Turning Out for Redistribution: The Effect of Voter Turnout on Top Marginal Tax Rates

Navid Sabet*

May 2020

Abstract

I document the impact of voter turnout on top marginal tax rates in OECD countries between 1974 and 2013. I find that higher turnout leads to significantly higher rates of tax for top earners. This finding is consistent with the median voter theorem that posits government redistribution to be a function of the income of the median voter. Because turnout has fallen drastically in the decades leading to 2013, and because the decrease is negatively correlated with income, the pivotal voter is no longer the one whose income lies at the median of the overall income distribution but instead the one whose income is at the median of a richer subset of it. An instrumental variables approach confirms my findings. Finally, I find a significantly negative relationship between turnout and top incomes shares, consistent with the fact that top earners are affected more by increases in top tax rates.

JEL Codes: H24, D31, D7

Keywords: voter turnout, income tax, redistribution, government policy

*Faculty of Economics and Business, Goethe University Frankfurt, Theodor-W.-Adorno-Platz 4, 60629 Frankfurt, Germany. Email: sabet@econ.uni-frankfurt.de. Telephone: +49 (69) 798-34803. I would like to thank Davide Cantoni, Guido Friebel, Mitch Hoffman, Christoph Winter, Joachim Winter, Andreas Steinmayr, Uwe Sunde and Noam Yuchtman as well as seminar participants from the Universities of Munich, Nurnberg and Regensburg for constructive feedback and suggestions. Funding through the Elite Network of Bavaria is gratefully acknowledged.

1. Introduction

On a single day in May 2012, some 100,000 people gathered in New York City[1] to protest the exorbitant rise in the share of incomes accruing to the top 1 percent of the income distribution in the United States. In that country, the pre-tax income share of the wealthiest 1 percent has increased from 9.1 percent in 1974 to some 23.5 percent in 2007 while the share going to the top 0.1 percent has grown from 2.7 percent to 12.3 percent in the same time period (Piketty, 2014). Around the world, trends are similar. As of 2014, according to Oxfam, the richest percentile of the global population claimed 48 percent of the world's wealth (Oxfam, 2015). As such, the 'May Day' protest in New York City was organized as part of the larger *Occupy* movement which "aims to fight back against the richest 1 percent of people that are writing the rules of an unfair global economy."[2] The movement spanned some 100 cities in the United States and approximately 1,500 others across the globe. And yet, in November of that same year, just 53.5 percent of the total voting age population turned out to vote in America's presidential election. Ironically, individuals with incomes over US$100,000 comprised more than 25 percent of the vote.[3] More generally, across all OECD countries, those that held elections between 2009 and 2013 experienced an average turnout of 67 percent, 12 percentage points lower than the 1974–1978 average of 79 percent.[4] Although this evidence need not be contradictory—it could be, for example, that the protesters were mostly well educated and better off whereas low income individuals neither voted nor protested—the contrasts are puzzling and they stimulate questions worthy study: for instance, if so many are concerned about the distribution of wealth and if so many are committed to taking action for the cause, then why do so few people vote? And what are the economic consequences of such low rates of turnout? Are they, in any way, responsible for the growing concentration of wealth among the top percentile?

In this paper, I analyze the latter two of these questions. I examine the impact of voter

[1] Estimates taken from the David Graeber's 7 May 2012 article in the Guardian: $http://bit.ly/2ttRH7L$. Accessed September 2016.

[2] Taken from the Website of the Occupy Wall Street: http://occupywallst.org/about/. Accessed September 2016.

[3] Authors own calculations using Table 7 of the U.S. Census Bureau, Current Population Survey, November 2012. Those with incomes of more than $100,000 per annum make up 26.5 percent of the registered voting population.

