stationarity at 1%, 5% and 10% level. I (0) and I (1) mean that the variable is stationary at level and at first difference respectively.

Source: Authors computation.

The tests of Maddala and Wu (1999) and Choi (2002) gave the same conclusion. The variables related to political legitimacy, agriculture and inflation are stationary at level I (0). Conversely, the log of per capita income, tax revenue and trade openness are stationary in first difference (integrated of order 1). In doing so, it is necessary to check the cointegration of these latter variables. For this purpose, the panel cointegration test proposed by Pedroni (1999) is used. Seven tests statistics are considered including four based on the within (intra) dimension and three on the between (inter) dimension. All these tests are based on the null hypothesis of non-cointegration between the variables. The results of these tests are listed in Table 3 below.

Table 3. Pedroni Cointegration Tests

within dimension	
Panel v-Statistic	-4.93 (1.00)
Panel rho-Statistic	-0.74 (0.22)
Panel PP-Statistic	-21.87 (0.51)
Panel ADF-Statistic	-10.48 (0.88B)
between dimension	
Group rho-Statistic	2.28 (0.98)
Group PP-Statistic	-25.07*** (0.000)
Group ADF-Statistic	-10.84 (0.85)

The p-values associated with the tests are shown in parentheses*** indicates rejection of the null hypothesis of non-cointegration at 1% level of significance.

Source: Authors computation.

It appears that out of the seven tests, six validate the null hypothesis of no cointegration between the integrated variables of order 1. They are stationary and their first differences are used for empirical investigation.

4.2 Baseline Estimate Results and Discussion

The results of baseline model are shown in Table 4 below.

Table 4. Baseline Result

Variables	Coefficients	z-ratio	P-value
Tax Revenue (lag 1)	0.0119***	3.01	0.003
Political legitimacy	0.5703**	2.09	0.036
log (GDP per capita)	7.5533***	4.99	0.000
Agriculture	-0.0388***	-4.76	0.000
Inflation	-0.0278***	-7.65	0.000
Trade openness	0.0153***	3.93	0.000
Constant	1.2534***	9.71	0.000
Number of Countries		41	

Wald Test (Prob > CHI2)	0.000
AR(2) Test p-value	0.53
Sargan OIR Test p-value	1.000

*** and ** denote significance at 1% and 5% respectively.

Source: Authors estimation.

The result of the model validity tests is recorded in the last lines of Table 4. As a result, the Sargan OIR test does not reject the null hypothesis of validity of the instruments. Similarly, the AR (2) test reveals the absence of autocorrelation in the residuals. In addition, the Wald test makes it possible to judge the adequacy of the model, by testing the hypothesis that the estimated coefficients are simultaneously zero. The result of this test indicates that the null hypothesis of joint nullity of the coefficients is rejected, indicating that the parameters are not jointly zero. Hence, the model is adequate and the results can be properly interpreted.

The estimation reveals that the coefficient associated with the lagged dependent variable has the positive sign and is statistically significant at 1% level. This result suggests that the fiscal capacity accumulated over time determines that of today. It confirms Besley and Persson (2013)'s point of view that the fiscal capacity of countries inherited from the past explains their current fiscal performance.

In Table 4, results show that political legitimacy has a significant positive effect on tax revenue at 5% level of significance. In SSA, the capacity of a government to collect taxes increases with its legitimacy. Thus, the more legitimate the government, the higher the tax revenue. The more the government creates an environment in which citizens have confidence in and respect the rules established in society, the more it reaps the benefits in terms of tax revenue. Particularly, the guarantee of the quality of the contract enforcement and property rights, the increased confidence placed in the police and the courts and the limitation of crime and violence favour the collection of a higher amount of tax. This result is in line with theoretical expectations that tax revenues increase with political legitimacy. Indeed, increased political legitimacy favours the voluntary consent of citizens to comply with their tax obligations and therefore promotes higher tax revenues (Lledo, Schneider, & Moore, 2004; Yogo & Njib, 2018). Likewise, political legitimacy favours the adoption and successful implementation of sustainable and legitimate tax reforms, a necessary condition for the substantial increase in tax revenues, particularly in developing countries like most SSA countries (DiJohn, 2007; Bird, 2013; Akitoby, Baum, Hackney, Harrison, Primus, & Salins, 2020). In addition, political legitimacy, by inducing an environment favourable to private initiative and economic growth, broadens the tax base and consequently the tax revenue (OECD, 2013; Birskyte, 2014; Castro & Camarillo, 2014). Furthermore, political legitimacy contributes to increasing tax revenues by inducing an environment where the activities of rent-seeking and tax evasion are limited (Berggren, Bjørnskov, & Lipka, 2015). This positive relationship between this dimension of political legitimacy and tax revenue is in accordance with the results in earlier studies especially in developing and transition countries (Bird,

Martinez-Vazquez, & Torgler, 2014) and Association of Southeast Asian Nation countries (Syadullah & Wibowo, 2015). However, our result contradicts those obtained by Akande (2017) and Epaphra and Massawe (2017) respectively in a sample of SSA countries. The authors found that this dimension of political legitimacy does not affect the fiscal capacity, measured by tax revenue as a percentage of GDP.

