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Does democracy increase total tax revenues? The case of selected OECD countries

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Abstract. *The aim of the study is to analyze the impact of democracy on tax revenues. The relationship between democracy and tax revenue of 28 countries was empirically tested with the help of data from 2002 to 2014. In the study panel unit root, panel causality and panel cointegration tests are used. Findings of the panel in general, the result being that democracy is usually ineffective in increasing tax revenues. However, when the individual effects are taken into consideration, the effect of democracy on tax revenues has concluded that countries have changed to be positive and negative according to democratic development levels.*

Keywords: democracy, tax revenue, panel causality, panel cointegration, OECD countries.

JEL Classification: C33, H20.

1. Introduction

From a financial point of view, the state collects and allocates taxes to fulfill three Musgravian functions in the economy: allocation, distribution and economic stability. In this context, "tax power" is a very important concept in a democracy. Farmer and Lyal, (1994) view taxation power as one of the state's most basic and jealously guarded privileges to ensure the state's incomes and to become an instrument of economic governance (Mutascu, 2011: 343).

In many ways, increasing tax incomes is the most central activity of any government. The discussion on taxation is puzzling in the evolution of states in Europe and North America (Tilly, 1990; Prichard, 2009). However, recent times, discussion about the field of development are in serious relationship with taxation and the performance of the government.

Brennan and Buchanan (2006), in practice, express "tax power is the power to confiscate". The government may use tax revenues to finance the transfer of public goods or tax revenues of the different transfers requested by the citizens, based on the social contract. In this case, the democratic or autocratic political regime has an important influence on taxation, especially when it is considered as a percentage of the Gross Domestic Product (GDP) of the taxpayer (Mutascu, 2011: 343).

Democracy can be defined in different ways by researchers. In simple terms, according to Vanhanen (2003), democracy refers to free popular elections to fill power positions, while Welzel (2007) defines democracy as constitutional restrictions on the power of the state and popular control over it. On the other hand, autocracy is the opposite of democracy: it defines a system of government in which one has uncontrolled or unlimited authority over others.

Much of the study in the literature is directed at the political effects of democracy. This theoretical base is named as the model of the political effects of democracy (Meltzer and Richard, 1981; Olson, 1993; Repetti, 2001; Acemoglu and Robinson, 2002). In the model of political impacts of democracy, it is expected that the development of democracy and tax revenues will increase and redistribution will be effective (Houle, 2009). In this context, the relationship between democracy and tax focuses on tax revenues and income distribution. Another theoretical background is that developments at the level of democracy are related not only to changes in tax revenue levels but also to where they are spent at the same time (Acemoğlu et al., 2015).

In this background, the contribution of this work is important to show that if economic-political factors are important in tax policies, they can live with increased democracy.

The literature suggests three fundamental findings about the consequences of the link between tax and the intensity of democratization, albeit to a lesser extent: (a) strong democracy specifies a high level of taxation (De Schweinitz, 1964; Cheibub 1998; Boix, 2001); (b) Taxation of strong autocracy is high (Downs, 1960; Olson and McGuire, 1996; Niskanen, 2003; Tonizzo, 2008); And (c) there is no significant relationship between taxation and democracy (Meltzer and Richard, 1981; Profeta et al., 2009; Mutascu, 2011: 343-344).

In this study, in the period 2002-2014, using a panel data analysis approach with 28 countries, econometric findings related to the relationship between tax revenue and democratization are being investigated.

The rest of the article is organized as follows: Chapter 2 presents the theoretical framework, Chapter 3 provides literature review, Chapter 4 provides the methodology and empirical results. The final part consists of the conclusion and discussion.

2. Theoretical framework

Taxation and public spending are both economically and politically important issues. That's why research on the relationship between democracy and taxation has yielded some of the richest theoretical insights within political science.

It is understood that democracy basically means the sovereignty of the people when it first descends to the origin of democracy. However, democracy does not have a single agreed definition and it is not possible to speak of a single type of popular sovereignty (Türedi and Topal, 2015: 3). According to a simple definition, democracy is the choice of what power to use and where to use power (Vanhanen, 2003: 27). According to Dahl, democracy; social strife, participation in the rights and it is a social system that includes at least three dimensions like civil freedoms (Dahl, 2006: 64). For Sorensen, meaningful and extensive competition among individuals and groups (especially parties) for all portions of government power, at regular intervals (Sorensen, 1993). Schumpeter describes democracy as an institutional contract that manifests itself in the political decision-making processes in which the voters are in a competitive struggle with the voter (Schumpeter, 2010: 313). Constitutionally, it is defined as how the state will use its power and how it will control its power (Welzel, 2007: 400). One of the powers that the states hold in their hands is taxation. Farmer and Lyal (1994) consider power to tax as one of the most basic and jealously guarded prerogative of the state, in order to assure the state revenues, and to be an instrument of economic management. Taxation is the transfer of the state to the common use of income that belongs to the private sector of the society for to ensure justice and economic stability in income distribution. So it can be said that taxation is a privileged power of the state itself in order to generate a sufficient amount of income.