[4] Turnout expressed as a fraction of the total voting age population (VAP) The difference between turnout and VAP turnout will be discussed later in the paper.

turnout on top marginal tax rates in the Organization for Economic Cooperation and Development (OECD) countries. Empirical studies have shown that those who vote are systematically different in their social and economic characteristics—and hence their policy preferences—to those who do not vote. Among other things, these studies confirm, those who vote tend to be richer, better educated and older than those who do not (Larcinese, 2007). Falling rates of voter turnout, therefore, imply that the preferences of wealthy individuals are over-represented in relation to those of the population in general which, I expect, will place less pressure on public policy for redistribution. Accordingly, I anticipate top marginal tax rates to rise and fall with turnout.

To test this hypothesis, I assemble a panel of data for the OECD countries for the period between 1974 and 2013 to assess the impact of voter turnout in national elections on top marginal tax rates. I find a positive and statistically significant relationship between the two. Results across a number of specifications indicate that a ten percentage point increase in voter turnout leads to a 3 percentage point increase in the top marginal tax rate. If the correlations uncovered in this paper are causal, then the 12 percentage point decrease in voter turnout in the 40 years to 2013 can explain some 16 percent of the 22 percentage point decline in tax rates over the same period. Because both variables are downward-sloping time series, I undertake a number of empirical strategies to regress them against each other in order to determine whether their relationship is, in fact, causal.

As a first step, I control for a number of observable social and economic characteristics of the countries in question, including per capita gross domestic product, annual growth in GDP, the tertiary education enrollment rate, unemployment, population and an indicator for whether the election is presidential or parliamentary. To account for different political conditions in the wide range of countries in the sample, and the potential effects these might have in driving turnout and tax rates, I include a Freedom House index of political rights. Controlling for these observable characteristics does little to diminish the effect of voter turnout on top marginal tax rates; the results remain positive and statistically significant at conventional levels.

As a second strategy, I exploit the panel structure of the data by including year dummies and country fixed effects. This is a crucial step as it enables me to study the within-country

variation of the variables of interest thereby accounting for any unobservable, time-invariant country heterogeneities. It also allows me to control for any additional unobservables that vary over time but that remain constant across countries such as shocks to the global economy, including the Great Recession of 2008/9. Encouragingly, I find that my results remain robust to the inclusion of both year dummies and country fixed effects.

Next, I examine the timing of the effect. In this connection, I begin by regressing the top marginal tax rate in years $t + 1$, $t + 2$, and $t + 3$ as well as over the election cycle on voter turnout in election year t and I find significant results, implying that turnout has an impact not just in the election year but throughout the entire term of a given government. I then carry out a placebo test by regressing the top marginal tax rate in year $t - 1$ and the average tax rate from years $t - 1$ to $t - 3$ on turnout in election year t. If turnout is what causes changes in tax rates, then we would not expect to see significant effects of turnout in year t on tax rates in years $t - n$. Consistent with this thinking, I find that turnout has no explanatory power over top marginal tax rates in the years leading up to an election.

As a final step, I employ an instrumental variables approach in an effort to isolate only the exogenous variation of voter turnout and to push the causal interpretation of my results. The instrument I use is a an indicator variable for whether a country has compulsory voting laws interacted with year dummies, arguing that the introduction of such laws influences the top tax rate only and only through its impact on rates of turnout. Indeed a balance test of country characteristics between nations with and without compulsory voting laws reveals no significant differences in economic observables, reinforcing the notion that such laws are enacted or repealed independent of redistributive policy. The IV results largely confirm those generated via OLS: the coefficients are of similar magnitude and sign but are estimated with slightly less precision. For this reason, I take the IV results as suggestive. Nonetheless, the set of excluded instruments has a strong first stage relationship and produce precise estimates in one key specifcation, thus adding some measure of causal validity to my findings.

Finally, I address the relationship between turnout and the distribution of income. I obtain the share of national income accruing to those in the top 10 and 1 percent of the distribution and regress these on voter turnout. Interestingly, the coefficients are negative and precisely

estimated. I also obtain the share of national income accruing to the bottom 50 percent of earners. Although the coefficient becomes positive, it is no longer estimated with precision. To the extent that increases in turnout lead to higher top marginal tax rates, these results are consistent with the fact that the earnings of top earners are affected disproportionately more than others.

