Democracy and government spending

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Abstract

In this paper, we argue that democracies increase government expenditure because they produce more public goods with the taxes they collect, while autocracies use taxes as rents. In order to test this hypothesis we use data on 61 countries from 1993 to 2012. As our main independent variable we employ a dichotomous democracy measure, based on the theory of regional democratization waves developed by Huntington (1991) and used in Acemoglu, et al. (2014) and Balamatsias (2017a). Our results using a number of estimations show us that democratization waves positively affect democracy. Furthermore, our 2SLS, OLS, fixed effects and GMM estimations show us that democracy increases spending on public goods and education. When controlling for a dataset without African and Middle-eastern countries our first-stage results remain the same and the effect on spending is now quantitatively bigger suggesting wealthier democracies produce more public goods, compared to poorer ones. In addition when using a sample of non-OECD countries we find that democracy does not affect spending, further substantiating our hypothesis that democracy increases government expenditures but mostly on wealthier democracies.

JEL P16, H5, E62

Keywords Democracy, Political development, Regional democratization waves, Fiscal policy, Government expenditures

1. Introduction

Fiscal policy and more specifically government spending is a major issue in economics and politics. Research on the design and implementation of government spending programmes is at the forefront of economic policy analysis and is also one of the most debated subjects in the political arena. A number of studies on this subject have shown that the political system in every country plays an important role in the size, scope and composition of spending programmes. More specifically fiscal policy choices in democracies are made by the median voter and as a result, government spending in democracies is much greater when compared to autocracies because voters demand increased expenditures which produce public goods and redistribute incomes (Meltzer and Richards (1981,1983), Acemoglu and Robinson (2000b)). In non-democratic countries, powerful economic and political groups influence public policy choices. In such systems, governing elites choose to spend less on producing public goods and on redistribution because they stand to gain less from such policies and instead reallocate funds to increase their economic and political power as well as that of their political friends and allies (Hausken, Martin and Plumper (2004)).

In addition to the role that political systems play in determining spending policies, some authors have also studied how government expenditures affect political regimes and have found that the composition and size of spending programs can have an effect on the political regime. More specifically in autocracies, increased government spending targeted at specific parts of the population, increases discontent leading to revolts which help install a democracy and provide increased government spending in favour of the majority of the population(Wintrobe (2001)). In addition, concessions made by the ruling élite, in the form of increased government spending, can lead to democratization because the poor may view these concessions as a sign of weakness; consequently the lower classes revolt and establish a democratic regime which further increases expenditures in favour of the majority (Acemoglu and Robinson (2000a)).

These two different ways of analyzing the relationship between government spending and political regimes actually suggest that there exists a two-way causal relationship between democracy and government spending where one variable influences the other and is in turn influenced by it; to the best of our knowledge, this possible two-way causality between democracy and government spending has not been the research subject of any other author in the past as well. It is this gap in the literature that we try to cover with this paper; more specifically we will alter our analysis from that of other authors by analyzing this possible two-way causality and trying to find how it influences spending policies.

In order to empirically test the two-way causality between democracy and government spending, we use the theory of Huntington (1991) and the methodology of Acemoglu et al. (2014) and Balamatsias (2017a) about regional democratization waves. Using this methodology, we treat democracy as a simple dichotomous variable; however unlike research by previous authors, we do not assume that only domestic politico-economic conditions (Helliwell (1994), Rodrik (1999) Persson and Tabellini (2006), Aidt and Jensen (2009), Mutascu(2011)), or political systems but only in neighboring countries (Persson and Tabellini (2009)) affect a country's regime. Instead, following Acemoglu et al. (2014) and Balamatsias (2017a), we use a 2SLS fixed effects model in order to examine how political systems of countries in the same geographical area create regional waves of demand for or discontent with a given political system in a geographical area, which in turn can influence a country's political regime and its spending decisions.

In our literature review section, we examine how government spending impacts on democratization; in addition, we also study the effect of democracy on spending policies. Furthermore, we briefly look at some of the determinants of government spending and their interaction with government spending choices. We then build a very simple macroeconomic model of an autocratic economy which helps us illustrate how political regimes can affect a country's spending choices. Following our theoretical model, we analyze the econometric equation and the variables we use to find how democracy affects government expenditure. As in Acemoglu et al. (2014) and Balamatsias (2017a) we use a two-stage least square (2SLS) fixed effects estimation with data from 61 countries from 1993 to 2012, where our endogenous variable is a dichotomous democracy index based on civil and political liberties data taken from Polity IV and Freedom House and our instrumental variable is the jack-knifed average of the democracy index of all countries in the same geographical area. This method allows us to examine how regional democratization waves influence the demand for or discontent with a given political system in a geographical area, which in turn affect a country's political regime and its spending choices.

Our results using a number of estimations and robustness tests show us that regional democratization waves have a positive and statistically significant correlation with democracy. Furthermore, our main 2SLS estimation as well as our OLS, fixed effects and GMM estimations show us that democracy increases government spending used for producing public goods and general public services and government spending on education. When controlling for a smaller dataset, which does not include African and Middle-eastern countries our first-stage results remain the same while the positive effect of democracy on government spending is now quantitatively much bigger suggesting that wealthier democracies produce more public goods and services, compared to poorer ones. This hypothesis is further substantiated when we use a smaller sample consisting of non-OECD countries and find no statistically significant effect of democracy on government spending. These results further prove that democracy increases government expenditure mostly on developed countries because they can use increased government spending more effectively in order to increase productivity and output, decrease inequality (Meltzer and Richards (1981, 1983), Boix (2001)) and attract foreign capital (Schulze and Ursprung (1999)) therefore most voters in these countries are in favour of such policies.

The rest of the paper is organized as follows: In section 2 we present the literature related to our subject. In section 3 we develop a simple theoretical model which helps us present our main idea, section 4 has an analysis on the data that we use and our empirical methodology. In section 5 we present our regression results and Section 6 concludes.

2. Literature Review

According to many authors, government spending has an impact on democratization. For example, Acemoglu and Robinson (2000a) use a political economy model of an autocracy were social unrest due to economic inequality can lead to the toppling of politico-economic elites and pave the way for the consolidation of democracy. In this model the authors argue that concessions by the ruling elite, in the form of increased voting rights and increased government spending, can, in fact, lead to full-scale democratization because the poor can view these concessions as a sign of weakness; consequently the lower classes choose to revolt since they perceive the government as weak and establish a democratic regime. Furthermore, Wintrobe (2001) reviews the behaviours of dictatorships and tries to propose and develop policies towards them. When examining the spending policies which autocracies follow the author argues that they tend to redistribute more but only to specific socio-economic groups which support them and this selective use of government spending increases the cost and the difficulty of repressing the rest of the population. As a result, in the case of many autocratic regimes increased but selective government spending can lead to increased discontent for an autocracy causing the people to revolt and install a democracy which then provides increased redistribution for more people.

Some authors have also argued that democracy leads to increased public goods production and increased redistribution. Acemoglu and Robinson (2000b) argue that the redistributive programs which occurred in Western Europe during the 19th and 20th centuries were the result of democratization and examine this hypothesis using a model in which autocracies choose if they will extend the voting franchise or not. In case they do, government spending rises since the median voter is now much pooper and demands greater redistribution. After the elite's decision, the poor decide if they will revolt or not. If they revolt, the poor always succeed, seize the elite's wealth and capital and use it in economic and home production, receiving all incomes. The authors conclude that autocracies prefer to democratize in order to avoid the loss of capital and wealth, which results in increased government spending. Hausken, Martin and Plumper (2004) develop a theoretical model where governments choose between providing rents or pure public goods in order to remain in power. The authors argue that when the level of democracy remains low then rents are preferred to the provision of public goods. However, as democratic participation increases, rents become increasingly costly as a source of political support and governments resort to increasing public goods production and provision instead. The authors empirically test the validity of their theoretical result and conclude that stronger democratic regimes tend to increase the quantity of public goods they produce and offer to their citizens.

