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### Democratic age and the size of government

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#### Abstract

One institutional characteristic of democracy is that it provides incentives to allocate resources towards rent seeking and other unproductive activities. Countries that have been democratic for long periods of time allow for sectors to become captured, special interest groups to flourish, and rent seeking activities to replace entrepreneurship via the market system. This study empirically analyzes the relationship between democratic age and the size of the public sector, and it finds that as democracies mature, government spending increases as a share of the market. The results suggest that a decade increase in the democratic age of a country is associated with a 2% to 3% increase in government spending.

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## 1. Introduction

Democracies are commonly associated with freedom. Democracies have more open economies (Milner & Kubota, 2005), less corruption (Rock, 2009), and even more financial development (Milner & Mukherjee, 2009). Democracy may have its good side, but through its incentives towards rent seeking and special interest politics, it may have undesirable effects on the economy. One such effect is a shift of the allocation of resources towards the public sector.

The purpose of this article is to highlight the relationship between the evolution of democracy and the composition of the public sector. This is done by analyzing the relationship between democratic age (durability) and the amount of government spending. If democracy is thought to alter the incentives towards rent seeking, then democracy becomes a viable tool for business. As these tools become more relied upon, regulations become more complex, which only fans the flame of rent seeking. Therefore, as democracies become more mature, the institutions that facilitate rent seeking behavior become more commonly accepted. In addition, new regulations necessitate new regulatory boards, positions, and even new government bureaucracies entirely.

The main contribution of this article is that it finds a positive relationship between democratic age and government size. The results support the claim that older, more mature democracies have higher government spending as a percentage of GDP. The goal of this study, then, is to turn attention on solutions to government overspending, which are inherent in democratic institutions. Brennan & Buchanan (1985) argue to shift the framework of the analysis from decisions within rules towards decisions among rules. If their advice is followed, it is the hope that studies will take seriously this concern of overspending and analyze how alternative arrangements of political institutions may have different economic outcomes.

## 2. Democratic Institutional Structures

The institutional structure of a democracy influences the political process and subsequently effects policy because pressure groups compete within the ‘rules of the game’ (North, 1991). While the market economy insures that with minimal transactions costs, mutually beneficial exchanges in wealth are incurred (Coase, 1960), political markets do not have these well-defined property rights for politicians. This lack of incentive to secure gains from exchange explains why politicians look to rent seeking rather than productive means for securing personal benefits. Stigler (1971), Peltzman (1976), and Becker (1983) all view the economic analysis of government as competition between pressure groups. Rent seeking by politicians and special interest groups can influence the public sector by lobbying for legislation in their favor (Tullock, 1967; Krueger, 1974). As Baumol (1990) points out, entrepreneurs can be successful in the political realm through what he calls unproductive entrepreneurship. Businesses have two choices when it comes to allocating their scarce resources. Businesses can compete by offering goods and services that customers desire, or on the other hand, businesses can seek favors from the government. Why fight the competition when one can limit it through various barriers to entry? As Dorn (2014) puts it, “Cronyism and rent seeking have become the dominant features of democratic states as special interests seek to use the power of government for their own benefit.”

In democracies, elected officials bundle policies together in an attempt to trade votes with other politicians, and this logrolling process may have ambiguous welfare effects. Positive welfare effects of logrolling may arise from the accumulated intensity of preferences from vote

exchange. However, negative welfare effects from logrolling may also arise due to excessively high spending and pork (Buchanan & Tullock, 1962). While theory suggests the welfare effects are uncertain, the empirical literature suggests that logrolling results in a welfare loss for society (Gilligan & Matsusaka, 1995; Bradbury & Crain, 2001; Baqir, 2002). Individuals elect members to represent their interests, and these representatives vote on bills and policies in the legislature on behalf of their constituents. Homo Politicus, the self-interested politician, sheds light on why the political process facilitates the growth of government; politicians face incentives for vote maximization in order to gain reelection. An agency problem exists between elected officials and voters because of the free riding problem in both monitoring and disciplining elected officials, which allows these representatives to pursue their own interests at the expense of their constituents (Olson, 1965; Kau & Rubin, 1979; Kalt & Zupan, 1984; Peltzman, 1984). Along these lines, Olson (2008) argues that democratic countries free from invasion or upheaval will suffer the most from interest groups and other growth repressing organizations.