Many people dislike paying taxes, and some will cause trouble when governments raise them. But democracy is only one possible outcome of these conflicts (Ross, 2004: 234).

There is a strong correlation between taxation and democratization, as well as researchers who suggest that there is no significant correlation between them. De Schweinitz (1964) supports the idea that the level of taxation and democratization is strongly connected and is in the same direction. Boix (2003) suggests that a significant share of the public sector actually depends on the political (democratic) regime in place, which also interacts with the distribution of income, citizens' preferences and economic conditions.

One of the conditions required for the proper functioning of the democratic regime is the establishment of a regular tax system for the fulfillment of public services.

The expansion of the level of taxation, the absence of corruption, the high quality of bureaucracy and the high level of accountability, contribute to the democracy by increasing the quality of government (Baskaran and Bigsten, 2013: 92-95). At the same time the high quality of government and public services, high representation power and the wide range of freedoms in democracies increase the tax compliance of citizens and increase tax revenues (Feld and Frey, 2002; Torgler, 2007).

If we look at how the transmission mechanism in the relation of democracy and taxation works; the literature focuses on two main directions. One is "taxation leads to democracy" and other is "political structure affects tax structure" (Erdoğdu et al., 2018).

The first argument that comes mostly from political scientist and economic sociologist argues that taxation and tax structure may help to develop democratic governance through fiscal bargaining and an established social contract by making rulers more responsive and accounttable to citizens as seen from the Western democracies experience. (Erdoğdu et al., 2018).

In advanced democracies, governments taxation decisions are a result of the financial bargain they have with their citizens (Brautigam, 2008: 12). Governments are obliged to give more voice to citizens about how taxpayers will gather and where they will be spent, because they finance public services largely through taxation. This obligation contributes to the democratic development of the society by making governments more transparent and accountable to citizens, serving to produce effective public policies and strengthening tax compliance (Prichard et al., 2014: 9).

Montesquieu argues that the rewards of heavy taxes in the moderate states are freedom, while in states with repressive regimes, concessions are made to liberty against lighter taxes (Montesquieu, 1989: 221). A similar conclusion was made by Huntington. According to Huntington, the alternative social cost of taxation at a low level is less representative. In other words, lower taxation means weaker representation (Huntington, 1991: 65).

The relationship between taxation and democracy can also be considered within the framework of political regimes in the context of the concept of representation. Two political regimes that seem to be the opposite can be mentioned. These regimes are democracy and autocracy. The autocracy is the opposite concept of democracy: the government in which one person has uncontrolled or unlimited authority over others (Mutascu, 2011: 343). Democracy is a more appropriate political system for designing a tax system that will lead to tax reforms and increase tax revenues according to autocracies. Because tax payments in autocratic structures are a result of the pressure of political power on citizens, rather than being a consequence of social contracting (Ehrhart, 2012: 553). Therefore, in such an environment more income needed for power conservation can be unilaterally dictated by political will.

According to Acemoğlu and Robinson (2006), while the autocracies are a rich dictatorship, democracies reflect the sovereignty of the poor and middle-income class. Since the rich oppose the redistribution of wealth through taxation, reforms that will increase the tax revenue in autocracies and increase the public sector are not taking place much in the policy agenda.

3. Literature review

The results of the studies in the literature about the relation between the development at the level of democracy and the tax revenue are different when the methods used in these studies are similar. Overall, the results obtained from these studies indicate that the increases in the level of democracy have a positive impact on tax revenues.

Boix (2001) used the panel data method in his study of the relationship between tax revenues, economic growth, international trade and democracy indicators with the help of data from about 140 for the years 1950-1970 and 1970-1990. The results of the study show that the while authoritarian regimes reversed the redistribution of income, democratic regime do so in the opposite way. In addition, the results of the study show that there is a relatively low rate of taxation in democratic regimes.

Gerry and Mickiewicz (2007) used the panel data method in their study of the relationship between income distribution, democracy and tax revenues with the help of 1989-2002 data on transition countries. The study mainly focuses on the income distribution. On the other hand, the conclusion drawn on the relationship between democracy and tax revenues are that the tax revenues are higher in the authoritarian regime of the countries studied.

Mahdavi (2008) examined the effects of many social, political and economic variables on tax revenues in democracy variable with the help of data from 1973-2002 of 43 developing countries. Mahdavi (2008) used an unbalanced panel data method in which various data sets were grouped and analyzed. In the analysis of economic instability, the extent of women's economic activity, and corruption, democracy has reached the conclusion that it does not have an impact on total tax revenues.

Mutascu (2011) examined the relationship between tax and democratization using data from 51 countries for 2002-2008. Panel data method is used in the study. The countries involved in the study were classified according to development, cultural and political regimes and subjected to different groups of analyses. According to the results of the study, strong democracy and strong autocracy have a positive impact on tax revenues. According to the results of the study, in strong democracies, there is a harmony between the citizens and tax according to the social contract principle. On the other hand, in strong autocracies, the citizens are forced to pay more taxes by the state.

