

## Original Paper

# Do Political Factors affect Government Health Spending?

## Empirical Evidence from Sub-Sahara African Countries

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### Abstract

*In Sub-Saharan Africa (SSA), access to essential health care services remains problematic. The financing of health care is mainly provided by private sources, mainly out-of-pocket payments which represent respectively 53.12% and 36.73% of total health expenditure in 2016. As for public health expenditure, essential for ensuring universal health coverage, it represents only about 35% of health expenditure. Thus, the increase in public spending on health from domestically sources proves to be a major challenge for the countries of the region in the prospect of reaching the SDG relating to health by 2030. This paper aims to analyse the determinants of domestic government health spending in SSA by focusing on political factors. We use data from 39 SSA countries covering the period 2010-2016 and panel-corrected standard errors method for empirical investigation. The results show that democracy favours an increase in government health spending. Furthermore, a political competitive environment, the guarantee and the protection of civil liberties and political right, accountability, government effectiveness and political stability are decisive for increasing government health spending. The results also showed that political participation does not affect public health spending. These results indicate that improving political factors is essential to increase public spending in SSA.*

### Keywords

## 1. Introduction

Increased levels of public funding of health services from domestic sources are required for achieving the Sustainable Development Goals (SDGs) related to health, especially Universal Health Coverage (UHC). In this respect, Kutzin (2013) reported that historically any country has managed to make

significant advances in UHC without having increased the funding of its health system from public resources. Recently, researchers have estimated the annual amount of health expenditure required in low-and middle-income countries for achieving health-related SDG 3 at US \$ 112 per capita (Stenberg et al., 2017). In the same vein, the estimates of McIntyre, Meheus and Røttingen (2017) reveal that for progressing towards UHC, government expenditure on health, funded from domestically mobilised resources, must be at least 5% of Gross Domestic Product (GDP) in low income countries.

However, in Sub-Saharan Africa (SSA), the level of domestic public health spending is low compared to what is required to achieve the health-related SDG by 2030. Across Sub-Saharan Africa countries, the average domestic government health expenditure per capita was only US\$ 69.19 in Parity Purchasing Power (PPP) a person in 2016. Compared to US\$ 940.61 in PPP for the world average, there is a difference of more than 13 times (World Bank, 2020a). This amount represents 35.07% of total health expenditures and 1.82% of GDP. Domestic private expenditure and its Out-Of-Pocket (OOP) component represent respectively 53.12 % and 36.73 % of total health spending. The preponderance of OOP spending leads to financial difficulties and even the impoverishment of vulnerable groups. The World Bank (2019) reported that in 2015, around 16 million Sub-Saharan Africans (1.6% of population) has been fallen into poverty due to high OOP payments. The external health expenditure accounts for 11.68 % of total health expenditure.

Similarly, SSA is the only region where communicable diseases still account for the majority of death. In 2016, more than half (56.36%) of deaths in SSA were caused by communicable diseases, maternal causes, conditions arising during pregnancy and childbirth, and nutritional deficiencies against 33.69% for non-communicable diseases (World Bank, 2020a). In the meantime, in other regions of the world, communicable and related diseases caused between 5.23% in North America and 26.95% of deaths in South Asia, the world average being 20.18%. In addition, SSA is the only region in the world where half of the health services deemed essential to achieve UHC are not accessible to the population. Only 43.89 % of these essential services are satisfied compared to 65.69% as the world average in 2017.

The importance of health spending, particularly public spending, in improving the health of populations has led some researchers to empirically identify their determinants in order to achieve better implementation of health policies (Tandon, Fleisher, Li, & Yap, 2014; Braendle & Colombier, 2016). Early authors focused on socio-economic and demographic determinants (Newhouse, 1977; Gbesemete & Gerdtham, 1992). However, increasingly, some researchers recognize the role of political factors in the financing and delivering of social services to citizens, including health services. As Gregorio and Gregorio (2013) pointed out, the financing and delivery of health services, by their natures, are political. In this sense, Kumar (2015) argued that as long as healthcare does not become a political demand and an electoral issue, the situation of a low level of public health care funding will not change.

Unfortunately, only a few studies had been conducted on panel of SSA countries (Fosu, 2008) and case studies from Nigeria (Imoughele & Ismaila, 2013; Olawunmi, 2014) and Leshoto (Ramashamole & Thamae, 2015) and have focused only on accountability and political (in)stability with divergent results.

Accordingly, this paper seeks to address this gap in our understanding of healthcare issues investigating the effect of a set of political factors on government health expenditures. Understanding what political factors matters for public health spending can provide insight about the levers on which it is necessary to act to increase public spending on health with regard to its role for the path towards universal health coverage.

The remainder of the paper is organized as follows. The section 2 presents literature review. The section 3 relates to the methodology approach. Section 4 presents and discusses the empirical results. The last section concludes and gives some policy implications.

## 2. Literature Review

This section presents the literature review on the political determinants of public health spending. We are interested in the political regime, in political competition, in political rights and civil liberties, in government functioning, in political participation, in accountability and in political stability. It is important to note that even if they are distinct, some political factors are linked. For example, according to Besley and Kudamatsu (2006), accountability and government effectiveness are more common in democratic system. Likewise, political rights and civil liberties, political participation and competition are closely linked to democratic regime rather than autocracy.

### 2.2 Political Regime and Public Health Spending

The first political factor taken into account is regime type. Theoretically, democracies are more likely to spend more resources on health than autocracies due to social and redistributive policies (Besley & Kudamatsu, 2006). According to Acemoglu and Robinson (2006), democracy is a regime more beneficial to the majority of the population and will result in policies that are relatively more favourable to it. Conversely, nondemocracy is a regime for the elite and the privileged. In this regime, the leaders are more likely to look after their interests. The majority of populace in the developing world is poor and have a preference for social policies, particularly in terms of education, health and social protection programs. These programs benefit the poor relatively more than the rich (Baqir, 2002). The extension of suffrage to individuals from the poorest strata, inadequately served by health care, water and sanitation, education or family planning, induced by democratization, promotes redistribution policies (Meltzer & Richard, 1981; McGuire, 2013). Median voter hypothesis explains this propensity of democratic countries to be more distributive by allocating more resources to the health and education sectors, compared to autocratic countries. Democratic leaders from an electoral perspective are attentive to the preferences of the median voter who, generally in these countries, is from middle or poor class. Being of this class, he has a preference for social health, education and social protection programs in relation to defence services (Habibi, 1994). Thereby, politicians should try to improve the quality, quantity and accessibility of such services (McGuire, 2013).

This interest results from the fact that health expenditures are important issues in electoral debates. In the case of Organisation for Economic Co-operation and Development countries for example, Potrafke

(2010) and Bellido, Olmos, and Román (2019) report that politicians act opportunistically by increasing public health expenditures in election years. The parties, which promise to spend more in health, have more chances to win the presidential elections and parliamentary seats (Karyani, Rad, Pourreza, & Shaahmadi, 2015). In order to stay in power, democratic leaders must win the support of a larger share of the population; they have therefore an incentive to provide welfare-promoting resources to a larger proportion of the population (Wigley & Akkoyunlu-Wigley, 2017). Along these lines, Grépin and Dionne (2013) argue that universal health coverage is a “visible” good that a politician could use as a campaign promise (or instrument while in power) to generate broad electoral support. As a result, leaders are encouraged to devote more resources to funding and providing these public services, thereby aligning society’s needs with priorities in terms of allocating public spending.