### **3. Democracies Favor Leviathan**

Democracies have a tendency to grow for many reasons. Democracies may grow because of the incentives of politicians to rise to the challenge of solving crises. Higgs (1987) discussed the tendency of government to grow after episodes of crises. He called this ratcheting theory, in the sense that government spending has a natural tendency to ratchet up over time; government spending sharply increases during disaster periods. Afterwards, government spending may decline, but it never returns to its pre-disaster level. Thus government growth is a by-product of crisis periods. The reasoning behind this resistance is explained by the special interest effect.

Special interest effects suggests that because the relatively few who stand to lose from the removal of new agencies have much more to gain from retaining their jobs or industry, they will spend more resources lobbying politicians to ensure that their resources or not removed. The benefits to the relatively few are large, but the costs to the general public are dispersed and as a result, much smaller. When a crises occurs, government steps in to create new regulations, which often necessitate new government agencies. However, after the crisis has ended, the regulations and new agencies remain. This usually occurs to ensure that similar catastrophes do not happen again, or that the government will be more prepared next time. Therefore, over time in a democracy, crisis periods generate new government agencies and bureaus while special interest groups help deter the removal after the crisis period has ended.

Buchanan & Wagner (1977) also discussed the tendency of government to grow. Their argument can be stated as follows: Because it is politically unpopular as a politician to raise taxes, there is a tendency towards borrowing money with promises of future payment. This enables politicians to provide new products and services through current spending without raising current taxes. Furthermore, politicians only remain in office for a finite and relatively short period of time. After their office tenure has finished, a new politician can take over the financial problems. Traditionally, politicians could not continually increase spending without raising taxes because this continual deficit would raise debt. However, as Buchanan & Wagner discuss, the view on deficits and government debt changed post John Maynard Keynes. Now politicians can spend more government resources in order to smooth the volatility of the business cycle. Thus, there is no punishment mechanism of continual government spending, and as a result, democracies have a tendency to overspend their resources and accumulate debt.

Other theories can also explain the natural tendency of government growth in democracies. Stigler (1971) explains how regulators responsible for monitoring commercial activity become captured by the sectors and special interests they are regulating. Regulatory capture suggests that government agencies will quit regulating in the public interest and help acquire favors for the industry they are supposed to regulate. This government failure may also lead towards more lobbying and rent seeking, which in turn leads to a larger involvement of the public sector. Meehan & Benson (2015) point out that regulatory capture in occupational licensing is even worse when members of the regulated sector serve on the regulatory committee.

Olson (2008) derives implications for the decline of nations due to the political process. He argues that as time progresses, more groups enjoy favorable circumstances and overcome the difficulties associated with collective action. Few organizations for collective action will dissolve in stable democracies, and these societies accumulate special-interest groups and engage in collusion over time. According to Olson, these organizations have little incentive to make society more productive, but they have powerful incentives to grow in relation to the size of the economy even when this inhibits social output. He also argues that these distributional coalitions help establish barriers to entry that reduce the economy's dynamism and rate of growth and increase regulation, bureaucracy, and political intervention in markets.

Theories on hyperbolic discounting (Chung & Herrnstein, 1967; Laibson, 1997) might help to explain why the general public cares much more about current spending and is less concerned with borrowing into the future. As the theory explains, individuals have time-inconsistent preferences. Individuals may prefer \$50 today rather than \$100 in one year, but if this choice is moved five years into the future, the same individuals might prefer \$100 in six years over \$50 in five years. This suggests that individuals have difficulty in ranking decisions over time, and this could explain why there is less concern over borrowing leading to future taxes.

Now that the political incentives towards government spending have been described, the remainder of the article will focus on addressing the following research question: Is there a relationship between the democratic age of a country and the size of its government? The next section begins to address this question by describing the data utilized in this study.

#### 4. Data

In order to test the hypothesis that there is a relationship between the age of democracies and government spending, data are gathered from a variety of sources. Government spending (% of GDP) data are taken from the World Bank. The main explanatory variable of interest, age of democracy, is taken from the Polity IV database (Marshall & Jaggers, 2010). The democratic age is found by starting backwards from 2010 and identifying the number of periods a country has maintained a consistently positive polity2 measure. Polity2 is a measure of the quality of the political institutions where -10 indicates a strongly autocratic country and 10 indicates a strongly democratic country.