When examining the effect of the political regime on different types of spending, the literature suggests that democracies increase redistribution and public goods production in order to lower inequality. Meltzer and Richards (1981, 1983) examine the way majority rule voting and redistributive needs affect fiscal policy using a general equilibrium model with income differences. Their results show that democracies increase taxes and redistribution in order to lower inequality and increase per capita incomes. Additionally, increased democratization, population growth and increases in inequality and incomes also raise taxes and spending. Boix (2001) examines how democracy and economic growth impact on fiscal policy. His results lead to two conclusions. First, as the economy grows and per capita income increases, production of public goods and capital rises to increase productivity, output and

income and reduce inequality. However, since taxes are decided by the median voter a necessary condition for increasing government spending is a democratic political system where the majority of the population belongs to the middle-income class because only they benefit from increased government spending and are in favour of it; neither very poor nor very wealthy people benefit from government spending. Therefore, only relatively wealthy democracies trying to lower inequality increase government spending. On the other hand, some authors argue that inequality increases government spending regardless of the political regime by magnifying government spending multipliers. Auclert and Rognlie (2016) use an NK, DSGE model where skill differences and labour demand shortfalls limit labour supply and income, leading to inequality and different MPC. In this model, inequality lowers output because the negative covariance between income and the MPC is too small to offset income losses. However, inequality increases government spending multipliers, raising output, investments and income. Balamatsias (2017b) uses an NK macroeconomic model of an economy with imperfectly competitive goods market due to firms' market power and inequality due to skill and wage differences and examines their impact on government spending multipliers, output and expenditure. Results show that government spending multipliers are always greater than unity due to imperfect competition and become bigger as inequality increases, since in highly unequal economies more people have a higher MPC. As a result, the net increase in output and expenditure caused by increasing government spending is greater in more unequal economies.

Finally, the combined effect of democracy and globalization has been the subject of many studies and authors. Schulze and Ursprung (1999) review the literature on the impact of globalization on fiscal policies and the effect of political competition combined with economic integration. According to this survey, government expenditures under globalization, particularly welfare spending have not been reduced because it protects workers from economic uncertainty, unemployment and income losses which are caused by market integration. In addition, government spending on economic activities such as infrastructure, energy production and manufacturing as well as spending on production of public goods and services such as education has remained relatively stable because it raises productivity, output and profitability in the economy and helps attract private capital. Furthermore, democracy has a positive effect on government spending even in a globalized economic environment because median voters demand compensation and provision of public goods for worker and firms in sectors which are exposed to risks associated with globalization.

3 Theoretical considerations

This section elaborates on the theoretical link between democracy and government spending in order to formalize the testable empirical implications of the theoretical literature. At first sight, this model appears simple, maybe even simplistic. But our goal is not theory for its own sake. This model simply helps us explain how the political system in a country affects the size and composition of government expenditure.

We assume that we have a country ruled by an autocrat. The economy is populated by a continuum of identical individuals indexed by i that do not have any control over government choices. Individuals in the economy own the capital stock which they rent to firms; in addition, they supply labour to firms. They consume a single

consumption good produced by the firms as well as a public good produced by the government. The utility of the representative individual *i* when an autocracy is in place is given by the following function:

$$U_{i,\alpha} = C_{i,\alpha} + \log\left(G_{ci,\alpha}\right) \quad (1)$$

Where $C_{i,\alpha}$ and $G_{ci,\alpha}$ are the quantities of the private and public consumption goods respectively. Consumption of private goods equals the income that individuals receive from labour and capital i.e.:

$$C_{i,\alpha} = Y_{i,\alpha} \quad (2)$$

Where $Y_{i,\alpha}$ equals the income people receive from labour and income when under an autocratic regime.

Firms in the economy use labour and capital supplied by individuals in the economy in order to produce a single consumption good. In addition to these two inputs, firms also use public capital which is provided by the government. The production function is a simple Cobb-Douglas function with public and private capital:

$$Q_{\alpha}\left(K, L, G\right) = AK_{a}^{a}L_{a}^{(1-a)}G_{k,a}^{\theta} \quad (3)$$

Where A is total factor productivity, K_a capital in the economy, L_a labour and $G_{k,\alpha}$ the public capital produced by the government, under an autocratic regime. It is easy to prove that, since both capital and labour are owned by the economy's population, the total income received by the individuals in the economy equals total output:

$$Y_a = Q_a \quad (4)$$

Government in our model is endowed with a fixed budget *B* which is allocated between producing government consumption goods ($G_{ci,a}$), government capital ($G_{k,a}$) and rents (*R*) which are used solely by the elite similarly to Hausken, Martin and Plümper (2004):

$$B = G_{ci,a} + G_{k,\alpha} + R \quad (5)$$

In an autocracy rents compose a large part of the government budget compared to democracies; on the other hand democratic governments allocate recourses according to the choice of the majority; therefore under a democratic regime the sum of the government budget is used to produce public capital and public goods and rents are equal to zero.

In the beginning of each period the economy's population can choose to stage a revolution and take power in their hands by establishing a democracy. We assume that once a revolt takes place it is always successful; however it comes at a cost as in Acemoglu and Robinson (2000b) where a share μ of private capital, and labour is destroyed as a result of the revolutionary process. As a result only the remaining share

$(1-\mu)$ is used in production. The above imply that the new quantities of private capital (K_d) and labour (L_d) in a democracy are equal to:

$$K_d = (1-\mu)K_a \quad (6)$$

$$L_d = (1-\mu)L_a \quad (7)$$

Public capital and public consumption goods are also similarly affected, however since the political system in place now is a democratic the share of the government budget which was used for rents (*R*) is now used to produce public capital and public consumption goods. Consequently the quantity of public consumption goods and well as public capital can now be less than, equal to, or greater than it was before. Assuming that a percentage λ of the rents is used to increase public capital and (1-λ) to increase public consumption goods, we formulate the following relationships about public capital ($G_{k,d}$), public consumption goods ($G_{ci,d}$) and total output in the economy respectively ($Q_d(K,L,G)$), under a democratic regime:

$$G_{k,d} = (1-\mu)G_{k,a} + \lambda R \quad (8)$$

$$G_{ci,d} = (1-\mu)G_{ci,a} + (1-\lambda)R \quad (9)$$

$$Q_d(K,L,G) = AK_d^a L_d^{(1-a)} G_{k,d}^{\theta} \quad (10)$$

Finally the utility of the representative citizen *i* under a democratic regime is equal to:

$$U_{i,d} = C_{i,d} + \log(G_{ci,d}) \quad (11)$$

In this model, the decision to revolt and install a democracy is made by the citizens once they examine the effect that democratization will have on output and income, but more importantly on consumption and utility. We denote the probability that a country *i* exits from autocracy and installs a democracy in time period *t* as $D_{c,t} \in \{0,1\}$, where 0 means that country *c* remains an autocracy and 1 that country *c* becomes a democracy. We then obtain the following relationship:

$$D_{c,t} = \begin{cases} 0 \ \textit{if} \quad U_{i,d} < U_{i,\alpha} \\ 1 \ \textit{if} \quad U_{i,d} > U_{i,\alpha} \end{cases} \quad (12)$$

According to (12) if increased government spending cannot compensate for the losses the economy would suffer as a result of the revolutionary process and increase citizens' utility then $D_{c,t} = 0$ and citizens choose not to revolt and the country's regime remains autocratic. If instead increased government spending not only compensates for the losses the economy suffers due to the revolutionary process but also increases the utility of citizens then $D_{c,t} = 1$ and citizens choose to revolt and install a democracy.

4. Data and methodology

4.1 Data

In order to construct our main dependent variable we use a classification of government expenditures based on Profeta, Puglisi and Scabrosetti (2013). Following this method, we group government expenditures in four separate categories which we interchangeably use as our dependent variable: Government expenditure on production of public goods and services (*General spending)* spending on healthcare *(Health spending)*, spending on education (*Education spending)*, and spending on social protection (*Social protection spending*).

Data on expenditure are taken from the IMF government finance statistics and are presented as percentage of GDP.