In contrast, under a nondemocratic regime, with power concentrated in the hands of the ruling elite, they will prefer targeted transfers to politically influential groups. Moreover, autocracies generally rely on the rich, who care less about public spending on education and health than the poor or middle classes (Klomp & Haan, 2013). As a substantial part of the electorate benefiting from redistribution programs is excluded from the decision-making process, the expenditure devoted to these programs is low (Habibi, 1994).

### *2.2 Political Competition, Political Right, Civil Liberties and Public Health Spending*

Electoral competition is another major political factor determining the provision of health services by the public authorities and therefore the resources devoted to health sector. Health spending is an electoral issue, notably in the developing countries. In order to win the elections or stay in power, politicians must gain the support of a large majority of the population and are thus, more likely to offer public service that benefit the majority, including health (Lake & Baum, 2001; Buracom, 2016). In a context where elections are free and fair, the electoral competition puts pressure on political parties to pursue universal, rather than more targeted health policies (Grépin & Dionne, 2013). The more politicians operate in an environment where competition is high and elections are free and fair, the more they are encouraged to succeed in health policies in order to have the support necessary for their re-election, due to the absence of the possibility to secure the loyalty of majority voters through cronyism and corruption. By making the political market more contestable, political competition constrains the politicians to improve the living standards (Lake & Baum, 2001).

The increase of health and education spending is partly related to the fact that high political competition minimizes political rent while low level of political competition reduces welfare due to excessive rent seeking (Polo, 1998). It should be noted however that when political competition is such that the re-election of government in power is sufficiently unlikely, it can focus on maximizing political rent seeking during their mandate with the aim of enjoying it in the event of non-re-election (Bardhan & Yang, 2004).

The guarantee of political liberty defined as the rights to run for office and vote, is another factor likely to influence public health spending. More political liberty facilitates greater citizen voice, namely those

from disadvantaged classes and hence enables them to have more political influence on budgetary allocation (Habibi, 1994). For these groups, the most important and priority government spendings are those related to health, education and social protection programs. Therefore, in a context where this social class is the majority, the rise of their political influence will compel the government to increase social expenditures. Therefore, societies in which political freedoms are more guaranteed allocate more resources to health (Tandon et al., 2014).

Additionally, civil liberties including freedom of association, assembly and speech and freedom of press (Profeta, Puglisi, & Scabrosetti, 2013), affect government health spending. The freedoms of association, assembly and speech enable citizens and journalists to call attention to problems in the society. Under these conditions, they can denounce the poor quality of health services and press the authorities to improve it (McGuire, 2010; McGuire, 2013; Profeta, Puglisi, & Scabrosetti, 2013). On this subject, Avelino, Brown, and Hunter (2005) reported that important pressure groups involving social security lobbies and health care professionals have been able to influence governmental policy across different regime types.

Analogously, the existence of a modicum of press freedom allows the publication of reports of acute health crises or unfavourable social statistics, thus highlighting shortcomings in the provision of social services (McGuire, 2010). The increase of freedom in press led to an availability of newspapers and internet web-sites to people. In press materials, citizens can express their opinions, comment and criticise public policies (Karyani et al., 2015). The press, interface between the rulers and ruled publishes the latter's needs. This puts politicians face to face with their historic responsibilities. Since health is an important issue for population, rulers are more inclined to spend more on health. If they act otherwise, they will be punished by voters at the polling time.

### *2.3 Government Functioning, Political Participation and Public Health Spending*

The selection of politicians is another mechanism through which political factor can influence the level of public health spending. Indeed, as Besley and Kudamatsu (2006) pointed out, democracies, due to electoral competition and the stronger mechanisms of selection, are more likely to bring to the head of states, more honest and competent governments than autocracies. Even if some autocratic leaders may also intend to improve population health, health intervention policies in democracies are supported and implemented by more knowledgeable, impartial and incorruptible officials (Besley & Kudamatsu, 2006; Wang, Mechkova, & Andersson, 2019). In such an environment, the search for rent is minimized and the decisions taken by the authorities are more likely to be in line with the priorities of the populations, thus favouring the general interest (Hooda, 2016). With this in mind, in a context where the provision of better-quality health services is a good desired by a large part of the population, as is the case in developing countries, governments will be more inclined to prioritize the health sector in budgetary arbitrations. Hence, the effectiveness of the government can determine cross-country differences in public health spending (Klomp & Haan, 2013; Laiprakobsup, 2019).

From a theoretical standpoint, political participation-the right of citizens to participate in the selection

of rulers and the extent to which they exercise it-may lead to increased social spending, among which health. The more this participation is increased, the more the governments are sensitive to the concerns of the majority. Therefore, budget allocation is more likely to be in line with the priorities of the population. In this vein, Joshi and Yu (2014) argue that pressure on the state from organized lower-class groups can strongly influence the incentives of political leaders to provide them social services and benefits. So, the participation of the poor in the political system leads to outcomes which benefit them, with one such outcome being the amount of public resources devoted to the provision of education and health services (Baqir, 2002). Detraz and Peksen (2018) note that women tend to be heavily represented among these marginalized segments of society, and have long been portrayed as one of the major beneficiaries of welfare services. When they have access to political positions, they tend to strongly advocate for social spending.

#### *2.4 Accountability, Political Stability and Public Health Spending*

Accountability has been evidenced as a political factor by which to increase government health spending. Specifically, accountability drives the elected government to spend more on healthcare. In an environment where a broad set of citizens demands accountability at a regular interval to politicians, as it is the case of elections, the politicians are more encouraged to allocate public resources in accordance with people's priorities (Datta, 2020). In this case, increasing government accountability may be more effective strategies to ensuring that health is given the priority it deserves (Tandon et al., 2014). Failure to increase the access to health services and improve health status of population may results in politician being removed from office at the next elections. According to Huber, Mustillo and Stephens (2008) and Gibson (2018), democracy is associated with increases in public health spending because democratic government is more accountable to the demands of the citizenry. In contrast, Kumah and Brazys (2016) posited that it is the related and distinct concept of accountability that yields positive public spending outcomes rather than democracy considering as a unitary whole. The unaccountability of political leaders may on the contrary, give rise to opportunities for public agents to support rent generating sectors to the detriment of social sector (Cockx & Francken, 2014).

The stability of the political environment is a critical dimension of political institutions that can determine the level of resources devoted to health. In a context where the political environment is stable and certain, the governments are more willing to invest in health (Klomp & Haan, 2013). As well, the governments which are able to retain office and undertake declared programs tend to spend more on health (Liang & Mirelman, 2014). For these latter authors, there is an intrinsic difference in objectives of stable and unstable governments. The former is able to place more emphasis on long-term social programs, such as health. Many public health programs require consistent financial input while its benefits can be observed only in the long run. In this context, when a government does not have the ability to stay in office, it may have less incentive to pursue such programs. Furthermore, political instability caused by riots, civil war or strikes can disrupt the health system in a country (Klomp & Haan, 2009).