Log of Income Per Capita (LYPC) and Official Development Assistance (ODA) are also taken from the World Bank's indicators. The measures of regulation, property rights, and freedom to trade internationally are taken from the Fraser Institute's Economic Freedom of the World Index (EFW) (Gwartney, Lawson, & Block 1996). This index is correlated with higher per capita income and greater economic development. For a review of the literature, see Berggren (2003), De Haan, Lundström, & Sturm (2006), Faria & Montesinos (2009), and Hall & Lawson (2014). The regulation measure comes from area 5, property rights protection comes

from area 2, and freedom to trade internationally comes from area 4 of the EFW index. Corruption data are taken from Transparency International's Corruption Perceptions Index (CPI). Finally, a dummy variable is recorded for whether a country belongs to the Scandinavian region. This region includes Norway, Finland, Denmark, Sweden, and Iceland.

The effect of democratic age on the size of government is illustrated in Figure 1 below.

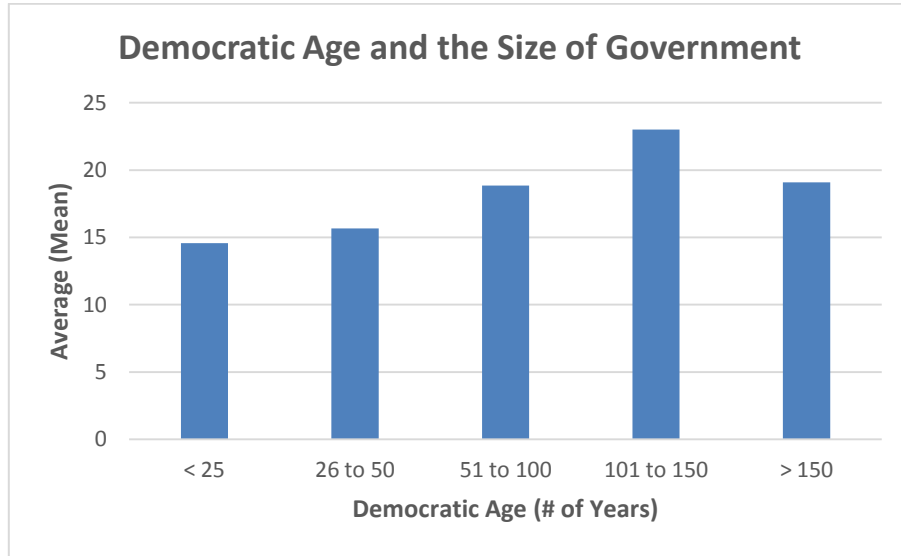


Figure 1 – Mature democracies have a larger public sector

As Figure 1 illustrates, there exists a positive relationship between democratic age and the size of government, though it is not exactly linear. The bar chart suggests that after 50 years of continuous democratic periods, there is an increase in the size of the public sector. Countries that have maintained a democratic polity for more than 100 years have an even larger government sector, though there is some decline after the 150 year mark. Therefore, this preliminary analysis provides some support behind the strength of the hypothesis that older democracies have larger governments. However, further analysis is necessary because summarizing the data in this way assumes that all other factors that may affect the growth of government are held constant. The remainder of the paper proceeds with a multivariate regression in order to address this concern.

## 5. Empirical Model

The hypothesis that the democratic age of a country and the size of government are related is testable, and the regression equation is specified as the following log-linear regression:

$$LN(GOV\_EXP_i) = \alpha + \beta AGE_i + X_i' \delta + \theta_i + \varepsilon_i \quad (1)$$

Where  $i$  indexes a cross section of 124 countries,  $\alpha$ ,  $\beta$ ,  $\theta$ , and  $\delta$  are unknown parameters, and  $\varepsilon$  is an error term. The dependent variable,  $GOV\_EXP$ , is the measure of government spending (% of GDP). The explanatory variable of interest,  $AGE$ , is the measure of democratic age. The hypothesis is that the sign on  $\beta$  will be positive. In log-linear models of the above form,  $\ln(y)=ax+b$ , a 1 unit increase in  $x$  is associated with a percentage increase in  $y$ . This will provide

an easy interpretation of the coefficients as well as reduce the problems associated with heteroskedasticity.