Reza and Hilda (2013) tested the relationship between democracy and tax with the aid of data from 21 countries for 2006-2011. There are three different models in the estimates, each of which is an independent democracy. According to the results of the study, in countries with high and moderate democratization levels, tax revenues have a positive impact on the level of democratization. On the other hand, in countries with low democratization levels, tax revenues have a negative effect on democratization level.

Prichard et al. (2014) used the panel data method (OLS) as a method for studying the relationship between democracy and taxation for two different groups of countries in 2006-2011, and they preferred democracy variable as a dependent variable. Findings from the study suggest that there is the non-linear relationship between taxation and democratization level.

Acemoğlu et al. (2015) examined two separate of 184 countries annual data for the years 1960-2010 and five years' data for the same periods. Authors who prefer panel data method in the study preferred the ratio of total tax revenues to GDP as a dependent variable. According to the result of the study, the level of democracy has a positive effect on total tax revenues.

4. Model and data

In this study, Meltzer and Richard (1981) and Acemoğlu et al. (2015) used model to analyze the effects of democracy on tax revenues. The purpose of establishing model is to observe the effect of democratization on tax revenues. Thus, in this study, basic hypotheses explaining the relationship between democratization and total tax revenues are tested.

Furthermore, in this paper, it should be noted that model is tested using econometric methods that do not take into account the cross-sectional dependence (CD). Cross-sectional dependency tests may be used for the same model.

The dependent variable from the variables in the model represents the ratio of total tax revenues to GDP (*TR*). Accountability (Voice and Accountability) *V* as a measure of the level of democratization among independent variables. The created index is subject to the values of countries between -2.5 and 2.5. As the value of the countries approaches to -2.5, the level of accountability decreases and on the contrary it increases (WGI, 2016).

The second independent variable included in the model is expressed as press freedom index *M*, which is considered to be indicative of democratization level. The press freedom index is composed of three subtitles. These subtitles are; legal, political and economic environment (legal environment-political environment-economic environment). Similarly, the score of the index is also divided by the count. In countries where press freedom levels are between 0-30, they are classified as free, between 31-60 part free, and between 61-100 as not free(1) (FH, 2016).

The generated model has been empirically tested with data from 2002-2014 for 28 countries(2) that can access the data among the so-called OECD countries.

$$\ln TR_{it} = \alpha_0 - \alpha_1 \ln M_{it} + \alpha_2 \ln V_{it} + \varepsilon_{it} \quad (1)$$

4.1.1. Empirical findings

In this study, panel unit root test, cointegration test, and panel causality tests are applied to test the basic hypothesis. In the method and findings subheading, statistical results and explanations of unit root tests, cointegration analysis and causality analysis are presented.

4.1.2. Panel Unit Root Analysis

In order to test the stationary of the series used in the analysis, panel unit root tests were applied in the context of methods developed by Levin et al. (2002) (LLC), Im et al. (2003) (IPS) and the results are shown in Table 1. According to the results in Table 1, all of the series are stationary at I (1) level, allowing to move on to co-integration test.

Table 1. *Panel Unit Root Tests*

	LLC	IPS	ADF
ln **TR**	-1.35 [0,1280]	0.20 [0,5828]	54.48 [0,6066]
ln **V**	-3.46 [0,0003]	-2.43 [0,0074]	99.93 [0,0005]
ln **M**	-10.33 [0,0000]	-4.55 [0,0000]	130.60 [0,0000]
Δ*ln*TR	-6.89 [0,0000]	-3.84 [0,0001]	99.72 [0,0005]
Δ*ln*V	-23.60 [0,0000]	-1157 [0,0000]	229.85 [0,0000]
Δ*ln*M	-7.88 [0,0000]	-5.85 [0,0000]	131.43 [0,0000]

Note: Values in "[]" indicate the probability value.

4.1.3. Panel cointegration analysis

Co-integration tests developed by Pedroni (1999) are used to test the null hypothesis assuming that there is no co-integration in panel work. The results are shown in Table 2. In the co-integration tests, Panel-pp and Group-pp tests in Table 2 show that there is a relationship in the long run between tax revenues and the variables considered as democracy indicators. These results show that democracy indicators and tax revenues act together and there is a long-run relationship between variables in long-term in OECD countries.

Table 2. *Panel Cointegration Test*

Within-dimension test	Constant	Constant and Trend
Panel- *V*	-0.18 [0.5749]	-2.38 [0.9914]
Panel- *p*	2.00 [0.9774]	4.47 [1.0000]
Panel- *pp*	0.22 [0.5874]	1.79 [0.9638]
Panel- *ADF*	-2.63 [0.0042]***	-1.39 [0.0820]*
Between Dimension Test		
Group- *p*	4.10 [1.0000]	5.82 [1.0000]
Group- *pp*	0.07 [0.5290]	-3.18 [0.0007]***
Group- *ADF*	-0.90 [0.1832]	-1.42 [0.0767]*

Note: Values in "[]" indicate the probability value. ***, **, * describes the levels of significance respectively 1, 5 and 10 %.