This review shows that theoretically, several political factors are likely to affect public spending on health. Given that less empirical work has been devoted to the effects of these factors on public health expenditure in SSA, we will fill this gap in the literature.

### 3. Method

In this section, we present the model specification, the variables and the method used for empirical investigation.

#### 3.1 Empirical Model Specification

To explore the link between political factors and public healthcare expenditure, we propose the following functional form.

$$DPHE = f(PF, X) \quad (1)$$

Equation (1) shows that Domestic Public Health Expenditure (DPHE) is a function political factor and a set of control variables (X). Taking into account the panel dimension and on the basis of empirical work on the determinants of public health spending determinants in Africa and developing countries (Murthy & Okunade, 2009; Farag, et al., 2012; Behera & Dash, 2019), we propose a panel data log-log specification as follows:

$$\log DPHE_{it} = \alpha_0 + \alpha_1 \log PF_{it} + \alpha_2 \log PCGDP_{it} + \alpha_3 \log TR_{it} + \alpha_4 \log Pop65_{it} + \alpha_5 \log TBI_{it} + \alpha_6 \log PCODAH_{it} + \varepsilon_{it} \quad (2)$$

where  $\varepsilon_{it}$  is the error term;  $i$  represents the country and  $t$  the period. The coefficients of independent variables are interpreted as elasticities.

DPHE stands for Domestic Public Health Expenditure per capita in \$US in PPP (DPHEPC) or as share of GDP (DPHE\_GDP). The control variables include Gross Domestic Product per capita in \$US in PPP (PCGDP), Tax revenue as share of GDP (TR), population aged 65 and above as share of total population (Pop65), the tuberculosis incidence per 100,000 inhabitants (TBI) and the official development assistance for health sector per capita (PCODAH) \$US in PPP.

#### 3.2 Variables Presentation

We have in our model, three types of variables: the dependent variable, the variables of interest and variables of control.

##### 3.2.1 The Dependent Variable

Our dependent variable is DPHE. Public expenditure on health from domestic sources include domestic revenue as internal transfers and grants, transfers, subsidies to voluntary health insurance beneficiaries, non-profit institutions serving households or enterprise financing schemes as well as compulsory prepayment and social health insurance contributions. They do not include external resources spent by governments on health (World Bank, 2020a). They are expressed in domestic Public Health Expenditure per capita in \$US in PPP (DPHEPC) or as share of GDP (DPHE\_GDP).

### 3.2.2 The Explanatory Variables of Interest

Political factors are our independent variables of interest. In total, seven factors are considered. The first political factor used is democracy index. To this end, we use two indicators. The first is the Economist Intelligence Unit (EIU) Democracy Index (EIUDI). According to EIU (2011), the EIUDI, on a 0 to 10 scale, is based on the ratings for 60 indicators grouped in five categories: electoral process and pluralism, civil liberties, functioning of government, political participation, and political culture. The index provides a snapshot of the state of democracy worldwide for 165 independent states and two territories. The index values are used to place countries within one of four types of regimes : full democracies (scores of 8-10), flawed democracies (scores of 6 to 7.9), hybrid regimes (scores of 4 to 5.9) and authoritarian regimes (scores below 4). The EIUDI is more comprehensive than other ordinal democracy scales because it includes sub-scores such as functioning of government and political culture that other indices do not (Walker, Anonson, & Szafron, 2015). The second democracy indicator, used as a robustness, is Polity2 of Polity IV. It ranges from -10 (strongly autocratic) to 10 (strongly democratic) and takes into account the free elections, the existence of legal limitations to the exercise of executive power by a government and its chief executives and inclusive participation and representation by political parties (Marshall, Gurr, & Jaggers, 2017).

The second political factor is political competition. We use EIU sub-score of electoral process and pluralism as proxy of political competition. This sub-score includes among others free and fair elections, universal suffrage, exchange of power following elections, and ability to form political groups (Economist Intelligence Unit, 2011).

The political rights and civil liberties are the third political factor used. The political rights are from Freedom House (2017) and comprise the electoral process, the political pluralism and participation, and the functioning of government. Two indicators are used to approximate civil liberties. The first is the civil liberties of Freedom House (2017) and are related to freedom of expression and belief, associational and organizational rights, rule of law and personal autonomy and individual rights. The indicators of political and civil right of Freedom House are calibrated from 1 to 7. A score of 1 represents the greatest degree of freedom and 7 the smallest degree of freedom. The second indicator is EIU sub-score of civil liberties. It takes into consideration the freedoms of speech and protest, of the press, of information, freedom of and influence of the judiciary system by government among others (Economist Intelligence Unit, 2011).

The fourth political factor is government effectiveness. This is approximated by two indicators. The first is EIU sub-score of the functioning of government. It measures public confidence in the government, influence of the government from outside sources, and the ability of the government to implement policies (Economist Intelligence Unit, 2011). The second is government effectiveness from Worldwide Governance Indicator (World Bank, 2020c). According to Kaufmann, Kraay and Mastruzzi (2010), this indicator captures the perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation



and implementation, and the credibility of the government's commitment to such policies.

Political participation and culture are the fifth factor and come from EIU Sub-scores of political participation and political culture. The political participation involves the degree to which the public engages in political matters while political culture involves public perception of leadership and democracy (Economist Intelligence Unit, 2011).

The sixth factor relates to accountability and is measured through two indicators. The first is voice and accountability from WGI and relates the perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media (Kaufmann, Kraay, & Mastruzzi, 2010). The second, democratic accountability is taken from International Country Risk Guide (ICRG). It is a measure of how responsive government is to its people, on the basis that the less responsive it is, the more likely it is that the government will fall, peacefully in a democratic society, but possibly violently in a non-democratic one (Howell, 2012).

The last factor is political stability. It is measured through the indicator political stability and absence of violence/terrorism from WGI and captures perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically—motivated violence and terrorism.

The EIUDI and its sub-score range from 0 to 10. The WGI indicators (government effectiveness, voice and accountability and political stability and absence of violence/terrorism) range from -2.5 (weak governance) to +2.5 (strong governance). Democratic accountability of ICRG ranges from 0 to 6. These indicators have been rescaled to assume values between 1 and 6 (WGI), 1 and 11 (EIUDI and its sub-scores), 1 and 21 (Polity2), 1 and 7 (democratic accountability), for practical needs (the use of logarithm) as it is often the case in the literature (McGuire, 2013; Karyani et al., 2015; Dianda & Sirpé, 2020).

### 3.2.3 The Control Variables

Our control variables are five. They are macro-fiscal, epidemiological and demographic variables and are considered to be determinants of public health spending. They include Gross Domestic Product per capita in \$US in PPP (PCGDP), Tax revenue as share of GDP (TR), population aged 65 and above as share of total population (Pop65), The Tuberculosis Incidence per 100,000 Inhabitants (TBI) and the Official Development Assistance for Health sector Per Capita (PCODAH) \$US in PPP.