This study adds to a literature that documents the effect of voter turnout on economic outcomes in a cross-country setting. This literature includes studies that examine the impact of turnout on such things as welfare expenditure and the political leaning of the party in power (Hicks & Swank, 1992) and social spending in non-welfare categories such as education and health (Lindert, 1996). Other studies have looked at the interaction between turnout and income skew (Franzese, 2002) or inequality in voting (Mahler *et al.* , 2014) in explaining government expenditure. Extending these sorts of studies to non-industrialized nations, Larcinese (2007) finds similar relationship between voter turnout and social and welfare spending holds when considering countries that are not developed democracies.

The study offers two contributions to this literature. First, from a methodological perspective, it expands the size of the sample, exploits the advantages of panel data methods and includes an instrumental variables strategy so as to increase plausibility of causal interpretation. In this respect, Lindert (1996) explains that "post-1981 data are not available in the abundance and quality of this special OECD study". The dataset compiled for this study does not suffer from this difficulty. Additionally, because of the panel structure of my data, I am able to account for any unobserved time and country heterogeneity which might confound the analysis, an important step which has not always been taken in previous work. Finally, and perhaps most importantly, I endeavor to isolate only the exogenous variation in turnout by employing an instrumental variable which, in the context of a cross-country study, improves the credibility of the point estimates.

Second, by investigating the effects of voter turnout on top marginal tax rates and top income shares, the study is, to my knowledge, the first of its kind to measure the effects of voter participation on policies that *directly* affect the distribution of income. Thus, while it is related to the literature that examines the relationship between turnout and redistribution as measured by

the amount of government social spending, the study poses a slightly different question, asking instead what the direct effects of voter turnout are on the tax rates of the wealthiest segments of the population. In so doing, the study relates to the literature that documents the determinants of wealth concentration, the like of which include the difference between the interest rate and growth rate (Piketty, 2014), the supply and demand of skills and the overall returns to education (Autor, 2014), and institutional and technological factors (Acemoglu & Robinson, 2015).

The rest of this paper is organized as follows. Section 2 discusses the median voter theorem and addresses the dual questions of who votes and why. Section 3 describes the data and also details the empirical specifications and results. Section 4 discusses the results and Section 5 concludes.

2. Theoretical Motivation

2.1. Voter Preferences and the Median Voter Theorem

A tenet of the political science of elections is the median voter theorem. The theorem maintains that politicians have but one objective: to win office. Accordingly, politicians have powerful incentives to align their policy platforms to suit the interests of the majority of their respective electorates. Consequently, the policy platforms of competing parties on a left-right policy spectrum gradually converge toward centre ground so as to maximize the number of votes won and to minimize the number of votes lost. As early as 1929, Harold Hotelling, observing the competition between the Republican and Democratic parties in the United States, noted that in order to avoid losing votes, "each party strives to make its platform as much like the other as possible" (Hotelling, 1929).

Elaborating the idea, Downs (1957) suggested that politicians "act solely in order to attain the income, prestige and power which come from being in office..." and that "parties formulate policies in order to win elections, rather than win elections in order to formulate policies". To win office, therefore, politicians offer policy platforms that increasingly draw nearer to the preferences of the voter whose preferences are located in the median of the preference distribution. Put more precisely, the Downsian model of electoral competition states that, given a one dimensional policy space and single-peaked voter preferences, the policy preferences