In estimating the coefficients for each country separately, FMOLS (Full Modified Ordinary Least Square) method and DOLS (Dynamic Ordinary Least Square) method by Pedroni (2000 & 2001) is used. In the tests, CCR (Canonical Co-integration Regression) method, which is directly related to the FMOLS estimation procedure in principle, was also used. The main difference of the CCR method from the FMOLS method is that it uses the stationary transformation equation in the CCR method and stochastic shocks (Stock and Watson, 1993). The results obtained for the estimated model are given in appendix-E.

According to co-integration coefficients shown in appendix-E, the dependent variable of *lnR* is affected by the increases and decreases in democracy indicators (M and V).

For the estimated model, it is possible to divide the results into three main groups. The first of theses; the coefficients of the variables in some of the countries are consistent with the expected effects. On the other hand, in some parts of countries, the coefficients of the variables are inconsistent with the theory. Finally, it is observed that the coefficients of a certain region of countries are statistically insignificant.

To give an example of the results consistent with the theory, for example, when the coefficients of the Australian variables are interpreted; according to FMOLS results, an increase of %1 unit in M (press freedom) causes the increase of %0.28 lnR (total tax revenue/GDP). According to the DOLS results, a 1 unit decrease in democracy (lnV) leads to a %1.38 unit increase in *lnR*.

In countries, one of the coefficient sign of two independent variables is consistent with the expected effect, while the coefficient sing of another variable is inconsistent with the theory. For instance, according to DOLS results from Hungary show that while a 1 unit decrease in democracy (M) leads to a 0.52 unit increase in *ln*R, according to FMOLS/DOLS results, a %1 unit increase in democracy (lnV) leads to a %0.13/1.52 unit decrease in *ln*R.

Finally, the FMOLS and DOLS results for Denmark, France, Iceland, Luxembourg, Portugal, Turkey and USA are statistically insignificant.

In the estimated panel general results, only the DOLS results of the lnM and lnV variables are statistically significant, and it is understood that the DOLS coefficient results of the V variable are consistent with theory. According to the DOLS results for the panel general, an increase of %1 unit in lnV causes the *ln*R to increase by %0.09.

4.1.4. Panel causality test

Whether or not there is a casual relationship between variables included in the model was examined by the panel Granger casualty method by Dumitrescu and Hurlin (2012). This method has some advantages. For instance, in the case of a country that is valid in terms of a country, the causality relation may be more likely to apply to other countries. In this context, the causality test is more effectively tested with more observation by applying this method.

In the Dumitrescu-Hurlin panel Granger causality test, the absence of a homogeneous Granger causality relationship under the basic hypothesis is tested against the alternative hypothesis that at least one horizontal section has this relationship (Gülmez, 2015: 27). Table 4 shows the result of the Dumitrescu-Hurlin panel Granger causality test for the model.

Table 4. *Dumitrescu-Hurlin Panel Granger Causality*

Z^{HNC} Test St.			
	K=1	K=2	**Comment**
ΔlnM → ΔlnR	1.01 [0.4930]	4.57 [0.4654]	There is no causality from democracy (M) towards tax revenues.
ΔlnR → ΔlnM	1.30 [0.9593]	2.30 [0.4654]	There is no causality from tax revenue towards democracy (M)
ΔlnV → ΔlnR	1.70 [0.4328]	3.61 [0.8420]	There is no causality from democracy (V) towards tax revenues
ΔlnR → ΔlnV	0.99 [0.4696]	3.20 [0.9263]	There is no causality from tax revenue towards democracy (V)
ΔlnV → ΔlnM	2.13 [0.0902]***	5.53 [0.1178]	There is a one-way causality from democracy (V) towards democracy (M)
ΔlnM → ΔlnV	3.48 [0.5906]	3.54 [0.8826]	There is no causality from democracy (M) towards democracy (V)

Note 1: K shows the lag length, the values in parenthesis show p- probability value and, *** shows levels of significance at 1%.
Note 2: The variables were analyzed as ΔlnTR, ΔlnM, ΔlnV.

The results of the Dumitrescu-Hurlin panel Granger causality test in Table 4 above show that there is a one-way causality relation to the democracy M (press freedom) democracy V (voice and accountability) for countries betting in 2002-2014. On the other hand, in the analysis, we found that neither of the variables considered as a democracy indicator for one and two lag lengths is a Granger reason for tax revenues.

5. Conclusions

It is argued that in the theoretical approaches which indicate that democracy and taxation are in an interaction, the democracies of the countries are more advanced in the taxation structure. The increase in tax revenues makes governments more transparent by making them more accountable and expanding to the field of individual rights and freedoms.

With the advancement of democracy, it ensures tax collection efficiency and is more legitimate. For this purpose, the aim of this study is to investigate the outcome of this relationship in OECD countries which are advanced in terms of democracy.