From the estimates shown in Table 4, it appears that the coefficients associated with the control variables have the expected sign and are statistically significant at 1% threshold. The result shows that the increase in per capita GDP and greater trade openness lead to increased tax revenue. The results are consistent with those of previous studies (Shin, 1969; Ghura, 1998; Gupta, 2007). Conversely, tax revenue decreases with a higher level of inflation and a preponderance of agricultural value added in GDP (Ghura, 1998; Gupta, 2007; Bird, Martinez-Vazquez, & Torgler, 2008).

4.3 Robustness Check with an Alternative Indicator of Political Legitimacy

In this subsection, additional analyses are conducted in order to test the robustness of the result obtained in the basic model to the use of an alternative measure of political legitimacy. For this purpose, the confidence in national government is used as a proxy of political legitimacy, as suggested by some authors (OECD, 2013; Berggren, Bjørnskov, & Lipka, 2015). It is Gallup World Poll's measure of confidence in government compiled by Helliwell, Huang and Wang (2019). Unlike the basic model, the sample is reduced to 21 countries and covers the period 2011-2016 due to the availability of data.

The results of the estimates are reported in Table 5 below.

Table 5. Robustness Checks with Confidence in National Government as Indicator of Political Legitimacy

Variable	Coefficients	z-ratio	P-value
Tax Revenue (lag 1)	0.905***	7.75	0.000
Political legitimacy	0.0207***	2.63	0.009
log (GDP per capita)	0.2103	0.18	0.860
Agriculture	0.0793	1.08	0.281
Inflation	0.0972***	3.68	0.000
Trade openness	0.0436***	9.08	0.000
Constante	-6.3664	-0.54	0.592
Number of Countries		21	
Wald Test (Prob > CHI2)		0.000	
AR (2) Test p-value		0.857	
Sargan OIR Test p-value		0.296	

*** denote significance at 1%.

Source: Authors estimation.

As it is evident in the Table 5, the coefficient political legitimacy approximated by the confidence in national government indicator is positive and significant at 1% level. These results mean that an increased political legitimacy improves the collect of tax revenue and confirm those obtained in the baseline model. Moreover, they are in agreement with the results of previous studies according to which confidence in the government increases tax compliance (Marien & Hooghe, 2011; Birskyte, 2014; Anderson, 2017; Augustine & Rufus, 2019; Saruji, Mohdali, & Mohamed, 2019). Birskyte (2014) revealed that in the United States, the higher trust in government improves tax compliance among the least compliant taxpayers' group, the nonfarm sole proprietors. In the same vein, Anderson (2017) has evaluated the effect of citizen trust in government institutions on their willingness to pay taxes in a sample of 23 transition countries. He concludes that greater trust in government institutions has a positive effect on citizens' expressed willingness to pay taxes. Similarly, a positive relationship has been established between trust in government and of tax compliance among adolescents in Malaysia (Saruji, Mohdali, & Mohamed, 2019). This conclusion is shared by Augustine and Rufus (2019) who found that in Nigeria, the voluntary tax compliance behaviour increases with the trust in the government. In the same order of ideas, Marien and Hooghe (2011) reported in a study on European countries that citizens having a low level of political trust are significantly more likely to accept illegal behaviour such as tax fraud than those with a high levels of political trust. However, it challenges the authors' findings of Ali, Fjeldstad and Sjørusen (2014) who found in a sample of four African countries (Kenya, Tanzania, Uganda, and South Africa) that trust in government policy and institutions has not a significant correlation with taxpayers' compliance attitude.

4. Conclusion

Achieving the sustainable development goals in developing countries requires the mobilization of substantial resources to finance human and physical capital. In this perspective, to make funding part of sustainability, the mobilization of internal resources, notably tax revenues, remains a great challenge for developing countries in general and those of SSA in particular. Therefore, the identification of the factors determining the capacity of countries to levy taxes is essential. While the first works mixed the emphasis on structural and macroeconomic determinants, the role of institutional determinants is increasingly recognized. As part of this strand of literature, this article analyses the effect of political legitimacy on tax revenues on a sample of 41 SSA countries over the period 1996-2017. Estimation using the system GMM in two steps estimator shows that tax revenue increases with political legitimacy.

This result supports the hypothesis that the political environment determines the fiscal capacity of countries. In addition to this variability, per capita income and trade openness increase tax revenue. In contrast, tax revenues fall with the rate of inflation and the share of agriculture in the GDP.

The result of this analysis suggests that the legitimization of public authorities in SSA remains crucial to mobilize more resources and adequately finance development.

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Appendix 1.

List of Countries: Angola, Benin, Botswana, Burkina Faso, Burundi, Cabo Verde, Cameroon, Central African Republic, Chad, Comoros, Democratic Republic of Congo, Republic of Congo, Cote d'Ivoire, Equatorial Guinea, Eswatini, Ethiopia, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Namibia, Niger, Rwanda, Senegal, Seychelles, Sierra Leone, South Africa, Sudan, Tanzania, Togo, Uganda, Zambia and Zimbabwe.