4.2 Construction of the regime measure[1]

In this section, we analyze the empirical strategy we use to measure and construct our political regime variable, which will help us study the effect of democracy on government spending. Our analysis is based on the theory of Huntington (1991) and the methodology of Acemoglu et al. (2014) and Balamatsias (2017a) about regional democratization waves. Research by previous authors assumed that a country's political regime is affected only by domestic economic and political conditions (Helliwell (1994), Rodrik (1999) Persson and Tabellini (2006), Aidt and Jensen (2009), Mutascu (2011)), or only by the political regimes of neighboring countries (Persson and Tabellini (2009)). Our own analysis makes completely different assumptions about democracy and has not been used before in examining the relationship between democracy and government spending. More specifically, and following Huntington (1991), Acemoglu et al. (2014) and Balamatsias (2017a) we assume that democratizations or reversals to autocracy occur in regional waves because countries in the same area share economic, political, historical and cultural ties and face similar problems. Therefore the diffusion of demand for or discontent with a political system is much easier to happen in countries in the same geographical area and impacts on political systems and their spending choices. To test this hypothesis, we construct a single dichotomous variable based on political and civil liberties as our endogenous variables and a jack-knifed average constructed by using the democracy index of all other countries in the same geographical area as our instrumental variable; we then use these two variables in a 2SLS fixed effects regression.

Following Acemoglu et al. (2014) and Balamatsias (2017a) we use data from the Polity IV project and Freedom House in order to construct our democracy index and our jack knifed average. More specifically Polity IV uses data on 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. Freedom House uses an index related to the protection of civil and political rights in a country.

[1] For a more detailed analysis on the methodology used in this paper and on the institutional variations used to categorize countries as democracies or autocracies, see Acemoglu, Naidu, Restpero and Robinson (2014) and Balamatsias (2017a)

Based on the datasets of Polity IV and Freedom House and on Acemoglu et al. (2014) and Balamatsias (2017a) we construct an index of the political regime $D_{ct} \in \{0,1\}$ for a country c on time t. More specifically the political system in a country is defined as autocratic or democratic by employing a single dichotomous variable $D_{ct} \in \{0,1\}$ where 0 means that the country c is an autocracy and 1 means that the country c is a democracy. We calculate the regime variable using the following specification:

We code a country c as democratic (D_{ct} =1) in year t if Polity IV gives it a positive score (The Polity IV index takes prices between -10 and +10) or if Freedom House categorizes the country as "Free" or "Partially Free". Alternatively, if a country receives a negative score on Polity IV or is categorized as "Not Free" in Freedom House then it is coded as autocratic (D_{ct} =0).

Finally, as in Balamatsias (2017a) we test the robustness of our results by using a continuous variable in order to denote a country as democratic or autocratic. Using the Polity IV dataset, we code a country c in year t as democratic if it has a value between 1 and 10 in Polity IV ($D_{ct} \in \{1,10\}$). Countries given a value of -1 to -10 in the Polity IV dataset are instead coded as autocratic ($D_{ct} \in \{-1,-10\}$).

4.3 Control Variables

In addition to our main explanatory variable we use a number of control variables in order to ensure a robust econometric result. These are some of the factors which the relative literature considers having some kind of effect on government spending aside from the political regime. Data for all the control variables we use come from the World Bank World Development Indicators (WDI), the IMF Government Finance Statistics and the OECD public sector, taxation and market regulation databases. We also use simple historical data based on election dates and the political history of our sample countries in order to construct some of our dummy variables.

First we use GDP per capita (*income*), expressed in constant 2010 US$ prices. Higher per capita income is associated with increased government spending for redistribution, production of public goods and government investments so we believe this variable will have a positive effect on government spending.

In addition we use data on economic integration (*openness*) by using the sum of imports and exports as percentage of GDP. This variable will probably have a positive effect on *Social protection spending*, *Education spending* and *General spending* because economic integration increases spending on welfare programs in order to lower economic uncertainty and unemployment as well as production of public goods which increase output and productivity and help attract capital.

An additional dataset which we make use of is that of income inequality (*inequality)* by using the Gini index. We expect a positive relationship between this variable and our dependent variables because greater economic inequality is associated with increased government spending, because median voters in democracies demand redistributive government expenditure and also because inequality increases the size of government spending multipliers.. We also control for the population of a country (*population*). We expect that a country's population will have a positive effect on government spending because income inequality tends to increase when the population increases and also because of median voter pressures for redistribution.

In order to achieve the best overall fit for our estimation we also employ a number of variables which are typically considered as having an effect on macroeconomic policy. We use data on gross capital formation as a percentage of GDP (*Investment*) following the hypothesis that productive government spending and private investment acts as complementaries while other types of public spending crowd out investment (Argimón, González-Páramo and Alegre (1995), Xu and Yan (2014)). We also employ data on the number of people over the age of 65 as a percentage of the entire population (*Elderly*) a variable which we believe has a positive effect on government spending due to increased demand for government welfare programs from older people (Lassila, Valnoken and Alho (2014), Bloom et. al. (2015)). We also use data on higher educational attainment (*Education*) as in Mutascu and Danuletiu (2013) as well as three dummy variables: *Socialist* a dummy variable equal to 1 if a country was a former socialist state and 0 otherwise, (Rodrik (1999)).Second, data on election years (*elections*) a variable equal to 1 in year t if a country holds elections and equal to 0 otherwise (Drazen and Elsava (2010)). Finally we use a dummy on oil exports as percentage of GDP (*oil exporter*) which gives a country a value of 1 if it collects revenues from oil equal to 30% of GDP or higher and 0 otherwise, (Fearon and Laitin (2003)).

4.4 Descriptive statistics

In Table 1 we present descriptive statistics for our variables. Table 2 we present the correlation matrix of our variables

[Table 1 here]

[Table 2 here]

4.5 Econometric model

The main econometric equation we will use in order to examine the effect of the political regime in a country's government spending will be based on Acemoglu et al. (2014) and Balamatsias (2017a). More specifically we will be using a Two–stage least squares (2SLS) regression where the endogenous variable will be each country's political regime index and the instrumental variable will be the jack-knifed average of the democracy index of all countries in the same geographical area. Both of these indexes are constructed using data on political and civil liberties and are the same as those used in Acemoglu et al. (2014) and Balamatsias (2017a). The panel dataset that we will use comprises data on 61 countries from 1993 to 2012. Data on government spending and our control variables are expressed in logarithmic form.

4.6 Basic econometric specification

The basic estimation that we will use in order to examine the effect of a country's political regime on its government spending is based on the estimation used in Balamatsias (2017a):

$$Spending_{ct} = a_0 + \beta_1 Democracy_{ct-1} + \beta_{it} Contols_{ct-1} + \gamma_c + \varepsilon_{ct} \quad (1)$$

Where $Spending_{ct}$ represents interchangeably general government spending, spending on education, spending on healthcare, and social protection spending. $Democracy_{ct-1}$ is the democracy index of country c time for the time period t-1. $Controls_{ct-1}$ stands for the set of control variables of country c for the time period t-1. We also control for country and time effects which are denoted respectively by γ_c and δ_t. Finally ε_{ct} is the error term and α_o our constant.

As we have seen in Wintrobe (2001), Acemoglu and Robinson (2000a, 2000b) and Hausken, Martin and Plumper (2004) the size and composition of government expenditure can bring transitions to democracy and at the same time democratic transitions can bring increases in government spending. Therefore, we assume that these two variables have a two-way causal relationship between them where both of them influence and can be influenced by the other and we test this hypothesis by using a 2SLS fixed effects model as in Acemoglu et al. (2014) and Balamatsias (2017a). Following this methodology, we assume that democracy in country c is influenced by the political regime of all other countries in the same geographical area. For this reason we use regional waves of democratization and regional transitions to autocracies as an instrumental variable and examine their impact on our endogenous variable, $Democracy_{-1}$. We begin by defining the set of countries that influence demand for democracy in a given country. Following Acemoglu et al. (2014) and Balamatsias (2017), for every country c, we use the country's democracy index at the start of our sample, D_{ct0} to denote this country's political regime (democracy or autocracy). Then we use R_c to denote the geographical region in which country c lies. Democracy in country c is influenced by democracy in the set of countries $I_c = \{c': c' \neq c, R_{c'} = R_c, D_{c't0} = D_{ct0}\}$. This set includes all countries which are in the same region as country c that share a common political history.