In this study, which deals with the relationship between democracy and tax revenues, the resulting model was empirically tested with panel unit root, panel causality, and panel cointegration methods. The findings show that some of the countries where the hypothesis that democracy will increase tax revenues are valid and some are invalid. While some of the coefficients of the countries show that there is a positive and meaningful relationship between democracy and tax revenues, on the other hand, the coefficients belonging to some of the countries show that democracy has negative effects on tax revenues.

The empirical findings of the study, although not very clear, provide some clues about the relationship between democracy and tax revenues. That is; the increase in the levels of democracy experienced in some developed countries the elite theory proposed by Acemoğlu and Robinson (2006). Increasing democratization levels in some developed countries negatively affect tax revenues. We may think that one of the underlying reasons for this is that the tax policies are also caused by the redistribution and that the elites will lose their income. According to the findings from the empirical part of the study, countries such as Finland, Germany, Ireland, Japan, Norway, Spain, and Sweden are included in this group. In addition, in some countries with high levels of democracy, the increase in democracy levels positively affects tax revenues. These countries include the Netherlands, New Zealand, Poland and United Kingdom. In these countries, income distribution, media freedom, and accountability variables are observed to be relatively mode favorable.

The theoretical approach implies that tax revenues will be higher due to the democratic structure that is still developing countries with relatively low levels of democracy. However, we want to draw attention to another point to be noted here. If the countries that are relatively backward in terms of democracy are collecting tax revenues based on their authoritarian directions, the positive developments at the level of democracy in these countries may bring adverse effects on tax revenues. In other words, authoritarian regimes may be collecting tax revenues more easily with different means (less democratic methods). Empirical evidence from the study suggests countries like the Czech Republic, Greece, Hungary, Italy, and Mexico. It should be remembered that the variables we have included in our study as democracy indicators are variables such as voice-accountability and press freedom, and the above-mentioned issues should be addressed in this context.

As a result, the increase in the democracy levels of developing countries may not be explanatory for increasing tax revenues alone. In this context, if the democracy is included in the reform processes with other structural changes (such as income distribution, accountability and transparency) then improvements in democracy levels may have positive effects on tax revenues. On the other hand, if developing countries act only through increases in democratization levels without taking other structural measures, then tax revenues may also decrease.

Finally, in terms of its being guide for the next studies, two suggestions can be presented: Firstly, this study only concentrated on causality relationship between two macro variables.

Besides this, also including some macro variables in the model, the scope of study can be expanded. The part of literature review is a guide for other researcher. Secondly, in the study, only causality (not consider CD) relationship are tested and any cointegration model was not examined. At this point, in the light of findings, a cointegration (Consider CD or no CD) model can be made.

Notes

(1) The definitions of the variables included in the model, the sources of the variables and the possible effects of the variables in the model are included in the Appendix section.
(2) Information on countries included in the model is included in Appendix section.

References

Acemoğlu, D. and Robinson, J.A., 2002. The political economy of Kuznets curve. *Review of Development Economics*, 6 (2), pp. 183-203.

Acemoğlu, D. and Robinson, J.A., 2006. Economic origins of dictatorship and democracy. New York: Cambridge University Press.

Acemoğlu, D., 2008. Oligarchic versus democratic societies. *Journal of the European Economic Association*, 6 (1), pp. 1-44.

Acemoğlu, D. and Robinson, J.A., 2008. The role of institutions in growth and development. *Commision on Growth and Development, Working Paper*, No. 10.

Acemoğlu, D., Naıdu, S., Restrepo, P. and Robınson, J.A., 2015. Democracy, redistribution, and inequality. *Handbook of Income Distribution*. 2, pp. 1885-1966.

Boix, C., 2001. Democracy, development and the public sector. *American Journal of Political Science*, 45 (1), pp. 1-17.

Brennan, G. and Buchanan, J.M., 2006. The power to tax: Analytic foundations of a fiscal constitution. New York: Cambridge University Press.

Brautigam, D.A., 2008. Introduction: Taxation and State-building in developing countries, in D. A. Brautigam, O.H. Fjelstad and M. Moore (Eds.), *Taxation and State-Building in Developing Countries: Capacity and Consent* (pp. 9-18). London: Cambridge University Press.

Cheibub, A.J., 1998. Political regimes and the extractive capacity of governments: Taxation in democracies and dictatorships. *World Politics*, 50 (3), pp. 349-376.

Dahl, R.A., 2006. *A preface to democratic theory*. Chicago: The University of Chicago Press.

De Schweinitz, K., 1964. *Industrialization and democracy*. New York: Free Press.

Downs, A., 1960. Why the government budget ıs too small in a democracy. *World Politics*, 12 (4), pp. 541-563.

Dumitrescu, E.I. and Hurlin, C., 2012. Testing for granger non-casualty in heterogeneous panels. *HALi Archives-Ouvertes*.

Ehrhart, H., 2012. Assessing the relationship between democracy and domestic taxes in developing countries. *Economics Bulletin, Access Econ*, 32 (1), pp. 551-566.