Since the seminal work by Newhouse (1977) who found that in developed countries the variation of per capita GDP explains more than 90% of the variation in per capita healthcare expenditure, the wealth of countries is considered as the main determinants of their health spending. In line with this, we assume that income is positively linked to public health expenditure. Similarly, the level of tax revenue reflecting the fiscal capacity of the government, we anticipate that it positively affects the public health spending. We also assume that the official development assistance for health sector is complementary to domestic public spending due to the weakness of domestic spending and the health systems of SSA described in the introduction. An aging and sick population requires additional resources to provide

them with adequate health care. Therefore, we hypothesize that the proportion of the population whose age is greater than or equal to 65 years and the incidence of tuberculosis are factors that increase public spending on health.

The data used are annual and cover 39 SSA countries listed in appendix for the period 2010-2016 due to their availability. The data on domestic public health expenditure, official development assistance for Health, the proportion of the population whose age is greater than or equal to 65 years, and the incidence of tuberculosis are taken from health, nutrition and population database of the World Bank (2020a). GDP per capita and tax revenue are respectively from world development indicators database of the World Bank (2020b) and Government Revenue Dataset of the International Centre for Tax and Development (2020).

### *3.3 Estimation Method*

For empirical investigation, as previous studies on the determinants of health spending (Avelino, Brown, & Hunter, 2005; Gibson, 2018), we use panel-corrected standard errors method proposed by Beck and Katz (1995). In general, times-series cross-sectional data violate at least two of the basic assumptions that underlie Ordinary Least Squares (OLS) estimation (Avelino, Brown, & Hunter, 2005). These authors point out that temporal structure of the data increases the chance of autocorrelation, violating the OLS assumption that the errors are independent of each other. Similarly, the cross-sectional structure of the data increases the chance that the variance in the error terms may differ across countries and that there will be spatial processes that affect different panels simultaneously. Therefore, the presence of heterogeneity and autocorrelation renders OLS coefficient estimates inefficient. The panel-corrected standard errors method deals with these problems.

## **4. Empirical Result**

In this section, we present and discuss the results in three stages. In the first subsection, the main descriptive statistics of the basic model and stylized facts are presented. The second subsection is devoted to the presentation and discussion of the results of the basic model which uses democracy as a political factor. The last subsection discusses the results of the effect of other political factors on public health spending.

### *4.1 Summary Statistics and Stylized Facts*

Table 1. Below Summarizes Some Descriptive Statistics of the Variables Used over the Period 2010-2016.

**Table 1. Descriptive Statistics**

Variables	Observations	Mean	Standard deviation	Minimum	Maximum
<b>EIUDI</b>	273	4.489	1.814	1.26	8.28
<b>Polity 2</b>	273	2.897	5.160	-9	10
<b>DPHEPC (\$ US in PPP)</b>	273	95.779	151.194	1.878	599.923
<b>DPHE_GDP</b>	273	1.822	1.281	0.196	5.800
<b>PCGDP (\$US in PPP)</b>	273	4554.236	6124.155	646.295	36576.09
<b>PCODAH (\$US in PPP)</b>	273	32.172	25.616	2.329	143.537
<b>TR (% of GDP)</b>	273	15.455	7.319	4.406	46.757
<b>TBI (per 100.000 inhabitants)</b>	273	283.776	232.746	11	1190
<b>Pop65 (% of total population)</b>	273	3.123	1.189	1.871	10.443

*Source:* Author computation from data.

This Table reveals that regional average score of the democracy index is 4.489, suggesting that the state of democracy in this panel is poor between 2010 and 2016. The region is characterised by the concentration of hybrid and authoritarian regimes (respectively 12 and 19 countries out 44 in 2016) with few countries considered as flawed democracies (7 countries out 44) and only one country (Mauritius) is a full democracy. Similarly, with a score of 4.37, Sub-Saharan Africa was the lowest democracy region against 5.52 for the world average. This fact is corroborated by the indicator Polity2 which, although having a positive regional average over the period, remains weak (2.897).

The regional per capita government health spending from domestic sources is 95.77 \$US in PPP which corresponds to 1.822 % of GDP. Given the challenges of funding the provision of preventive and curative health services in the region, and what is needed to achieve universal health coverage by 2030, this amount is small. Probably, it is related to region's GDP per capita, which stood at 4554.23 \$US in PPPA during this period. The low level of domestic public health financing necessitates the use of external resources as part of official development assistance. Thus, during the period under review, our panel countries benefited from public aid to improve the health of their population in the average amount of 32.17 per inhabitants. The countries of the region have mobilized through taxation an amount representing 15.45% of GDP. These financial resources were used in part to cope with tuberculosis, the incidence of which is 283.78 per 100.000 inhabitants, as well as the needs of people aged 65 and over, estimated at around 3.12% of the population.

Table 2 below presents public expenditure by political regime according to the classification of EIU in 2010 and 2016.

**Table 2. Government Health Spending by Political Regime, 2010 and 2016**

	Year	Democracies (Full and flawed)	Hybrid Regimes	Authoritarian	SSA Average
DPHEPC (\$ US in PPP)	2010	227.64	21.14	47.58	56.81
	2016	306.97	35.63	63.24	69.19
DPHE_GDP	2010	2.97	1.30	1.38	1.93
	2016	3.21	1.86	1.47	1.83

Source: Author computation from data.

From this Table, it emerges that democracies (full and flawed) spend more financial resources on the health of their population than hybrid regimes and autocracies. Likewise, autocracies have higher levels of public spending on health both per capita and as a share of GDP than hybrid regimes. In 2010 for example, in the democracies of the region, public spending on health per capita amounted to 227.64 \$US per capita, or 2% of GDP against 21.14 \$US per capita for hybrid regimes corresponding to 1.30 % of GDP and 47.58 \$US per capita equivalent to 1.93 % of GDP for autocratic countries. It should be noted that public health spending per capita in the region's democracies is higher than the regional average in 2010 (56.81 \$US) while hybrid regimes and autocracies have lower levels. The same is true for public spending as a share of GDP. This trend is also observed for the year 2016. If these facts are not sufficient to conclude on the nature of the link between the political system and public health spending, the econometric evaluation will allow us to detect it.

#### 4.2 Baseline Estimate Results and Discussion

The estimates with EIUDI and Polity 2 are considered as baseline estimate. The results are shown in Table 3.

**Table 3. Democracy and Public Health Spending in SSA**

Dependent Variable:	log (DPHEPC)	log (DPHE_GDP)	log (DPHEPC)	log (DPHE_GDP)
log (EIUDI)	0.387*** (0.000)	0.326*** (0.000)		
log (Polity2)			0.111** (0.021)	0.078* (0.097)
log (PCGDP)	1.030*** (0.000)	0.030** (0.017)	1.047*** (0.000)	0.042** (0.029)
log (TR)	0.666*** (0.000)	0.670*** (0.000)	0.766*** (0.000)	0.758*** (0.000)
log (Pop 65)	0.320*** (0.000)	0.333 (0.437)	0.395*** (0.000)	0.401*** (0.00)

log (TBI)	0.084** (0.010)	0.069** (0.032)	0.060 (0.115)	0.048 (0.201)
log (PCODAH)	0.156*** (0.000)	0.160*** (0.000)	0.209*** (0.000)	0.205*** (0.000)
Constant	-8.234*** (0.000)	-3.417*** (0.000)	-8.389*** (0.000)	-3.504*** (0.000)
Countries	39	39	39	39
Observations	263	263	263	263
R-Squared	0.863	0.480	0.860	0.476
Prob > CHI2	0.000	0.000	0.000	0.000

Figures in parentheses are p-values; \*\*\*, \*\* and \*denote respectively significance at 1%, 5% and 10%.