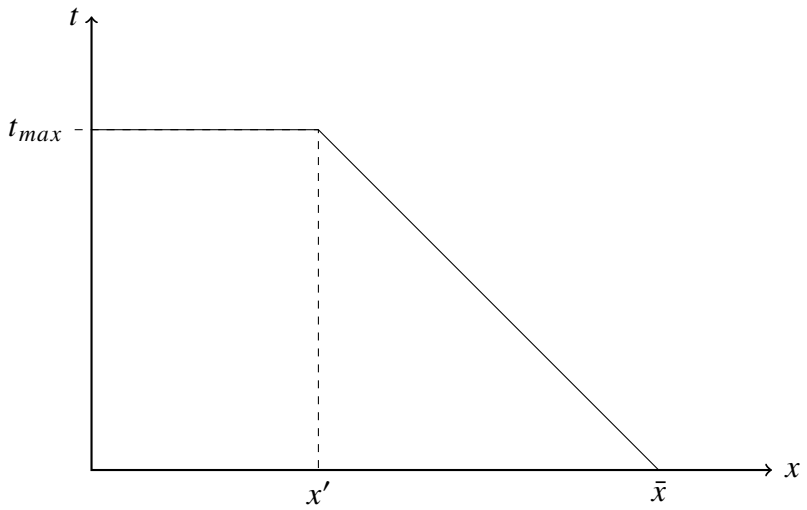

Figure 1: Tax rates as a function of individual income and productivity

Note: $\bar{x}$ denotes average productivity while x' denotes minimum productivity of an individual who prefers the maximum possible tax rate.

of the median voter act as a sort of centripetal force, drawing the policy platforms of various parties towards it.

Meltzer & Richard (1981) build on the Downsian conception of electoral competition to model how governments set tax rates and allocate social spending in response to the preferences of the median voter. Their seminal model indicates that the size of government, taken to be the share of income redistributed by the government in welfare payments and in social services, depends on the relative distance between median and mean income. The lower median income is with respect to mean income, the greater is the demand for redistribution, up to a maximum tax rate. As median income approaches mean income, the preferences of voters for a high tax rate declines. Politicians maximize their electoral chances by offering a tax rate commensurate with the preferences of the median voter for redistribution. The insights of their model are captured in Figure 1, where t denotes the tax rate and x denotes individual productivity endowments.

A more general implication of the model is that the more widely political franchise is extended, the poorer is the median voter in relation to the population average and the greater are his or her demands for redistribution. The model thus has trouble explaining rising inequality, especially of the sort generated by the hyper concentration of wealth by the top percentiles. After all, such concentration creates median voters with incomes far below the average and with

preferences for greater redistribution. If the model holds true, then, we would expect tax rates to rise as wealth becomes increasingly concentrated. Why haven't they?

2.2. Who votes?

The shortcomings of the median voter theorem have been documented by a number of scholars who, among other things, have questioned the whole notion of the credibility of policy convergence in a two party system with rational voters (Alesina (1988); Lee *et al.* (2004). Here, my focus is on the role of turnout. The theorem assumes that everyone in a population votes, in which case the decisive voter is the voter with median level income as suggested by Meltzer & Richard (1981). But what happens when not everyone votes? If voters and non-voters are randomly distributed, then it would be difficult to identify significant consequences of falling rates of turnout. A number of studies have shown, however, that those who vote are typically better educated, wealthier and more informed politically than those who abstain. From an empirical point of view, then, the 'median voter' is not the one who lies at the median of the income distribution of the population but rather at the median of a much richer subset of the income distribution. Larcinese (2007) describes the phenomenon aptly:

> Downsian models normally assume that everybody votes...It is, however, clear from available data that non-voters are not randomly distributed across the total population: a substantial body of empirical research has documented that voters and non-voters systematically differ in their socio-economic and demographic background and, therefore, in their needs and policy preferences...In different countries and elections, empirical research consistently shows that the likelihood of voting is positively correlated with income, age and education level, as well as with being a male citizen. It is quite likely that such characteristics are correlated with policy preference, especially over issues of redistribution.

A cursory search of readily available evidence confirms this view. Figure 2 shows voter turnout by household income for the last three presidential elections in the United States. As shown, there is a clear association between income and turnout. Figure 3 shows the same data,

this time for the 2016 presidential election and broken down by age. Data for the 2008 and 2012 elections are similar: all show a positive correlation between age, income and voting.