Farmer, P. and Lyal, R., 1994. *EC tax law*, Oxford: Oxford University Press

Gerry, C.J. and Mickiewicz, T.M., 2007. Inequality, democracy and taxation: Lesson from the post-communist transition. *Centre for the Study of Economic and Social Change in Europe, Working Paper*, No. 74.

Gülmez, A., 2015. OECD ülkelerinde ekonomik büyüme ve hava kirliliği ilişkisi: Panel veri analizi. *Kastamonu Üniversitesi, İİBF Dergisi*, 9, pp. 18-30.

Houle, C., 2009. Inequality and democracy: Why ınequality harms consolidation but does not affect democratization. *World Politics*, 61 (4), pp. 859-822.

Huntington, S. P., 1991. The third wave: Democratization in the late twentieth century. London: University of Oklahoma Press.

Im, K.S., Pesaran, M.H. and Shın, Y., 2003. Testing of unit roots in heterogeneous panels. *Journal of Econometrics*, 115 (1), pp. 53-74.

Levın, A., Lın, C.F., Chu, J. and Shang C., 2002. Unit root test in panel data: Asymptotic and finite sample properties. *Journal of Econometrics*, 108 (1), pp. 1-24.

Mahdavı, S., 2008. The level and composition of tax revenue in developing countries: Evidence from unbalanced panel data. *International Review of Economics and Finance*, 17 (4), pp. 607-617.

Mutascu, M., 2011. Taxation and democracy. *Journal of Economy Policy Reform*, 14 (4), pp. 343-348.

Montesquıeu, C.S., 1989. The Spirit of the Laws in Cambridge Texts in the History of Political Thought, Cohler, A. M, Miller, B. C. & Stone, H. S. (Eds.), Cambridge: Cambridge University.

Profeta, P., Puglısı, R. and Scabrosetti, S., 2009. Does democracy affect taxation? Evidence from developing countries. *Public Choice E Political Economy*, Pavia Universita.

Reza, Z., and Hilda, R., 2013. The relationship between democracy and revenue of budget. *International Journal of Management Sciences and Business Research*, 2 (7), pp. 17-21.

Mcguire, M.C. and Olson, M., 1996. The economics of autocracy and majority rule. *Journal of Economic Literature*, 34 (1), pp. 72-96.

Meltzer, H.A. and Richard, F.S., 1981. A rational theory of the size of government. *Journal of Political Economy*, 89 (51), pp. 914-927.

Niskanen, W.A., 2003. Autocratic, democratic, and optimal government: Fiscal choices and economic outcome. Edward Elgar Publishing.

Olson, M., 1993. Dictatorship, democracy and development. *The American Political Science Review*, 87 (3), pp. 567-576.

Pedroni, P., 1999. Critical values for cointegration test in heterogeneous panels with multiple regressors. *Oxford Bulletin of Economics and Statistics*, 61 (1), pp. 653-670.

Pedroni, P., 2000. Fully modified ols for heterogeneous cointegrated panels. *Nonstationary Panels, Panel Cointegrtion and Dynamic Panels*, 15, pp. 193-130.

Pedroni, P., 2001. PPP test in cointegrated panels. *Review of Economics and Statics*, 83, pp. 727-931.

Prichard, W., 2009. The politics of taxation and ımplications for accountability ın Ghana 1981-2008. *IDS Working Papers*, 2009 (330), pp. 01-44.

Prichard, W., Salardi, P., and Segal, P., 2014. Taxation, non-tax revenue and democracy: New evidence using new cross-country data. *ICTD Working Paper*, No. 2014-02.

Repetti, J.R., 2001. Democracy, taxes and wealth. *New York University Law Review*, 76 (825), pp. 825-873.

Robinson, J.A., 2002. States and power in Africa by Jeffery I. Herbst: A review essay. *Journal of Economic Literature*, 40, pp. 510-519.

Ross, M.L., 2004. Does taxation lead to representation?. *British Journal of Political Sciences*, 34 (2), pp. 229-249.

Schumpeter, J.A., 2010. Kapitalizm, sosyalizm ve demokrasi. 3. Baskı, Ankara: Yosun Ofset Matbaacılık.
Stock, J. and Watson, M., 1993. A simple estimator of cointegrating vectors in higher order ıntegrated systems. *Econometrica*, 61 (4), pp. 783-820.
Sorensen, G., 1993. Democracy and Democratization, Processes and Prospects in a Changing World (Boulder, CO: Westview).
Tonizzo, M., 2008. Political institution, size of government and redistribution: An empirical investigation. *Development Destin Studies Institute, Working Paper*, No. 08-89.
Tilly, C., 1990. Coercion, capital and European states: AD 990–1992. Oxford: Blackwell Publishers.
Vanhanen, T., 2003. *Democratization: A comparative analysis of 170 countries*. London: Routledge.
Welzel, C., 2007. Are levels of democracy affected by mass attitudes? Testing attainment and sustainment effects on democracy. *International Political Science Review*, 28 (4), pp. 397-424.
WGI, 2016. Date of access: 08.01.2017, <http://info.worldbank.org/governance/wgi/ index.aspx#home>
FH, 2016. Date of access: 08.01.2017, <https://freedomhouse.org>