Source: Author estimation.

In general, the explanatory variables jointly and significantly explain the change in government spending on health, as the CHI2-statistics are statistically significant at 1% level (p-value < 0.00). In addition, R-Squared is between 0.47 and 0.86, suggesting that the independent variables capture between 47% and 86% of the variations in public health expenditures.

In Table 3, results show that democratisation has a significant positive effect on government health spending at 1% level of significance. The consolidation of democracy, resulting in an increase in the economic intelligence unit democracy of 1% translates, all things being equal, by an increase in domestic public health expenditure per inhabitant of 0.38%. Similarly, the result implies that at 1% incremental change in democracy leads to 0.32% change in the share of public health spending in GDP. The extension of franchise to the low and middle-class citizens enables them to influence public policies and this force the elite to take into account their interest. Yet, these people have a preference for redistributive policies, including health (Baqir, 2002). Consequently, the democratization has a favourable effect on government health spending. The Afro barometer survey, which covered 36 African countries in 2014/2015, revealed that for African citizens, problems related to health are the second most important problem (after unemployment) that their governments must tackle. Likewise, this sector is classified in second priority (after education) which requires an additional investment on the part of the government (Armah-Attah, Selormey, & Houessou, 2016). The positive link between democracy and government health spending remains robust when polity2 is used as its proxy.

This expected positive association between democratisation and government health spending is in accordance with the results in earlier studies especially in mixed sample of developed and developing countries (Ghobarah, Huth, & Russett, 2004; Gregorio & Gregorio, 2013; Kotera & Okada, 2017). Similarly, the crucial role that democracy plays in increasing public spending on health has been highlighted by studies based on developing countries, particularly in Eastern Mediterranean countries (Karyani et al., 2015), in Latin American countries (Kaufman & Segura-Ubiergo, 2001) and Southeast

Asia (Laiprakobsup, 2019). Likewise, an existing study on Latin American countries has shown a positive association between the stock of democracy (number of years of democracy accumulated since 1945) and social spending, especially spending on health and education (Huber, Mustillo, & Stephens, 2008).

Unlike these studies and ours, Avelino, Brown, and Hunter (2005) and McGuire (2010) found that democracies do not influence government spending on health respectively in Latin American countries and a sample of developing countries. In the same perspective, Adolf (2011) suggested that government spending on social programs (such as health and education) is independent of the nature of the political system. In addition to these empirical investigations, some stylized facts from history have questioned the propensity of democracies to allocate more resources to health compared to nondemocratic regimes. These facts show that democratic countries do not spend necessarily more on social sector and deliver such service to population than autocratic ones. Datta (2020) cites the India's case as one compelling example where a practicing democracy did not lead to better healthcare policy as measured by level of public healthcare spending and improved health outcome. This country, in spite of being the world's largest democracy since its independence in 1947, spent only 1.27% of its GDP on public healthcare in 2015. In a historical and comparative analysis, Joshi and Yu (2014) corroborate this point of view by noting that from independence to 2011, the public investment in health of the different Indian governments remained low despite the existence of a democratic regime. Conversely, China, considered to be an autocracy, alternated high (1949-1978), low (1979-2000) and intermediate levels of public health investment. For Joshi and Yu (2014), it is less the political regime than the political implication of lower class, namely organized political pressure from the lower classes, and the development ideology of political leaders that explains the difference in public health investment in low-income countries.

In agreement with these authors, Grépin and Dionne (2013) noted that it is not simply the level of democracy that makes governments more likely to adopt health policies that benefit the population in the broadest sense, but rather the extent to which democratic development is perceived as meaningful by citizens and is manifested in electoral competition that puts pressure on political parties to pursue universal, rather than more targeted, health policies. Kumah and Brazys (2016) posited that rather than considering 'democracy' as a unitary whole, it is the related, but distinct, concept of accountability that yields positive public spending outcomes. Wigley and Akkoyunlu-Wigley (2017) argued that it is possible that democratic governments will not target welfare transfers and public goods to low-income citizens because their votes are not required in order to secure a winning majority.

If the positive relation between democracy and government health spending is established, we do not know from what dimension of democracy it results. This does not enable, in a context where the increase in domestic public health funding is more than necessary to ensure the sustainability of interventions and move towards UHC, to make strong recommendations for the attention of policy makers. Hence, the need for democracy key aspects and broadly more detailed political factors. This is the subject matter of the next subsection.

On the whole, the coefficients of most control variables have the expected sign. Meanwhile, the estimation results in Table 3 indicate that the income per capita has the anticipated sign. Its coefficient is positive and significant at the 1% level for government health spending per capita model and 5% level for government health spending as share of GDP model. This result means that the increase in GDP leads to increased government health spending. All other things being equal, a 1% increase in GDP per capita is associated with government health spending increases between 0.04 % and 1.04%. Thus, the more countries develop, the more they are able to allocate more resources to health. When we use public spending on health in proportion to the GDP as dependent variable, the income elasticity is less than one, suggesting that public provision of health care in SSA is considered as a necessity. This result is in line with those obtained in panel studies of developing countries led by Farag et al. (2012) and Sub-Saharan countries (Dianda & Sirpé, 2020; Micah et al., 2019). In contrast, when we use domestic public health spending per capita as the dependent variable, the income elasticity is greater than 1, suggesting that health care is a luxury good. This result is empirically highlighted in Sub-Sahara African context (Jaunky & Khadaroo, 2008; Ramashamole & Thamae, 2015; Ly et al., 2017) and in low income countries (Xu, Saksena, & Holly, 2011). As Okunade (2005) pointed out, African countries historically spent a more than proportionate increase in their GDPs on health care. This can be explained by the fact that in the context of Africa, the public sector has to strive hard to provide basic health care to the poor majority (Jaunky & Khadaroo, 2008). In view of the difference in elasticities obtained in the two models, this study does not allow us to conclude on the nature of health care.

The fiscal capacity and government health spending are positively, statistically and significantly associated at 1% level. It is of prime importance in determining the level of government health spending. A 10% rise in public revenue as proportion of GDP is associated with a 6.6% to 7.7% increase in government health spending, all else being equal. The improvement of fiscal capacity enables the government to spend more on health. This result corroborates previous one that fiscal capacity favours an increase of public health spending (Hooda, 2016; Dianda & Sirpé, 2020).