The regional influence to democratize that country c faces, Z_{ct} is based on the following equation which is also used in Acemoglu et al. (2014) and Balamatsias (2017a):

$$Z_{ct} = \frac{1}{|I_c|} \sum_{c' \in Ic} D_{c't} \qquad (2)$$

Where Z_{ct} is the jack-knifed average of democracy in a region times the initial regime cell, which leaves out the own country observation. This equation shows how the political system in a given country is affected by the regimes in countries in the same geographical area by creating diffusion of demand for or discontent with a political system.

Using (2) gives us our first stage equation we will use:

$$Democracy_{ct-1} = \phi_j Z_{ct-1} + u_{ct-1} \qquad (3)$$

Combining (1) and (3) we have the two-stage least squares panel data model which we estimate:

$$Spending_{ct} = a_0 + \beta_1 Democracy_{ct-1} + \beta_{it} Contols_{ct-1} + \gamma_c + \varepsilon_{ct}$$

$$Democracy_{ct-1} = \phi_j Z_{ct-1} + u_{ct-1} \quad (4)$$

5. Results

Our dataset consists of 61 countries from 1993 to 2012. All of our regressions have been made using robust standard errors. Because our main research questions, methodology, variables and data are similar to the ones used in Balamatsias (2017a), we also use the same estimation methods and postestimation tests. We first run an ordinary least squares (OLS) model. In addition we also use a simple fixed effects (F.E.) regression, and an Arellano-Bond GMM regression. Our main estimation is a 2SLS fixed effects regression with both country and time effects, which help us control for individual unobservable effects in our sample of countries as well as for the endogeneity of the main explanatory variable, *Democracy-1*.

Our postestimation tests consist of a Wooldridge test to test for serial correlation and a Crag Donald F-statistic which help us check for instruments validity i.e. instruments not correlated with the error term. The results show that there exists no serial correlation, that we have valid instruments and that the excluded instruments are correctly excluded from the estimated equations. We also perform an endogeneity test to see if a 2SLS regression is the right estimation used or if a simple OLS model would be sufficient. The results indicate that a 2SLS model is in fact the model we need to use. Finally, in order to ensure that there have no imperfect exogeneity issues we include our instrumental variable, Z_{ct-1} as a repressor both in our OLS and in our fixed effects estimations as in Baum (2008), and find that Z_{ct-1} negatively affects *Social protection spending* at a 10% significance level in the OLS estimation with a significant coefficient of -0.226. Therefore we conclude that imperfect exogeneity is not an important problem in our estimations of *General spending*, *Education spending* and *Health spending* since it only seems to affect *Social protection spending*.

In the following tables we present our estimation results. Each one of the columns presents the results when the dependent variable is respectively *General spending*, *Education spending Health spending* and *Social protection spending*. We begin our analysis by estimating the OLS and the fixed effects (F.E.) estimators for each one of our dependent variables interchangeably. Following that we run an Arellano-Bond GMM estimation. We then run a 2SLS fixed effects regression, which we present in two tables; the first table gives us the results of the first stage regression and the second table the results of our second stage regression. We begin with Table 3, which gives us the results of our OLS regression.

[Table 3 here]

In Table 3, we present our OLS estimations. Our main finding is that *Democracy-1* positively affects *Education spending and Social protection spending* at a 1% significance level, negatively affects *General spending* also at a 1% significance level while *Health spending* seems to be unaffected by this index.. The magnitude of the coefficients is also quite big, being 0.102 for *Education spending*, 0.269 for *Social protection spending* and 0.051 for *General spending*. We also find evidence that regional democratization waves, presented here by our variable *Zct-1* do not have a

direct impact on most spending variables; the only exception being the positive effect they have on *Social protection spending*. The magnitude of this coefficient is also very big, (-0.226) so the direct effect of regional democratization waves on social protection is quite significant.

[Table 4 here]

Our estimation for the fixed effects estimations are given in Table 4. As seen from the results *Democracy*$_{-1}$ has a positive effect on *General spending* at a 10% significance, level with a coefficient of 0.064; however none of the other dependent variables area affected by this variable. Looking at the effect of our control variables we find that most of them perform as we expect them to, according to the relevant literature.

[Table 5 here]

Table 5 gives us the results of our Arellano-Bond GMM estimation. We used two-period time lags for our democracy index and a single period time lag of our government spending variables in order to deal with issues of autocorrelation and achieve the best overall fit for our estimation. The main finding in this estimation is that our democracy index *Democracy*$_{-1}$ has a positive impact on *General spending* at a 10% significance level, and a negative effect on *Health spending* and *Social protection spending* at a 10% and 1% significance level respectively. Furthermore, past government spending, presented here by the *Spending*$_{-1}$ seems to have a significant impact on current spending policies. More specifically we can see that *Spending*$_{-1}$ positively affects *General spending* (0.526), *Education spending* (0.564), *Health spending* (0.495) and *Social protection spending* (0.552), all at a 1% significance level. When it comes to our control variables we find that most of them do not have an effect on our spending variables.

[Table 6a here]

[Table 6b here]

Our main findings are given in Tables 6a and 6b, where we present the results of our 2SLS estimation in which we used our regional waves of democratization index as our instrumental variable. We begin with our first stage estimation, given in Table 6a and then we move on to our second stage results in Table 6b.

Looking at the results in Table 6a we see that the impact of regional democratization waves index Z_{ct-1}, is statistically significant at a 1% level in all our specifications, being 0.518 for *General spending*, *Education spending* and *Health spending*, and 0.545 for *Social protection spending*. This result indicates that regional waves of democratization have a positive and highly significant effect on a country's political system; a result which appears to be in accordance with the theory of Huntington (1991) as well as the methodology used by Acemoglu et al. (2014) and Balamatsias (2017a) about the positive impact of regional waves of democratization on a country's political regime.

In Table 6b we present our second stage results. The most important finding is that *Democracy*$_{-1}$ has a positive effect on *General spending* at a 10% significance level, with a coefficient of 0.285. *Education spending* is also positively affected by *Democracy*$_{-1}$ at a 5% significance level with the coefficient being even bigger, at 0.407. These results seem to suggest that democracy increases government

expenditure used for producing goods and general services and spending on education. This result is not surprising since as we have seen in Meltzer and Richards (1981, 1983), Boix (2001) and Balamatsias (2017a) democracy increases tax revenues; therefore it is safe to assume that increased tax revenues should lead to increased government spending. When examining which types of government spending democracy increases we find that government spending used for production of public goods and services and education spending are positively affected while spending on defence and public order and social protection spending are not affected. This result can be explained by that fact that production of public goods and public education can be effectively utilized by firms and individuals in order to increase productivity and output in the economy and decrease inequality (Meltzer and Richards (1981, 1983), Boix (2001)) as well as help governments attract foreign capital by improving output, productivity and profitability (Schulze and Ursprung (1999)). Concerning the rest of our independent variables, we observe that they affect spending as predicted by the relevant literature the only exceptions being *Inequality*$_{-1}$ *Oil exporter*$_{-1}$ and *Elections*$_{-1}$ which do not have any effect on our spending variables and *Education*$_{-1}$ which has a negative effect on *General spending*.

Next, we examine the robustness of our main result. For this reason, we will run three additional estimations. In the first one, we run a regression where instead of a dichotomous democracy index we use a continuous one, in this case, the Polity IV scores for our sample countries. In the second regression, we exclude all countries from Africa and the Middle East. Finally, in the third regression, we use a much smaller sample consisting only of non-OECD countries.

[Table 7a here]

[Table 7b here]

Tables 7a and 7b present the estimates when using our continuous index for the regional waves of democratization. Looking at the results of our second stage regressions in Table 7a we find some considerable differences from our main results. More specifically, the effect of regional waves of democratization Z_{ct-1} is now negative at a 1% level of statistical significance in all our regressions. Additionally we see that the magnitude is now bigger, being -0.433 for *General spending Education spending* and *Health spending*, and -0.383 for *Social protection spending*.