Appendixes

Appendix A. *Selected OECD Countries Include in Analysis*

Countries	Id	Countries	Id
Australia	1	Japan	15
Belgium	2	Luxembourg	16
Canada	3	Mexican	17
Chile	4	Netherlands	18
Czech Republic	5	New Zealand	19
Denmark	6	Norway	20
Finland	7	Poland	21
France	8	Portugal	22
Germany	9	Spain	23
Greece	10	Swedish	24
Hungary	11	Swiss	25
Iceland	12	Turkey	26
Ireland	13	Great Britain	27
Italy	14	USA	28

Appendix B. *Dependent and Independent Variable Definitions and Source*

	Definitions	Sources
R	Tax Revenue/GDP	OECD Data Base-2017
V	Voice and Accountability	The Worldwide Governance İndicators-2016
M	A: Laws and regulations that influence media content B: Political pressures and controls on the media content C: Economic influences over media content A+B+C=Press Freedom	Freedom Of The Press Detailed Data and Sub-Scores (1980-2016) New Format

Appendix C. *Summary Statistic*

	Obs.	Mean	Std. Dev.	Min.	Max.	Skewness	Jar. Berra	Prob.
ln R	364	3.48	0.25	2.53	3.90	-1.33	201.018	0.0000
ln [V]	364	0.10	0.69	-3.52	4.53	-1.98	250.170	0.0000
ln M	364	2.86	0.47	2.07	4.12	0.58	104.679	0.0030

Note: [lnV] represents the absolute value of the variable.

Appendix D. *Expected effects of variables*

Variables	V (+/-)
	M (+/-)

Appendix E. *Panel Cointegration estimate results*

Countries	Variable	FMOLS		CCR		DOLS	
		Coef.	**T. st.**	**Coef.**	**T. st.**	**Coef.**	**T. st.**
Australia	M	-0.28 [0.0306]	-2.56	-0.28 [0.0060]	-3.57	0.41 [0.0686]	9.25
	V	0.23 [0.5791]	0.57	0.23 [0.5843]	0.56	1.38 [0.0369]	17.23
Belgium	M	-0.04 [0.5235]	-0.68	-0.04 [0.4098]	-0.86	-0.69 [0.1837]	-3.36
	V	0.009 [0.0439]	2.34	-0.02 [0.9189]	-0.10	-1.52 [0.2159]	-2.83
Canada	M	-0.21 [0.0112]	-3.17	-0.23 [0.0343]	-2.49	-0.47 [0.7218]	-0.46
	V	0.09 [0.3559]	0.95	0.06 [0.6651]	0.44	-0.56 [0.3641]	-0.76
Chile	M	0.23 [0.1283]	1.67	0.21 [0.0658]	2.09	-2.50 [0.0022]	-287.50
	V	0.43 [0.0862]	1.92	0.48 [0.1805]	1.45	-1.05 [0.0089]	-71.69
Czech Republic	M	0.09 [0.0292]	2.59	0.08 [0.0213]	2.78	-0.07 [0.3018]	-1.94
	V	-0.40 [0.0004]	-5.48	-0.41 [0.0028]	-4.07	-2.01 [0.0394]	-16.12
Denmark	M	0.008 [0.9057]	0.12	0.01 [0.8897]	0.14	0.03 [0.8129]	0.30
	V	0.11 [0.5066]	0.69	0.12 [0.5488]	0.62	0.62 [0.2930]	0.30
Finland	M	0.24 [0.0595]	2.15	0.14 [0.0292]	2.58	0.94 [0.0045]	142.27
	V	0.08 [0.5626]	0.60	0.14 [0.3833]	0.91	-0.78 [0.0111]	-57.14
France	M	0.17 [0.1411]	1.61	0.18 [0.2589]	1.20	-0.27 [0.7045]	-0.50
	V	0.01 [0.9225]	0.10	0.04 [0.8596]	0.18	-0.11 [0.9158]	-0.13
Germany	M	0.47 [0.0084]	3.35	0.46 [0046]	3.74	0.11 [0.4335]	1.23
	V	-0.15 [0.3710]	-1.05	-0.13 [0.4575]	-0.77	-0.12 [0.2252]	-2.70
Greece	M	0.06 [0.4962]	0.70	0.07 [0.5249]	0.66	0.20 [0.0750]	8.45
	V	-0.24 [0.0117]	-3.14	-0.24 [0.0159]	-2.96	-0.19 [0.0505]	-12.57
Hungary	M	-0.11 [0.1176]	-1.73	-0.11 [0.1164]	-1.73	-0.52 [0.0074]	-86.57
	V	-0.13 [0.0904]	-1.89	-0.13 [0.1607]	-1.52	-0.77 [0.0057]	-112.20
Iceland	M	-0.007 [0.9544]	-0.05	0.01 [0.9202]	0.10	0.12 [0.7816]	0.35
	V	0.73 [0.2492]	1.23	0.96 [0.1930]	1.40	2.18 [0.2847]	2.08
Ireland	M	0.39 [0.3557]	0.97	0.69 [0.2789]	1.51	2.01 [0.0342]	18.60
	V	0.50 [0.0260]	2.66	0.64 [0.0424]	2.36	1.51 [0.0127]	49.92
Italy	M	0.06 [0.6634]	0.44	0.02 [0.8218]	0.23	-2.23 [0.0034]	-187.57
	V	-0.38 [0.0168]	-2.92	-0.42 [0.0254]	-2.67	-0.73 [0.0021]	-304.38
Japan	M	0.56 [0.0000]	10.60	0.56 [0.0000]	10.92	0.60 [0.0260]	24.44
	V	0.03 [0.7325]	0.35	0.03 [0.7029]	0.39	0.28 [0.1329]	4.71