The incidence of tuberculosis is found to be positive as expected and significant at the 5 % level in two of the four equations in explaining public health spending. The 1% increase in tuberculosis incidence translates into between 0.06%-0.08% increase in government health spending. The sicker the population, the more resources are needed for medical care. This is especially for contagious diseases as they generate negative externalities. This result calls into question that of the authors who have shown that the epidemiological profile is not a significant determinant of public health spending (Xu, Saksena, & Holly, 2011; Sirag, Nor, & Abdullah, 2017). Nonetheless, this result is in agreement with that obtained with the population aged 65 and over. The coefficient of this variable is positive and significant at the 1% level. In general, this segment of the population is very vulnerable to disease, demands more health services and requires more frequent and more costly medical treatment than younger people (McGuire, 2010). Our results are similar to those who find a positive and statistically significant relationship between the share of population aged over 65 and public health expenditures in

low-and middle-income countries (Behera & Dash, 2019). However, this result contradicts those according to which the elderly population and more generally demographic factors have no significant effect on public health expenditure (Fosu, 2008; McGuire, 2010; Kumah & Brazys, 2016; Sirag, Nor, & Abdullah, 2017; Dianda & Sirpé, 2020; Micah, et al., 2019).

As expected, the estimated effect of donor assistance for health is positive and significant at the 1% level. A 1% increase in health aid per capita induces, *ceteris paribus*, an increase in public health spending per capita between 0.15% and 0.20% and in public health spending as share of GDP between 0.16% and 0.20%. The more countries receive health aid, the more they spend domestically resources on health, thus highlighting the complementarity between health aid and domestic government health spending. In Sub-Saharan Africa countries with limited resources, increased health aid leads to higher allocation of resources to health sector. This result is in line with the authors who found that health aid is not totally fungible in Africa (Kumah & Brazys, 2016; Dianda & Sirpé, 2020) but contrasts with the result that health aid does not influence government health spending or is fungible in developing world (Lu et al., 2010; Micah et al., 2019).

#### 4.3 Other Political Factors Effects on Government Health Spending

The discussion of the effects of other political factors on public health expenditure will be done in three stages. First, we consider the political competition, the political right and the civil liberties. Then we take into account the dimensions government functioning, political participation and political culture. Finally, we analyse the effects of accountability and political stability on government health spending.

##### 4.3.1 Political Competition, Political Right and Civil Liberties

In all the Tables which follow in the even columns, the logarithm of domestic public health spending per capita is the dependent variable while in the odd columns, the share of domestic public health spending in GDP is the dependent variable.

Table 4 shows the results of the estimates with political competition (columns 1 et 2), political right (columns 3 et 4) and civil liberties (columns 5 to 8) as political variable.

**Table 4. Political Competition, Political right, Civil liberties and Public Health Spending in SSA**

Model	(Note	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1)									
<b>log(EIUEPP)</b>		0.117***							
		(0.000)							
<b>log(EIUEPP)</b>			0.110***						
			(0.001)						
<b>log (FHPR)</b>				-0.271***					
				(0.000)					
<b>log (FHPR)</b>					-0.248***				



	(0.000)							
<b>log (FHCL)</b>					-0.382***			
					(0.000)			
<b>log (FHCL)</b>						-0.347***		
						(0.000)		
<b>log (EIUCL)</b>							0.595***	
							(0.000)	
<b>log (EIUCL)</b>								0.510***
								(0.000)
<b>log(PCGDP)</b>	1.052***	0.050***	1.035***	0.034**	1.036***	0.353***	1.032***	0.032**
	(0.000)	(0.004)	(0.000)	(0.011)	(0.000)	(0.007)	(0.000)	(0.016)
<b>log (TR)</b>	0.728***	0.715***	0.740***	0.727***	0.678***	0.672***	0.602***	0.612***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
<b>log (Pop 65)</b>	0.365***	0.364**	0.173*	0.190**	0.192**	0.209***	0.217**	0.243***
	(0.066)	(0.037)	(0.066)	(0.037)	(0.020)	(0.009)	(0.018)	(0.006)
<b>log (TBI)</b>	0.072**	0.060*	0.089***	0.076**	0.089**	0.075**	0.103***	0.085***
	(0.026)	(0.055)	(0.003)	(0.011)	(0.010)	(0.027)	(0.000)	(0.003)
<b>log(PCODAH)</b>	0.183***	0.179***	0.179***	0.176***	0.163***	0.162***	0.123***	0.131***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
<b>Constant</b>	-8.171***	-3.374***	-7.401***	-2.666***	-7.066***	-2.367***	-8.348***	-3.518***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
<b>Countries</b>	39	39	39	39	39	39	39	39
<b>Observations</b>	263	263	263	263	263	263	263	263
<b>R-Squared</b>	0.861	0.482	0.866	0.497	0.867	0.501	0.872	0.513
<b>Prob &gt; CHI2</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Figures in parentheses are p-values; \*\*\*, \*\* and \*denote significance at 1%, 5% and 10% respectively.

Source: Author estimation.

As expected, the political competition affects positively the government health spending. The political competition variable is statistically significant at 1% in both model (1 and 2). A 1% increase in political competition indicator lead to 0.11% increase in public health spending per capita and as share of GDP. The result shows that a competitive political environment is associated with an increase in the per capita government health spending and the percentage share of government health spending on GDP. Health is an electoral issue and if the political environment is competitive, the rulers are forced to spend more on health in order to get the support necessary for their re-election. In addition, a contestable political market minimizes the rent seeking activities (Polo, 1998), thus favouring the

general interest. In these conditions, given that health is a priority in the region, political competition generates an increase in public spending on health. This finding is corroborated in some studies where political competition is found to have a strong positive influence on education spending in Africa and public healthcare expenditure in India (Stasavage, 2005; Datta, 2020). A panel analysis of the 16 India major states undertaken by Datta (2020) found that political competition has a strong positive influence on public healthcare expenditure. In an environment where government is facing high degree of political competition in election from the opposition parties, it increases spending on public healthcare to maximize his chances of winning in the next election. Stasavage (2005) also found that when they are subject to multiparty competition, African governments have indeed tended to spend more on education and more on primary education in particular.

The columns 3-4 and 5-6 of Table 4 report the estimations in which the political rights and civil liberties of Freedom House are used as proxy indicators of political factors. In the columns 7 and 8, the results of estimates with civil liberties of Economist Intelligence Unit as political factor are reported. Note that unlike the other political variables used, in the case of these Freedom House indicators, a low level indicates that in the country political and civil liberties are guaranteed while a high score indicates a confiscation of these freedoms. The results show that the coefficients of political right and civil liberties from Freedom House are negative and significant at 1% threshold, as expected. Similarly, the coefficient of civil liberties of economic Intelligence unit is positive and significant at 1% level. The results reveal that better guarantee of political rights and better protection of civil liberties, contribute to an increase in public health spending. These findings are in line with what has been found in other similar studies done in mixed sample and developing world which show that the improvement of political liberties and freedom in the press and increased civil liberties protection are positively related to government health spending (Habibi, 1994; Profeta, Puglisi, & Scabrosetti, 2013; Karyani et al., 2015). Habibi (1994) shows empirically that the improvement of political liberties leads to an increase of public spending on health and social security in proportion to GDP, but reduces the share of public spending devoted to defence in a sample of 67 developed and developing countries. This result is consistent with those of Karyani et al. (2015), who found that political freedom measured by freedom in the press index positively affect government health expenditures in a panel of 20 Eastern Mediterranean countries. Similarly, Profeta, Puglisi, and Scabrosetti (2013) present empirical evidence from developing countries in three geographical areas (South-East Asia, Latin America and European Union) showing that increased civil liberties protection to higher health expenditure over GDP.