The results of our second stage regressions are given in Table 7b. *Democracy*$_{-1}$ now has a negative effect on *General spending* (-0.054) as well as on *Education spending* (-0.091) both at a 5% significance level. These results further, as well as those in Table 7a, are completely different from the theoretical and empirical results of a positive relationship between regional waves of democratization and a country's political system seen in Huntington (1991), Acemoglu et al. (2014) and Balamatsias (2017a). In addition, these results cast some doubt on the positive impact that democracy has on government spending reported by a number of authors (Boix (2001), Meltzer and Richards (1981, 1983) Schulze and Ursprung (1999)) and by our baseline 2SLS OLS, fixed effects and GMM regressions.

[Table 8a here]

[Table 8b here]

The results of Tables 8a and 8b are extracted when we exclude North African and Middle-Eastern countries from our sample. In Table 8a we can see that even in this smaller sample, regional democratization waves, (Z_{ct-1}) still have a positive and statistically significant effect on our democracy index, but at a 5% significance level for all our regressions. Furthermore, when looking at the impact of *Democracy*$_{-1}$ on government spending it seems that it positively affects *General spending* at a 5% significance level, with a much bigger coefficient of 1.047. *Education spending* is also positively affected by *Democracy*$_{-1}$ at a 5% significance level with the coefficient being even bigger, at 1.463. These results indicate that democracy increases government spending in wealthier democracies much more than it does not poorer ones because per capita incomes are higher in wealthier states; consequently the majority of the population in these countries belongs to the middle-income class who can effectively use public goods and services to increase output and incomes and decrease inequality, and as a result vote in favour of increasing expenditure, as in Meltzer and Richards (1981,1983) and Boix (2001). The rest of our control variables affect government spending as suggested by the relevant literature.

[Table 9a here]

[Table 9b here]

Finally, we make use of a much smaller sample, comprised of non-OECD countries, the results of which are given in Tables 9a and 9b. The first stage results in Table 9a shows that the effect of regional waves of democratization remains statistically significant at a 1% level as in our baseline estimations. Additionally, we see that the magnitude is somewhat bigger compared to our baseline estimation, being 0.657 for *General* spending, *Education spending* and *Health spending*, and 0.083 for our *Social protection spending* first stage estimations.

The results of our second stage regression, given in Table 9b, show us that *Democracy*$_{-1}$ has no statistically significant effect on any of our dependent variables These results further substantiate that poorer democracies do not generally increase government expenditure and that increasing state spending is a habit of wealthier, more developed democracies as seen in Meltzer and Richards (1981, 1983) and Boix (2001).

To sum up, our empirical results using a number of different specifications and robustness tests, seem to verify our main assumption that regional waves of democratization in a geographical area increase discontent with autocracy and demand for democracy within a country, in line with the theory of Huntington (1991) and the methodology used Acemoglu et al. (2014) and Balamatsias (2017a) about regional democratization waves. In addition, our findings in the second stage estimation show us that democratic regimes seem to increase government spending on education and production of goods and services but mostly in richer countries because voters in wealthier democracies are in favour of increased production of public goods and services in order to increase productivity and output in the economy and to decrease inequality (Meltzer and Richards ((1981, 1983), Boix (2001)) as well as attract foreign capital (Schulze and Ursprung (1999)).

6. Conclusion

In this paper, we examine the impact that regional waves of democratization have on a country's democracy and the effect of democracy on government spending. The analysis is carried out using a dataset of 61 countries from 1993 to 2012. Our econometric analysis is the same one used by Acemoglu et al. (2014) and Balamatsias (2017a) which is based on the theory of Huntington (1991) about regional waves of democratization. Following this methodology we use a 2SLS fixed effects model in order to examine how political systems of countries in the same geographical area create demand for or discontent with a given political system in a geographical area, which in turn can influence a country's political regime and its spending decisions. Our first stage estimation shows that regional waves of democratization positively affect a country's political regime as in Huntington (1991), Acemoglu et al. (2014) and Balamatsias (2017a). The results of our main 2SLS estimation, as well as our OLS, fixed effects and GMM estimations, show us that democracy increases government spending used for producing public goods and public services and government spending on education. When controlling for a smaller dataset, which does not include African and Middle-eastern countries our first-stage results remain the same while the positive effect of democracy on government spending is now quantitatively much bigger suggesting wealthier democracies produce more public goods and services when compared to poorer ones. This hypothesis is further substantiated when we use a smaller sample consisting of non-OECD countries and find no statistically significant effect of democracy on government spending. Therefore, we conclude that democracy increases government expenditure on developed countries because individuals and firms in these countries use government spending more effectively to increase productivity and output, decrease inequality and attract foreign capital leading the majority of citizens in these countries to vote in favour of greater spending.

To the best of our knowledge, this is the first study that examines the two-way causal relationship between government spending and democracy, since authors in the past focused only on how spending affects political regimes, or simply on how democracy affects expenditure. In addition, our paper is the first one, which uses regional waves of democratization and examines their effect on a country's political regime and consequently on expenditure policies. Therefore, our findings contribute to the well-established literature about the relationship between government expenditure and democracy and on the determinants of spending policies. Clearly, these results and their policy implications call for a deeper understanding of the intra- and inter-country mechanisms which affect government spending and fiscal policy in general and call for future research on the subject.

7. Appendix

Table 1: Summary statistics for the main variables

Variable	Description	Obs.	Mean	Std.Dev.	Min	Max	Source	Expected Sign
General spending	General spending on public goods and services (%GDP)	1030	9.944	4.239	0	50.598	Calculations based on Profeta, Puglisi and Scabrosetti (2013)	
Education spending	Spending on education (%GDP)	1029	3.427	2.134	0	23.479	Calculations based on Profeta, Puglisi and Scabrosetti (2013)	
Health spending	Spending on healthcare (%GDP)	1029	3.992	2.547	0.145	20.44	Calculations based on Profeta, Puglisi and Scabrosetti (2013)	
Social protection spending	Spending on social welfare (%GDP)	1029	8.543	7.021	0	37.543	Calculations based on Profeta, Puglisi and Scabrosetti (2013)	
Democracy	Democracy index dummy	1240	0.862	0.344	0	1	Calculations based on Acemoglu, Naidu, Restpero and Robinson (2014)	Positive
$Democracy_{(polity)}$	Polity IV index	1220	7.023	2.755	-10	10	Polity IV dataset	Positive
Zct	Jack-knifed average of democracy index	1240	0.864	0.171	0.333	1	Calculations based on Acemoglu, Naidu, Restpero and Robinson (2014)	No effect
Zct_{polity}	Jack-knifed average of Polity IV index	1220	7.023	2.755	0	9.517	Calculations based on Acemoglu, Naidu, Restpero and Robinson (2014)	No effect
Gini	Gini index	1046	39.908	1.650	36.564	46.217	World Bank development indicators	Positive
Income	GDP per capita	1224	17435.13	18534.83	375.14	91593.63	World Bank development indicators	Positive
Openness	Exports plus imports(%GDP)	1228	51.400	25.970	16.062	204.585	World Bank development indicators	Positive
Investment	Gross capital formation (%GDP)	1218	23.601	7.121	0.298	67.910	World Bank development indicators	Negative
Population	Total population	1240	4.84e+07	1.45e+08	242000	1.26e+09	World Bank development indicators	Positive
Elderly	People over the age of 65 (% of population)	1220	10.673	5.175	2.045	21.163	World Bank development indicators	Positive
Education	Tertiary education enrolment (%gross)	995	45.73	23.47	0.208	110.26	World Bank development indicators	Ambiguous
Socialist	Socialist dummy	1220	0.25	0.433	0	1	Historical data	Negative
Election	Election year dummy	1220	0.240	0.427	0	1	Historical data	Positive
Oil exporter	Major oil exporter dummy	1218	0.343	0.474	0	1	World Bank development indicators	Positive