$X$  is a vector of control variables that need to be included in order to ensure that the omission of any other variable is not driving the result. The log of per capita income (LYPC) is included to capture differences in economic development across countries. The freedom to trade internationally (EFW4) is used to test for the possibility that trade openness leads to larger governments (Cameron 1978, Rodrik, 1998). In particular, Rodrik (1988) suggests that greater trade openness leads to more vulnerability to market fluctuations, which may lead to fiscal crises. This, in turn, leads to calls for public expenditures towards the sectors left exposed. It is expected that countries with governments more closely tied to night watchmen rather than leviathan will have less overall government spending. However, Holcombe & Rodet (2012) find that a stronger protection of property rights is associated with a larger size of government, citing that the political and ruling elite could actually benefit by imposing more objective legal institutions. Therefore, property rights protection and freedom from regulation, both sub-components of the EFW index, are included as measures of sound economic institutions. Corruption is commonly defined as the misuse of public power for private gain. As such, corruption is included as an additional control variable because corrupt countries are expected to have a larger government influence. Mauro (1998) has provided evidence to suggest that the composition of government, particularly amounts spent on education, changes because there are fewer opportunities for bribe extraction in this sector. Official Development Assistance (ODA) is included for many of the same reasons that corruption is included. When a country receives more foreign aid, there is a tendency for corruption and a larger influence of government activity over private enterprise (Remmer, 2004). Lastly, a Scandinavian dummy is included to control for the fact that these countries possess much larger governments on average. Including this dummy helps to minimize the effect from these outliers.

One more discussion point is necessary. The data analyzed in this study are cross-sectional. This has been done purposely because of the construction of the main explanatory variable of interest, *AGE*. A panel model with country fixed effects would be uninformative when addressing this research question; the democratic age changes each year by 1 unit, always in the same direction and same magnitude. Therefore, a fixed effects model would provide very little insight into explaining the effect of democratic age on the size of government. The down side of a cross-sectional model is that it does not allow for unobserved differences between countries to be taken into consideration. Therefore, in order to mitigate this concern, regional dummies are included in order to control for unobserved differences between countries. The regional dummies are reflected by  $\theta$  in the above equation (1).

## 6. Results

Table 1 reports the results from the log-linear estimation. In all specifications, there is a positive and statistically significant relationship between democratic age and the size of the public sector. This provides evidence in favor of the hypothesis that older democracies have larger governments, due to the incentives that point towards rent seeking, special interests, regulatory capture, and ratcheting in democracies. It is straightforward to interpret the coefficients in Table 1 because of the log-linear form. The results suggest that an increase in democratic age by 1 year is associated with a 0.3% increase in government spending. In all other specifications, the coefficient decreases slightly such that a 1 year increase in democratic age is

associated with a 0.2% increase in government spending. While the annual change in government spending due to democratic age may be small, the results suggest that longer periods of democratic maturity may result in larger spending. For every decade of democratic maturity, there is a 2% to 3% increase in government spending.

Democratic age and the size of government appear to be statistically related, but it is possible that the results are biased due to the omission of other omitted variables that are not taken into consideration. In order to mitigate this concern, a few different control variables are included. Of these control variables, three display at least some level of statistical relationship with government spending. The Scandinavian dummy is statistically significant in a couple of specifications. This is not surprising since Scandinavian countries are known for their large governments. Similarly, strong property rights are associated with larger governments. Here, a positive coefficient implies

Table I – Democratic Age and the Size of Government

	Log of Government Spending				
	(1)	(2)	(3)	(4)	(5)
Democratic Age	0.003*** (4.91)	0.003*** (4.50)	0.002*** (3.17)	0.002** (2.23)	0.002** (2.34)
Scandinavian Dummy		0.365*** (4.89)	0.317*** (3.93)	0.187* (1.74)	0.183 (1.64)
LYPE			0.06* (1.93)	0.058 (1.37)	0.102* (1.87)
ODA				0.002 (1.27)	0.001 (0.71)
Free Trade				0.014 (0.30)	0.023 (0.52)
Corruption				-0.009 (0.25)	0.006 (0.20)
Property rights				0.062*** (2.76)	0.051* (1.70)
Regulation				-0.0737 (1.55)	-0.0562 (1.09)
Regional FE?	No	No	No	No	Yes
_cons	2.577*** (60.74)	2.580*** (61.02)	2.068*** (7.47)	2.025*** (4.86)	1.751*** (3.85)
Adj. R2	0.13	0.16	0.18	0.31	0.37
N	124	124	121	105	105

Note - *t*-statistics in parentheses. Robust standard errors included.