#### 4.3.2 Government Functioning, Political Participation, Political Culture and Public Health Spending

The Table 5 reports the results of estimates with the EIU Sub-score of functioning of government (columns 1 and 2), WGI government effectiveness (columns 3 and 4), EIU sub-score of political participation (columns 5 and 6) and EIU sub-score of political culture (columns 7 and 8) as political factors.

**Table 5. Government Functioning and Effectiveness, Political Participation and Culture and Public Health Spending in SSA**

Model (Note 2)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
log(EIUFOG)	0.205*** (0.000)							
log(EIUFOG)		0.208*** (0.000)						
log (WGIGE)			1.167*** (0.000)					
log (WGIGE)				1.176*** (0.000)				
log (EIUPP)					0.093 (0.114)			
log (EIUPP)						0.491 (0.431)		
log (EIUPC)							0.207** (0.041)	
log (EIUPC)								0.117 (0.265)
log (PCGDP)	1.004*** (0.000)	0.003 (0.805)	1.184*** (0.000)	1.186*** (0.008)	1.030*** (0.000)	0.030** (0.025)	1.023*** (0.000)	0.026** (0.042)
log (TR)	0.685*** (0.000)	0.666*** (0.000)	0.322*** (0.000)	0.302*** (0.000)	0.767*** (0.000)	0.763*** (0.000)	0.765*** (0.000)	0.761*** (0.000)
log (Pop 65)	0.396*** (0.000)	0.391*** (0.000)	0.110* (0.083)	0.130** (0.019)	0.411*** (0.000)	0.416*** (0.000)	0.415*** (0.018)	0.418*** (0.006)
log (TBI)	0.082** (0.016)	0.073** (0.029)	-0.06 (0.930)	-0.011 (0.873)	0.511 (0.155)	0.041 (0.240)	0.067* (0.095)	0.050 (0.203)
log (PCODA)	0.168*** (0.000)	0.161*** (0.000)	0.067*** (0.002)	0.057** (0.011)	0.209*** (0.000)	0.206*** (0.000)	0.191*** (0.000)	0.195*** (0.000)
Constant	-7.823*** (0.000)	-3.029*** (0.000)	-8.078*** (0.000)	-3.357 (0.000)	-8.091*** (0.000)	-3.290*** (0.000)	-8.280*** (0.000)	-3.398*** (0.000)
Countries	39	39	27	27	39	39	39	39
Observations	263	263	185	185	263	263	263	263
R-Squared	0.963	0.492	0.861	0.454	0.858	0.473	0.859	0.474
Prob > CHI2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Figures in parentheses are p-values; \*\*\*, \*\* and \*denote significance at 1%, 5% and 10% respectively.

*Source:* Author estimation

As it is evident in the Table 5, the functioning of government has a significant and positive effect on government health spending. Specifically, the results indicate that when the indicator of the functioning of government increases by 1 % public health spending rises by about 0.20 %. This finding is in line with what has been found with government effectiveness are from Worldwide Governance Indicators as political variable. The Table reveals that the coefficient of government effectiveness is positive and statistically significant at 1%. These results demonstrate that a better functioning of the government and increased effectiveness is an ingredient conducive to increased public spending on health. When the government is honest and competent, not only rent seeking activities are limited and the public interest is much more likely to be saved, but also public policies are better implemented. In the quest for general interest, given that health is a priority in SSA, public spending on health is expected to increase. This finding is supported by previous studies on developing countries (Sirag, Nor, & Abdullah, 2017; Gibson, 2018). Gibson (2018) examining the determinants of public health spending in the countries of the Arab League between 1996 and 2014, found that the government effectiveness is positively associated with public health spending. In the same vein, Sirag, Nor, and Abdullah (2017) found that in developing countries, government effectiveness tends to improve public health financing. However, in developed countries, the authors did not find a significant link between government effectiveness and public health financing.

The coefficient of political participation is positive but is insignificant at the conventional level. Contrary to what is expected, the political participation in SSA does not affect government health spending. The result challenges the authors' finding that political participation is a determinant of government health spending (Miller, 2008; Joshi & Yu, 2014; Braendle & Colombier, 2016; Hooda, 2016). Some authors have highlighted the positive effect of close involvement of the populations in the budget process on the allocation of public spending to health programs. This is particularly the case of Brazilian communities through the adoption at the decentralized level of the participatory budgeting since the beginning of the 1990s. In this context, Gonçalves (2014) found significant differences in the allocation of expenditures associated with adoption of participatory budgeting. The municipalities with a greater share of participatory budgeting spend a larger proportion of their total budget on health and sanitation. The author highlights an average difference of above 3% points, between a municipality without participatory budgeting and a municipality that adopts participatory budgeting, of the budget share allocated to health and sanitation.

Along the same lines, Hooda (2016) explores the relationship between political participation and the variation in government spending on health, including expenditure on water and sanitation, in 16 states in India over the period 1987-1988 to 2011-2012. Political participation is approximated by a composite indicator constructed using the Principal Component Analysis (PCA) from several variables. These include, among other things, the percentage of total voter turnout in assembly election of a state,

the total number of women who voted in assembly election as percentage of men who voted in assembly election, the percentage of women contestants in assembly election. Similarly, are taken into account in the calculation of the composite indicator of index of political participation, the percentage of women contestants elected in assembly election of a state and the women and reserved class Panchayat representatives as a share of total panchayat representatives in a state. According to his analysis, the author validates the hypothesis that the widening of political participation and a greater representativeness of various population groups, notably the most vulnerable and minorities in the political sphere, leads to a significant rise in government spending on health. This result reflects the fact that a large involvement of minority populations in the electoral process allows leaders to align their decisions with the interests and priorities of the population, especially the needs in terms of health care. In the same way, Joshi, and Yu (2014) emphasize on the political implication of lower class, namely organized political pressure from the lower classes, in addition to the development ideology of political leaders in determining levels of public health investment in low-income countries instead of regime type.

The hypothesis that a rise in women's political participation is associated with greater health care spending is highlighted by empirical investigations. From an analysis of Swiss cantons, Braendle and Colombier (2016) found that cantonal health care expenditure growth increases with the presence of women in parliament. This indicates a stronger preference of elected women for public health care spending for health spending. Similar findings from a panel of the United States municipalities indicated that extension of suffrage rights to American women increases local public health spending (Miller, 2008).

Our counterintuitive result can be explained by the quality of the participation and the profile of the participants. In studies that have found the positive link between participation and public health expenditure, this participation has generally been the work of women and vulnerable people with obvious health benefits. As political culture takes hold, public health spending increases. Indeed, as the results recorded in columns 7 and 8 of Table 5 show, the sign of political culture is positive, significant at 5% level for public health spending per capita and not significant for public health spending as a percentage of GDP. The coefficient indicates that when the indicator of political culture increased by 1%, public health spending per capita raised by 0.20%.

#### 4.3.3 Accountability, Political Stability and Public Health Spending

Table 6 presents the results of the estimates considering accountability and political stability as political variables.