Table 2: Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	1.00																	
2	0.25	1.00																
3	0.30	0.74	1.00															
4	0.28	0.82	0.58	1.00														
5	0.07	0.32	0.16	0.35	1.00													
6	0.02	0.34	0.18	0.39	0.61	1.00												
7	0.16	0.43	0.23	0.47	0.38	0.25	1.00											
8	0.10	0.44	0.22	0.46	0.42	0.32	0.85	1.00										
9	0.03	-0.04	0.03	-0.02	0.04	-0.01	0.02	-0.01	1.00									
10	-0.06	0.48	0.13	0.50	0.26	0.29	0.34	0.36	-0.05	1.00								
11	-0.17	0.03	0.09	0.01	-0.08	-0.07	0.04	0.16	-0.03	0.05	1.00							
12	-0.16	-0.15	-0.04	-0.21	-0.08	-0.02	-0.10	0.01	-0.11	-0.18	0.09	1.00						
13	0.07	-0.15	-0.23	-0.22	0.01	-0.12	-0.18	-0.14	0.01	-0.13	0.31	0.07	1.00					
14	0.12	0.51	0.17	0.64	0.39	0.34	0.68	0.71	-0.07	0.52	-0.03	-0.06	-0.25	1.00				
15	-0.03	0.42	0.19	0.46	0.21	0.18	0.41	0.50	-0.08	0.56	0.03	-0.08	-0.16	0.68	1.00			
16	-0.05	-0.10	-0.04	-0.02	0.04	-0.01	0.21	0.26	-0.01	-0.41	0.24	0.18	-0.15	0.21	0.03	1.00		
17	0.01	0.02	0.02	0.05	0.08	0.08	0.01	0.01	0.01	0.03	0.02	0.01	-0.04	0.04	0.04	0.01	1.00	
18	0.01	-0.04	-0.05	-0.15	-0.17	-0.36	-0.13	-0.13	-0.03	0.01	-0.19	-0.14	0.25	-0.13	0.07	-0.09	0.01	1.00

Notes: 1=General spending, 2=Education spending, 3=Health spending, 4=Social protection spending, 5=Democracy, 6=Democracy(polity), 6=Zct, 7=Zct_{polity}, 8=Gini, 9=Income, 10=Openness,
11=Investment, 12=Population 13,=Elderly, 14=Education, 15= Education, 16= Socialist, 17= Elections, 18= Oil exporter

Table 3: OLS regressions

	OLS-General spending	OLS-Education spending	OLS-Health spending	OLS-Social protection spending
Democracy$_{-1}$	-0.051***	0.102***	0.089	0.269***
	(0.020)	(0.043)	(0.063)	(0.053)
Zct$_{-1}$	0.072	-0.093	0.141	-0.226*
	(0.057)	(0.126)	(0.182)	(0.153)
Inequality$_{-1}$	-0.106	-0.016	-1.508	0.015
	(0.330)	(0.723)	(1.047)	(0.866)
Income$_{-1}$	-0.070***	0.090*	0.207***	0.366***
	(0.022)	(0.048)	(0.070)	(0.058)
Investment$_{-1}$	-0.179***	-0.196*	-0.598***	-0.731***
	(0.052)	(0.114)	(0.165)	(0.142)
Education$_{-1}$	-0.091***	0.224***	-0.022	0.375***
	(0.032)	(0.070)	(0.102)	(0.084)
Openness$_{-1}$	-0.067	-0.139	-0.211	-0.020
	(0.043)	(0.094)	(0.136)	(0.112)
Population$_{-1}$	0.041***	-0.198***	-0.191***	-0.025
	(0.014)	(0.025)	(0.036)	(0.031)
Elderly$_{-1}$	0.359***	-0.219*	0.448**	0.610***
	(0.059)	(0.130)	(0.188)	(0.154)
Socialist$_{-1}$	-0.032*	-0.006	0.069	0.245***
	(0.018)	(0.040)	(0.058)	(0.048)
Elections$_{-1}$	0.008	-0.003	0.032	0.020
	(0.013)	(0.028)	(0.041)	(0.034)
Oil exporter$_{-1}$	-0.053***	-0.027	0.078*	-0.019
	(0.014)	(0.031)	(0.046)	(0.037)
R squared	0.150	0.199	0.245	0.547
N	714	714	714	687
F-test	10.33	14.57	19.04	67.96

Note: The table presents estimated coefficients with robust standard errors in parentheses. All estimations are regressed using robust standard errors. * p<0.1, ** p<0.05, *** p<0.01

Table 4: Fixed effects (F.E) regressions

	F.E-General spending	F.E-Education spending	F.E-Health spending	F.E-Social protection spending
Democracy$_{-1}$	0.064**	-0.011	-0.145***	-0.203***
	(0.025)	(0.028)	(0.032)	(0.033)
Zct$_{-1}$	0.114	0.217	-0.056	0.148
	(0.078)	(0.086)	(0.101)	(0.115)
Inequality$_{-1}$	-0.246	-0.005	0.471	-0.172
	(0.243)	(0.269)	(0.314)	(0.347)
Income$_{-1}$	0.054***	0.163**	-0.016	-0.076
	(0.062)	(0.069)	(0.080)	(0.087)
Investment$_{-1}$	-0.198***	-0.094	0.088	-0.241***
	(0.058)	(0.064)	(0.064)	(0.084)
Education$_{-1}$	-0.218***	0.037	1.039***	0.022
	(0.055)	(0.061)	(0.144)	(0.077)
Openness$_{-1}$	0.053	0.097	0.078	0.401***
	(0.083)	(0.092)	(0.108)	(0.122)
Population$_{-1}$	-0.063	0.114**	0.240***	0.208***
	(0.052)	(0.058)	(0.067)	(0.074)
Elderly$_{-1}$	0.312	-0.417*	0.780***	0.819***
	(0.195)	(0.217)	(0.252)	(0.274)
Socialist$_{-1}$	-0.025	0.032	0.113	0.185**
	(0.055)	(0.061)	(0.071)	(0.077)
Elections$_{-1}$	0.012	-0.002	0.007	0.009
	(0.008)	(0.009)	(0.011)	(0.012)
Oil exporter$_{-1}$	-0.017	-0.032	-0.017	0.028
	(0.022)	(0.024)	(0.028)	(0.031)
R squared	0.07	0.04	0.107	0.166
N	714	714	714	687
F-test	3.66	2.13	6.48	10.28
Wooldridge test	70.73	66.72	78.78	25.00

Note: The table presents estimated coefficients with robust standard errors in parentheses. All estimations are regressed using robust standard errors. * p<0.1, ** p<0.05, *** p<0.01

Table 5: Arellano-Bond GMM estimation

	GMM -General spending	GMM-Education spending	GMM-Health spending	GMM-Social protection spending
$Spending_{-1}$	0.526***	0.564***	0.495***	0.552***
	(0.057)	(0.059)	(0.055)	(0.067)
$Democracy_{-1}$	0.094*	-0.053	-0.175*	-0.159***
	(0.052)	(0.051)	(0.095)	(0.058)
$Democracy_{-2}$	-0.013	0.018	0.021	-0.067
	(0.052)	(0.049)	(0.066)	(0.048)
$Inequality_{-1}$	-0.168	-0.028	-0.220	-0.320
	(0.206)	(0.169)	(0.254)	(0.199)
$Income_{-1}$	-0.014	0.093	0.453**	0.003
	(0.144)	(0.117)	(0.183)	(0.133)
$Investment_{-1}$	-0.078	0.013	-0.009	0.023
	(0.079)	(0.066)	(0.100)	(0.080)
$Education_{-1}$	-0.065	0.024	-0.195	0.168*
	(0.103)	(0.085)	(0.127)	(0.097)
$Openness_{-1}$	-0.005	0.077	-0.018	-0.028
	(0.106)	(0.089)	(0.132)	(0.103)
$Population_{-1}$	0.384	0.107	-0.307	0.814**
	(0.368)	(0.296)	(0.457)	(0.374)
$Elderly_{-1}$	0.152	-0.197	0.173	-0.381
	(0.326)	(0.269)	(0.385)	(0.298)
$Socialist_{-1}$	-0.016	0.011	0.001	-0.114
	(0.092)	(0.076)	(0.117)	(0.069)
$Elections_{-1}$	0.015**	-0.003	0.014*	-0.001
	(0.006)	(0.005)	(0.008)	(0.006)
$Oil\ exporter_{-1}$	-0.043*	0.027	0.068**	0.013
	(0.021)	(0.018)	(0.027)	(0.020)
N	603	603	603	5.77
Wald test	129.81	129.24	171.10	119.33
Arellano-bond AR(1) test	-7.99	-8.44	-8.91	-5.09
Arellano-bond AR(2) test	-0.76	0.56	-0.88	-1.19