Regional dummies are included in column (5).

\*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$  (Two-tailed test)

that a country has more freedom in their protection of property rights. This result provides support for the findings by Holcombe & Rodet (2012). There is also weak evidence that more

developed countries have larger government sectors, though it is only statistically significant at the 10% level for a two-tailed test. It is also possible that the positive relationship between the size of government and democratic age is being influenced by differences between countries. One way to handle these differences is to include regional dummies. These regional dummies take on the value of 1 if a country lies in that region and 0 otherwise. The regions include: Asia, Eastern Europe, North Africa and Middle East, Sub Saharan Africa, Western Neo Europe, Latin America, and Oceania. Including these regional dummies increases the explanatory power, as measured by the adjusted  $R^2$ , but it does not alter the result that longer standing democracies have larger governments.

A potential concern is that the estimated coefficients in Table 1 may be biased due to issues with reverse causality. North et al. (2009) argue that democracies may survive longer when they solve the problem of violence and move from a limited access order to open-access order, which suggests that the causal direction runs in the opposite direction, i.e. more government spending may lead to a longer duration of democracy.

In order to mitigate this concern, an instrument, *avg\_age\_region*, is constructed. The instrument is defined as the average democratic age of all other countries in the same region excluding the observation's contribution to the average. Using mathematical notation, the instrument is defined as  $1/n \sum_{i=1}^n a_i$ ,  $\forall i \neq j$ , where  $a$  is the democratic age of all  $n-1$  countries not including country  $j$ . In order for this instrument to be strong, it must satisfy three conditions: (i) it should not directly affect the dependent variable, (ii) it should only affect the dependent variable through the endogenous variables, and (iii) it should not be correlated with omitted variables in the model (the error term,  $\epsilon$ ).

It is likely that the instrument is correlated with the endogenous variable, Democratic Age. The average democratic age of a region is likely correlated with the democratic age of the omitted country because there are strong regional effects. Western democracies have an average duration of democracy of 100 years. In contrast, North Africa and the Middle East has an average duration of 8.83 years and Sub-Saharan Africa has an average duration of 12.4 years. Therefore, there is good reason to believe that the average age of the region, minus the country's contribution, is correlated with the endogenous variable. However, this instrument should be uncorrelated with the dependent variable, size of government.

It is less likely that the average democratic age of the other countries in the region is correlated with the size of the omitted country's government. The theoretical arguments for government growth rely on special interests, crises, and incentives of politicians. These arguments suggest that the decision makers within a country influence government spending. In order for this instrument to be invalid, a government's decision to spend more (or less) must depend on the duration of other countries' democracies within the same region.<sup>1</sup> While not impossible, it seems more likely that government spending decisions are based on the institutions within its own country, which are a product of the age of its own democratic institutions.

Staiger & Stock (1997) present a very popular rule of thumb used to test the strength and validity of instruments. They suggest that a first stage F statistic less than 10 indicates a weak instrument, and the first stage F statistic in Table 2 always exceeds this benchmark. Therefore, the instrument passes the first rule of thumb. However, as Cameron & Trivedi (2010) suggest, this rule of thumb is ad hoc and may not be conservative enough when there are many

<sup>1</sup> This exclusion restriction was tested by including the instrument, *avg\_region\_age*, into the government spending regression specification. The addition of this instrument did not contribute to the goodness of fit ( $p > 0.05$ ;  $\Delta \text{adj. } R^2 = 0$ ).



overidentifying restrictions. Because there is only one instrument utilized in this study, the instrument is just identified, and there is no need to worry about overidentifying restrictions. Nonetheless, one reasonable argument could suggest that this rule of thumb is not enough to verify the strength of an instrument, and alternative guidelines may be necessary.