Countries	Variable	FMOLS		CCR		DOLS	
		Coef.	**T. st.**	**Coef.**	**T. st.**	**Coef.**	**T. st.**
Luxembourg	M	0.18 [0.1850]	1.43	0.24 [0.1731]	1.47	5.41 [0.1573]	3.96
	V	0.29 [0.2126]	1.34	0.32 [0.1769]	1.46	-3.05 [0.2290]	-2.65
Mexican	M	0.76 [0.0022]	4.22	0.83 [0.0007]	5.01	0.85 [0.0284]	22.36
	V	-0.08 [0.0009]	-4.88	-0.09 [0.0015]	-4.48	-0.14 [0.0078]	-81.53
Netherlands	M	-0.16 [0.0013]	-4.60	-0.19 [0.0063]	-3.54	-1.51 [0.1308]	-4.79
	V	-0.30 [0.0125]	-3.11	-0.38 [0.2332]	-2.72	-0.17 [0.1652]	-3.76
New Zealand	M	-0.17 [0.0202]	-2.81	-0.17 [0.0118]	-3.14	-0.24 [0.5356]	-0.89
	V	0.27 [0.4810]	0.73	0.29 [0.4376]	0.81	0.55 [0.6580]	0.59
Norway	M	0.006 [0.9534]	0.06	0.03 [0.7566]	0.31	-0.26 [0.2262]	-2.69
	V	-0.31 [0.0456]	-2.31	-0.34 [0.0392]	-2.40	-0.11 [0.2843]	-2.08
Poland	M	-0.04 [0.5004]	-0.70	-0.06 [0.2635]	-1.19	0.19 [0.1823]	3.39
	V	-0.24 [0.0091]	-3.30	-0.24 [0.0106]	-3.21	-0.36 [0.1784]	-3.47
Portugal	M	0.40 [0.1263]	1.68	0.51 [0.1619]	1.52	-1.65 [0.7883]	-0.34
	V	0.08 [0.6569]	0.45	0.14 [0.5436]	0.63	-1.39 [0.7724]	-0.37
Spain	M	-0.44 [0.0034]	-3.93	-0.48 [0.0084]	-3.35	-0.81 [0.0134]	-47.57
	V	-0.37 [0.0578]	-2.17	-0.43 [0.0760]	-2.00	-0.95 [0.0352]	-18.08
Swedish	M	-0.19 [0.0004]	-5.43	-0.18 [0.0003]	-5.73	-0.03 [0.4014]	-1.02
	V	-0.37 [0.0043]	-3.94	-0.39 [0.0048]	-3.71	-0.81 [0.0626]	-10.14
Swiss	M	0.03 [0.1463]	1.58	0.03 [0.1784]	1.45	0.10 [0.0570]	11.13
	V	-0.11 [0.2437]	-1.24	-0.12 [0.2551]	-1.21	-0.28 [0.1329]	-4.72
Turkey	M	0.42 [0.1577]	1.54	0.58 [0.1910]	1.41	1.68 [0.3276]	1.76
	V	0.04 [0.1300]	1.66	0.04 [0.3234]	1.04	-0.08 [0.6601]	-0.59
Great Britain	M	-0.02 [0.7368]	-0.34	-0.06 [0.5543]	-0.61	0.38 [0.2303]	2.64
	V	0.03 [0.7614]	0.43	0.04 [0.6411]	0.48	0.77 [0.0633]	10.01
USA	M	-0.08 [0.6196]	-0.51	-0.17 [0.6019]	-0.54	-0.88 [0.1210]	-5.19
	V	-0.12 [0.6220]	-0.51	-0.15 [0.5928]	-0.55	-1.84 [0.1046]	-6.02
Panel Group	M	0.02 [0.3792]	0.88	---	---	-0.10 [0.1181]	-1.57
	V	0.01 [0.3980]	0.84	---	---	0.09 [0.0297]	2.21
	R^2	**0.97**		**---**	**---**	**0.99**	

Note 1: The values in "[ ]" indicate the probability value.
Note 2: The lag length criteria for DOLS panel estimates is set to 1.