Note: The table presents estimated coefficients with robust standard errors in parentheses. All estimations are regressed using robust standard errors. * p<0.1, ** p<0.05, *** p<0.01

Table 6a: 2SLS first stage regression

	First stage regression-General spending	First stage regression-Education spending	First stage regression-Health spending	First stage regression-Social protection spending
Zct_{-1}	0.518***	0.518***	0.518***	0.545***
	(0.119)	(0.119)	(0.119)	(0.127)
$Inequality_{-1}$	0.905**	0.905**	0.905**	0.785***
	(0.374)	(0.374)	(0.374)	(0.368)
$Income_{-1}$	-0.448***	-0.448***	-0.448***	-0.459**
	(0.094)	(0.094)	(0.094)	(0.091)
$Investment_{-1}$	0.293***	0.293***	0.293***	-0.377***
	(0.089)	(0.089)	(0.089)	(0.138)
$Education_{-1}$	0.144*	0.144*	0.144*	0.149
	(0.085)	(0.085)	(0.085)	(0.138)
$Openness_{-1}$	0.338***	0.338***	0.338***	0.419***
	(0.129)	(0.129)	(0.129)	(0.129)
$Population_{-1}$	0.424***	0.424***	0.424***	0.414***
	(0.079)	(0.079)	(0.079)	(0.077)
$Elderly_{-1}$	-0.237	-0.237	-0.237	-0.274
	(0.302)	(0.302)	(0.302)	(0.292)
$Socialist_{-1}$	-0.035	-0.035	-0.035	-0.045
	(0.085)	(0.085)	(0.085)	(0.082)
$Elections_{-1}$	0.004	0.004	0.004	0.001
	(0.013)	(0.013)	(0.013)	(0.013)
$Oil\ exporter_{-1}$	-0.069**	-0.069**	-0.069**	-0.069**
	(0.034)	(0.034)	(0.034)	(0.033)
N	712	712	712	685
F-Test	18.75	18.75	18.75	20.32

Table 6b: 2SLS second stage regression

	2SLS-General spending	2SLS-Education spending	2SLS-Health spending	2SLS-Social protection spending
Democracy$_{-1}$	0.285*	0.407**	-0.253	0.068
	(0.156)	(0.189)	(0.192)	(0.214)
Inequality$_{-1}$	-0.447	-0.385	-0.373	-0.386
	(0.309)	(0.375)	(0.381)	(0.414)
Income$_{-1}$	0.154*	0.351***	-0.064	0.048
	(0.090)	(0.109)	(0.111)	(0.125)
Investment$_{-1}$	-0.263***	-0.217**	0.018	-0.317***
	(0.073)	(0.089)	(0.090)	(0.099)
Education$_{-1}$	-0.250***	-0.023	0.042	-0.009
	(0.061)	(0.074)	(0.075)	(0.082)
Openness$_{-1}$	-0.021	-0.044	0.115	0.287*
	(0.100)	(0.122)	(0.124)	(0.149)
Population$_{-1}$	-0.157*	-0.063	0.286***	0.095
	(0.087)	(0.106)	(0.108)	(0.118)
Elderly$_{-1}$	0.365*	-0.318	0.754***	0.894***
	(0.058)	(0.246)	(0.250)	(0.281)
Socialist$_{-1}$	-0.017	0.047	0.109	0.198**
	(0.058)	(0.070)	(0.071)	(0.079)
Elections$_{-1}$	0.011	-0.003	0.008	0.009
	(0.009)	(0.011)	(0.011)	(0.013)
Oil exporter$_{-1}$	-0.002	-0.003	-0.025	0.047
	(0.024)	(0.030)	(0.030)	(0.034)
N	712	712	712	685
F-test	3.06	1.72	5.20	7.90
R-squared	0.105	0.129	0.130	0.144
Endogeneity test	21.73	6.31	0.31	16.88
Cragg-Donald test	18.75	18.75	18.75	20.32
Wooldridge test	70.73	66.72	78.78	25.00

Note: The table presents estimated coefficients with robust standard errors in parentheses. All estimations are regressed using robust standard errors. * p<0.1, ** p<0.05, *** p<0.01

Table 7a: 2SLS first stage regression- Alternative Z_{ct} variable

	First stage regression-General spending	First stage regression-Education spending	First stage regression-Health spending	First stage regression-Social protection spending
$Zct\text{-}1_{polity}$	-0.443***	-0.443***	-0.443***	-0.383***
	(0.157)	(0.157)	(0.157)	(0.166)
$Inequality_{-1}$	10.59**	10.59**	10.59**	8.709**
	(4.32)	(4.32)	(4.32)	(4.371)
$Income_{-1}$	-2.313**	-2.313**	-2.313**	-2.377**
	(1.10)	(1.10)	(1.10)	(1.092)
$Investment_{-1}$	2.178**	2.178**	2.178**	1.630
	(1.027)	(1.027)	(1.027)	(1.051)
$Education_{-1}$	3.277***	3.277***	3.277***	2.949***
	(0.985)	(0.985)	(0.985)	(0.976)
$Openness_{-1}$	-0.407	-0.407	-0.407	-0.596
	(1.492)	(1.492)	(1.492)	(1.527)
$Population_{-1}$	7.872***	7.872***	7.872***	7.386***
	(0.917)	(0.917)	(0.917)	(0.921)
$Elderly_{-1}$	3.629	3.629	3.629	2.490
	(3.584)	(3.584)	(3.584)	(3.576)
$Socialist_{-1}$	2.204**	2.204**	2.204**	2.103**
	(0.990)	(0.990)	(0.990)	(0.971)
$Elections_{-1}$	0.168	0.168	0.168	0.149
	(0.159)	(0.159)	(0.159)	(0.159)
$Oil\ exporter_{-1}$	-0.600	-0.600	-0.600	-0.699*
	(0.399)	(0.399)	(0.399)	(0.398)
N	712	712	712	685
F-Test	7.96	7.96	7.96	5.30

Table 7b: 2SLS second stage regression- Alternative Z_{ct} variable

	2SLS-General spending	2SLS-Education spending	2SLS-Health spending	2SLS-Social protection spending
$Democracy_{-1polity}$	-0.054*	-0.091**	-0.021	0.018
	(0.029)	(0.039)	(0.026)	(0.037)
$Inequality_{-1}$	0.348	0.871	-0.488	-0.452
	(0.441)	(0.583)	(0.389)	(0.465)
$Income_{-1}$	-0.118	-0.078	-0.021	0.074
	(0.126)	(0.166)	(0.111)	(0.143)
$Investment_{-1}$	-0.061	0.104**	-0.001	-0.336***
	(0.111)	(0.146)	(0.098)	(0.115)
$Education_{-1}$	-0.039	0.323*	0.075	-0.058
	(0.126)	(0.167)	(0.112)	(0.140)
$Openness_{-1}$	0.029	0.017	0.017	0.328**
	(0.127)	(0.168)	(0.112)	(0.136)
$Population_{-1}$	0.385	0.819**	0.336	-0.013
	(0.242)	(0.320)	(0.214)	(0.288)
$Elderly_{-1}$	0.377	-0.291	0.786***	0.885***
	(0.292)	(0.386)	(0.258)	(0.299)
$Socialist_{-1}$	0.087	0.227*	0.160*	0.157
	(0.104)	(0.137)	(0.092)	(0.113)
$Elections_{-1}$	0.022	0.014	0.011	0.006
	(0.014)	(0.019)	(0.012)	(0.015)
$Oil\ exporter_{-1}$	-0.057	-0.092	-0.026	0.059
	(0.040)	(0.052)	(0.035)	(0.046)
N	712	712	712	685
F-test	1.63	1.01	4.81	6.95
R-squared	0.152	0.200	0.134	0.154
Endogeneity test	10.97	18.31	0.40	1.43
Cragg-Donald test	7.96	7.96	7.96	5.29
Wooldridge test	75.69	69.87	80.82	25.08