An alternative guideline for assessing the strength of instruments is to follow the advice put forth by Stock & Yogo (2005). Their guidelines provide more flexibility on the minimum value of 10 for the first stage F statistic. According to Table 2 in Stock & Yogo (2005), an equation just identified with  $n=1$ ,  $r=0.10$ , and  $K2=1$ , yields a critical value of 16.38. Here,  $n$  refers to the number of endogenous explanatory variables,  $r$  refers to the desired maximum size of a 5% Wald test, and  $K2$  refers to the number of instruments. Therefore, if the critical value in our estimation exceeds the critical value of 16.38, we can have more confidence that the instrument is strong. The Cragg-Donald Wald F statistic is used as a benchmark for comparison to the critical values in Table 2 of Stock & Yogo (2005). The Cragg-Donald Wald F statistic ranges from 27-112 in Table 2.

Table II – Democratic Age and Size of Government (IV model)

	Log of Government Spending				
	(1)	(2)	(3)	(4)	(5)
Democratic Age	0.005*** (4.50)	0.004*** (3.51)	0.003** (2.35)	0.002 (1.35)	0.002** (2.01)
Scandinavian Dummy		0.289*** (2.81)	0.280*** (2.89)	0.185* (1.80)	0.190* (1.94)
LYPC			0.0482 (1.41)	0.0591 (1.46)	0.0610 (1.57)
ODA				0.00119 (1.33)	0.00120 (1.34)
Free Trade				0.0144 (0.32)	0.0156 (0.37)
Corruption				-0.00461 (-0.11)	--
Property Rights				0.0622*** (2.85)	0.0634*** (3.41)
Regulation				-0.0732 (-1.59)	-0.0716 (-1.56)
_cons	2.534*** (52.67)	2.548*** (52.23)	2.144*** (7.30)	2.016*** (5.02)	1.988*** (5.54)
First Stage F-Stat	48.74***	31.20***	21.84***	11.93***	25.67***
First Stage Prob. > F	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
Cragg-Donald Wald F	112.55	91.38	56.00	27.43	50.61
F-Test	19.93	43.10	27.82	11.61	13.24
N	124	124	121	105	105

Note - t statistics in parentheses with robust standard errors. Instrument,  $z$  = average age of democracy for all other countries in the same region (excluding the observation's contribution to the average), i.e.,  $\frac{1}{n} \sum_{i=1}^n a_i, \forall i \neq j$ .  
 \*  $p < 0.10$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$ . (Two-tailed test)

Overall, the results in Table 2 do provide additional evidence towards the hypothesis of the paper; government spending increases as democracies mature. The coefficients in columns (1) and (2) of Table 2 are higher than those estimated using OLS in Table 1. This is likely due to omitted variable bias. After additional covariates are included, the estimated coefficients are very similar in size and statistical significance to the results in Table 1. The exception is in column (4) of Table 2, with the full model of control variables. While the estimated coefficients remains the same, the standard error increases, which is a sign of multicollinearity. After analyzing the data in more detail, omitting corruption from the specification reduces the standard error and increases statistical significance. One reason to expect multicollinearity between corruption and age of democracy is the high bivariate correlation (-0.63). This is not surprising. Rock (2009) finds an inverse u-shaped relationship between corruption and the age of democracy. His findings suggest that new democracies increase corruption for the first 10-12 years but corruption declines afterwards. Thus, the failure to reject the null hypothesis in column (4) of Table 2 is not indicative of a problem, when this relationship is taken into account. Lastly, regional dummies are not included in the specification because they are captured in the instrument.

## 7. Concluding Remarks

This article proposes that there is a statistical relationship between the democratic age of a country and the size of its public sector. Democratic institutions emphasize rent seeking, regulatory capture, special interest effects, and ratcheting. Over time, these institutions point towards a larger influence of the public sector and more government spending. Indeed, the analysis in this article supports the hypothesis that older democracies have a larger public sector. From the empirical estimation, the results suggest that a decade increase in democratic maturity is associated with 2% to 3% increase in the size of government, even after controlling for differences between regions, income, foreign aid, corruption, regulation, and property rights.

One goal of this article is to generate additional interest in analyzing solutions to the problem of government overspending. Following Brennan & Buchanan's (1985) advice, economists should take a step back and analyze decisions between rules rather than within rules. This framework can allow for a ranking of alternative political-institutional arrangements and their effects on economic outcomes. In this case, alternative democratic arrangements may have different effects on the size of government.

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