**Table 6. Accountability, Political Stability and Public Health Spending in SSA**

Model (Note 3)	(1)	(2)	(3)	(4)	(5)	(6)
log (WGIVA)	1.446***					

	(0.000)					
<b>log (WGIVA)</b>	1.320*** (0.000)					
<b>log (ICRGDA)</b>	1.045*** (0.000)					
<b>log (ICRGDA)</b>	0.963*** (0.000)					
<b>log (WGIPSAVT)</b>	0.572*** (0.000)					
<b>log (WGIPSAVT)</b>	0.710*** (0.000)					
<b>log (PCGDP)</b>	1.275*** (0.000)	0.281*** (0.000)	1.392* (0.000)	0.389*** (0.042)	1.237*** (0.000)	0.222*** (0.001)
<b>log (TR)</b>	0.141** (0.045)	0.174* (0.051)	0.372*** (0.000)	0.357*** (0.000)	0.346*** (0.000)	0.308*** (0.001)
<b>log (Pop 65)</b>	-0.027 (0.744)	0.017 (0.822)	0.027 (0.752)	0.066 (0.405)	0.240** (0.010)	0.257*** (0.004)
<b>log (TBI)</b>	0.036 (0.566)	0.022 (0.720)	-0.186** (0.048)	-0.181** (0.048)	-0.043 (0.530)	-0.044 (0.478)
<b>log (PCODAH)</b>	-0.031 (0.281)	-0.024 (0.403)	0.057** (0.011)	0.055** (0.014)	0.082*** (0.000)	0.056** (0.041)
<b>Constant</b>	-8.508*** (0.000)	-3.773*** (0.000)	-9.093*** (0.000)	-4.313*** (0.000)	-7.978*** (0.000)	-3.176*** (0.004)
<b>Countries</b>	27	27	27	27	27	27
<b>Observations</b>	185	185	185	185	185	185
<b>R-Squared</b>	0.873	0.483	0.874	0.490	0.854	0.447
<b>Prob &gt; CHI2</b>	0.000	0.000	0.000	0.000	0.000	0.000

Figures in parentheses are p-values; \*\*\*, \*\* and \* denote significance at 1%, 5% and 10% respectively.

Source: Author estimation.

The results of the estimates presented in columns 1 to 4 of the Table taught us that accountability promotes increased spending on health. The coefficients of voice and accountability (WGI) and democratic accountability (ICRG) are both positive and significant at the 1% threshold. More exactly, per capita government health spending went up respectively by 14.46 % and 10.45% when the indicators of voice and accountability from WGI and democratic accountability from ICRG increased by 10%. Likewise, for 1% increase in democratic accountability and voice and accountability towards a

more accountable government, the share of government health spending in GDP increases from 0.96 % to 1.32%. The positive effect of government accountability on public health spending is confirmed by previous empirical work done in mixed panel (Farag et al., 2012; Cockx & Francken, 2014; Liang & Mirelman, 2014) and African countries (Fosu, 2008; Kumah & Brazys, 2016). By investigating a mixed sample of 120 countries between 1995 and 2010, Liang and Mirelman (2014) suggested a positive association between democratic accountability and government health expenditure (total and domestically funded). Farag et al. (2012), using a panel data set for 173 countries for the 1995-2006 period, find that the voice and accountability has a significant positive influence in mobilizing more resources for health. These results are in line with those obtained by Cockx and Francken (2014) whose study focused on a sample of 136 and 137 countries over the period 1995-2009. They show that a higher level of constraints on executive, which corresponds to more restrictions on executive actions and greater accountability, is associated with higher public health expenditures. In the same vein, Fosu (2008), using five-year averages from 35 countries in sub-Saharan Africa over the period 1975-1994, pointed out that constraint on the government executive shifts the budget in favour of health. Likewise, in the context of Africa, Kumah and Brazys (2016) highlighted the crucial role of public accountability in budgetary arbitration for the benefit of the health sector. In particular, they show that the presence of an opposition (political and/or civil society), transparency or even the independence of the judiciary, is favourable to an increase in public health expenditure as a percentage of GDP in a sample of 46 to 48 African countries.

The estimates also highlight a positive association between political stability and absence of violence/terrorism and public health spending, since the coefficient of political stability and absence of violence/terrorism from WGI is positive and significant at the 1% level. The more stable the political environment, the higher the domestic public resources allocated to the health of the populations. For 1% increment in political stability and absence of violence/terrorism indicator toward a more stable political environment, our estimates give a significant increment in the percentage of GDP expended on health care by government from domestic resources (+0.71%) and per capita government health spending (+0.57%). This result is consistent with the finding of previous studies in mixed sample (Liang & Mirelman, 2014) and in Lesotho case study (Ramashamole & Thamae, 2015). Liang and Mirelman (2014) found that government stability is positively correlated with government health expenditure. Echoing with the finding of Liang and Mirelman (2014), Ramashamole and Thamae (2015) found that in Lesotho, political instability affects negatively public health spending. However, its contrast with the finding that in developing country context like Nigeria, political instability has no significant influence on public spending allocated to the health sector (Imoughele & Ismaila, 2013; Olawunmi, 2014).

## 5. Conclusion

In Sub-Saharan Africa, access to essential health care services remains problematic and communicable diseases are the cause of more than half of deaths. The financing of health care is mainly provided by private sources, mainly out-of-pocket payments which represent respectively 53.12% and 36.73% of total health expenditure. As for public health expenditure, essential for ensuring universal health coverage, it represents only about 35% of health expenditure. Thus, the increase in public spending on health proves to be a major challenge for the countries of the region in the prospect of reaching the SDG relating to health by 2030. Hence, the importance of identifying the determinants of public health spending.

The purpose of this paper was to analyse the political determinants of domestic public health spending in SSA. We used data of 39 countries over the period 2010-2016 and panel-corrected standard errors method for empirical investigation. It turns out that democracy promotes increased public spending on health. Besides democracy, the other political determinants are: political competition, civil and political liberties, accountability, government effectiveness and political stability. The results also showed that political participation does not affect public health spending. Beyond political factors, GDP per capita, official development aid to health, fiscal capacity, the proportion of the population aged 65 and over and the incidence of tuberculosis positively affect public spending on health.

In the light of these results, the deepening of democracy, the strengthening of political competition and accountability mechanisms, the guarantee of political rights and civil liberties, the improvement of government effectiveness and the assurance of a stable political environment are essential for increasing public spending on health. This increase, coupled with better use of resources, will enable health systems to provide health care to the population, thereby enabling them to have a better health and be more productive for the benefit of the region.

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## Notes

Note 1. EIUEPP is the EIU Sub-score Electoral Process and Pluralism, FHPR is the Political Right of Freedom House, FHCL is the civil liberties of Freedom House and EIUCL is the EIU Sub-Score civil liberties.

Note 2. EIUFOG is EIU sub-Score of functioning of government, WGIGE is the government effectiveness retrieved from WGI, EIUPP and EIUPC are EIU sub-scores political participation and political culture.

Note 3. WGIVA is voice and accountability from WGI; ICRGDA is the democratic accountability retrieved from ICRG; WGIPSAVT is WGI indicator of political stability and absence of violence and terrorism.

## Appendix 1.

### List of Countries

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