Note: The table presents estimated coefficients with robust standard errors in parentheses. **All estimations are regressed using robust standard errors. * p<0.1, ** p<0.05, *** p<0.01**

Table 8a: First stage regression-Excluding African countries

	First stage regression-General spending	First stage regression-Education spending	First stage regression-Health spending	First stage regression-Social protection spending
Zct_{-1}	0.372**	0.372**	0.372**	0.384**
	(0.165)	(0.165)	(0.165)	(0.177)
$Inequality_{-1}$	0.718**	0.718**	0.718**	0.541
	(0.393)	(0.393)	(0.393)	(0.385)
$Income_{-1}$	-0.529***	-0.529***	-0.529***	-0.526**
	(0.140)	(0.140)	(0.140)	(0.133)
$Investment_{-1}$	0.321***	0.321***	0.321***	0.306***
	(0.100)	(0.100)	(0.100)	(0.100)
$Education_{-1}$	0.207**	0.207**	0.207**	0.179**
	(0.093)	(0.093)	(0.093)	(0.089)
$Openness_{-1}$	0.283**	0.283**	0.283**	0.377***
	(0.137)	(0.137)	(0.137)	(0.138)
$Population_{-1}$	0.352**	0.352**	0.352**	0.318*
	(0.167)	(0.167)	(0.167)	(0.164)
$Elderly_{-1}$	-0.022	-0.022	-0.022	-0.059
	(0.321)	(0.321)	(0.321)	(0.310)
$Socialist_{-1}$	-0.136	-0.136	-0.136	-0.221
	(0.301)	(0.301)	(0.301)	(0.289)
$Elections_{-1}$	0.004	0.004	0.004	-0.001
	(0.013)	(0.013)	(0.013)	(0.013)
Oil $exporter_{-1}$	-0.072**	-0.072**	-0.072**	-0.071**
	(0.033)	(0.033)	(0.033)	(0.032)
N	631	631	631	604
F-Test	5.08	5.08	5.08	8.66

Table 8b: Second stage regression-Excluding African countries

	2SLS-General spending	2SLS-Education spending	2SLS-Health spending	2SLS-Social protection spending
Democracy$_{-1}$	1.047**	1.463**	0.041	0.570
	(0.522)	(0.722)	(0.375)	(0.555)
Inequality$_{-1}$	-0.933	-1.214	-0.698	-0.305
	(0.651)	(0.900)	(0.467)	(0.588)
Income$_{-1}$	0.598*	1.471***	0.529**	0.639**
	(0.331)	(0.458)	(0.238)	(0.363)
Investment$_{-1}$	-0.511**	-0.793***	-0.238	-0.539***
	(0.208)	(0.288)	(0.150)	(0.204)
Education$_{-1}$	-0.417***	-0.392*	-0.073	-0.178
	(0.146)	(0.202)	(0.105)	(0.135)
Openness$_{-1}$	-0.172	-0.425	-0.077	0.097
	(0.218)	(0.302)	(0.156)	(0.257)
Population$_{-1}$	-0.344	-0.572	-0.012	-0.306
	(0.299)	(0.413)	(0.214)	(0.287)
Elderly$_{-1}$	0.267	-0.861*	0.260	0.182
	(0.376)	(0.520)	(0.270)	(0.364)
Socialist$_{-1}$	0.222	0.845*	0.565**	0.223
	(0.355)	(0.492)	(0.255)	(0.361)
Elections$_{-1}$	0.008	-0.006	0.008	0.002
	(0.016)	(0.022)	(0.011)	(0.016)
Oil exporter$_{-1}$	0.040	0.090	0.017	0.118
	(0.052)	(0.072)	(0.037)	(0.051)
N	631	631	631	604
F-test	1.29	1.26	5.77	3.42
R-squared	0.175	0.242	0.126	0.168
Endogeneity test	9.63	20.69	0.44	3.83
Cragg-Donald test	5.08	5.08	5.08	8.66
Wooldridge test	74.89	49.92	74.31	55.08

Note: The table presents estimated coefficients with robust standard errors in parentheses. All estimations are regressed using robust standard errors. * p<0.1, ** p<0.05, *** p<0.01

Table 9a: First stage regression- Non OECD countries

	First stage regression-General spending	First stage regression-Education spending	First stage regression-Health spending	First stage regression-Social protection spending
Zct_{-1}	0.657***	0.657***	0.657***	0.655***
	(0.178)	(0.178)	(0.178)	(0.202)
$Inequality_{-1}$	1.797**	1.797**	1.797**	2.246**
	(0.851)	(0.851)	(0.851)	(0.923)
$Income_{-1}$	-0.657***	-0.657***	-0.657***	-0.617***
	(0.205)	(0.205)	(0.205)	(0.231)
$Investment_{-1}$	0.335**	0.335**	0.335**	0.396**
	(0.163)	(0.163)	(0.163)	(0.175)
$Education_{-1}$	0.077	0.077	0.077	0.061
	(0.197)	(0.197)	(0.197)	(0.198)
$Openness_{-1}$	0.307	0.307	0.307	0.470*
	(0.254)	(0.254)	(0.254)	(0.285)
$Population_{-1}$	0.154	0.154	0.154	0.409*
	(0.162)	(0.162)	(0.162)	(0.227)
$Elderly_{-1}$	0.227	0.227	0.227	0.046
	(0.507)	(0.507)	(0.507)	(0.737)
$Socialist_{-1}$	0.036	0.036	0.036	-0.079
	(0.132)	(0.132)	(0.132)	(0.147)
$Elections_{-1}$	0.018	0.018	0.018	0.004
	(0.036)	(0.036)	(0.036)	(0.037)
$Oil\ exporter_{-1}$	-0.149**	-0.149**	-0.149**	-0.152**
	(0.075)	(0.075)	(0.075)	(0.078)
N	293	293	293	264
F-Test	13.51	13.51	13.51	10.45

Table 9b: Second stage regression-Non OECD countries

	2SLS-General spending	2SLS-Education spending	2SLS-Health spending	2SLS-Social protection spending
Democracy$_{-1}$	-0.092	0.154	-0.018	-0.115
	(0.154)	(0.145)	(0.178)	(0.249)
Inequality$_{-1}$	-0.222	-0.471	-0.971	-0.551
	(0.579)	(0.546)	(0.668)	(0.983)
Income$_{-1}$	0.015	0.453***	0.220	0.165
	(0.145)	(0.137)	(0.168)	(0.220)
Investment$_{-1}$	-0.196**	-0.061	-0.045	-0.201
	(0.100)	(0.094)	(0.115)	(0.160)
Education$_{-1}$	-0.014	-0.051	-0.064	0.073
	(0.115)	(0.108)	(0.132)	(0.163)
Openness$_{-1}$	0.345**	0.052	-0.049	0.685**
	(0.157)	(0.148)	(0.181)	(0.270)
Population$_{-1}$	-0.022	0.305***	0.195*	0.130
	(0.095)	(0.089)	(0.109)	(0.222)
Elderly$_{-1}$	-0.438	-0.270	0.139	-0.734
	(0.287)	(0.271)	(0.331)	(0.593)
Socialist$_{-1}$	-0.001	0.008	0.062	0.185
	(0.076)	(0.072)	(0.088)	(0.120)
Elections$_{-1}$	0.025	-0.008	0.021	0.015
	(0.020)	(0.019)	(0.024)	(0.030)
Oil exporter$_{-1}$	-0.042	-0.056	0.006	0.138**
	(0.046)	(0.044)	(0.053)	(0.068)
N	293	293	293	264
F-test	1.44	2.89	1.03	2.46
R-squared	0.140	0.132	0.162	0.195
Endogeneity test	1.27	1.20	0.49	0.10
Cragg-Donald test	13.51	13.51	13.51	10.45
Wooldridge test	66.16	93.90	48.07	23.19

Note: The table presents estimated coefficients with robust standard errors in parentheses. All estimations are regressed using robust standard errors. * p<0.1, ** p<0.05, *** p<0.01

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