Figure 2: Turnout by household income in US presidential elections

Source: US Census Bureau Current Population Survey (Tables 7 for 2012 and 2016 and Table 8 for 2008)

2.3. Why do people vote?

How do we know that the direction of causation is from turnout to redistributive policy and not the other way around? That is to say, how do we know that more inequality and less redistributive policy themselves do not cause lower levels of turnout? Whilst there may be a possibility of reverse causation, such a hypothesis has received little intellectual support. For one, all the theoretical implications of the median voter theorem suggest that the direction of causation is from voters to government. For another, the reasons why people vote are many but income distribution and taxation policy do not appear to be among them. Instead, theoretical and empirical work tends to point to such factors as the costs of registration (things like voter registration laws, information acquisition and time); demographic factors (including education, income, age, gender and race as discussed in the previous subsection); social and psychological factors (the like of which include habit, marital status, civic duty and social image); and the particular characteristics of a given election (tightness of the race) (Harder & Krosnick 2008;

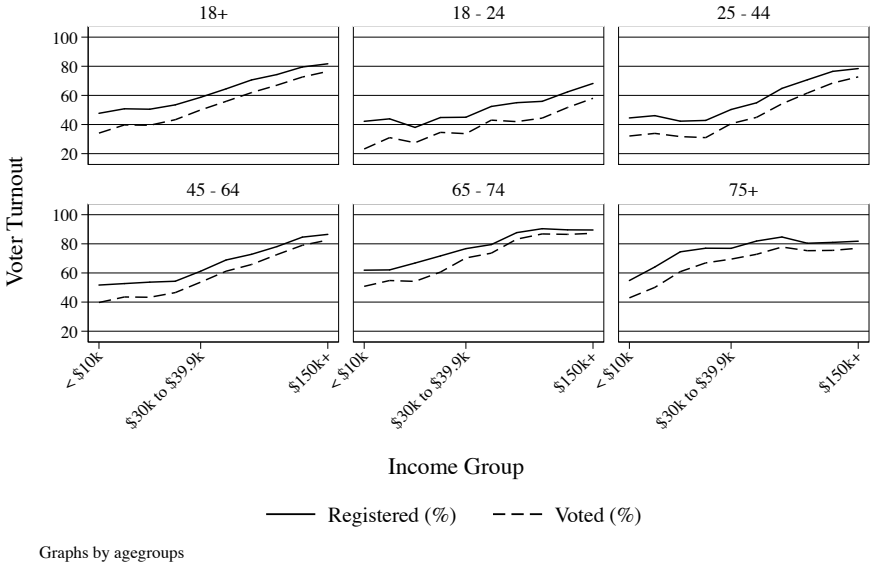

Figure 3: Turnout by household income and age in the 2016 US presidential election

Source: US Census Bureau, Table 7 of the November 2016 Current Population Survey

Stefano DellaVigna 2014).

Elections Canada commissioned a survey following its 2 May 2011 General Election in order to better understand the reasons why eligible voters did not cast their ballots. As shown in Figure 4, inequality, taxation policy or government redistribution do not appear as reasons for abstaining. Whilst these figures cannot conclusively rule out the possibility of reverse causality, the weight of evidence available seems to support the hypothesis put forward in this paper.

3. Empirical Methodology

3.1. Data

The analysis is based on measures of voter turnout and top marginal tax rates in the nations that comprise the Organisation for Economic Cooperation and Development (OECD) for the period between 1974 and 2013. I compiled a new dataset from a number of sources which I will briefly describe in this section.

Data for voter turnout comes from the International Institute for Democratic and Electoral Assistance (IDEA). IDEA keeps two records for voter turnout: one, *turnout*, that measures voter participation as a percentage of registered voters and a second, *VAP turnout*, that measures voter

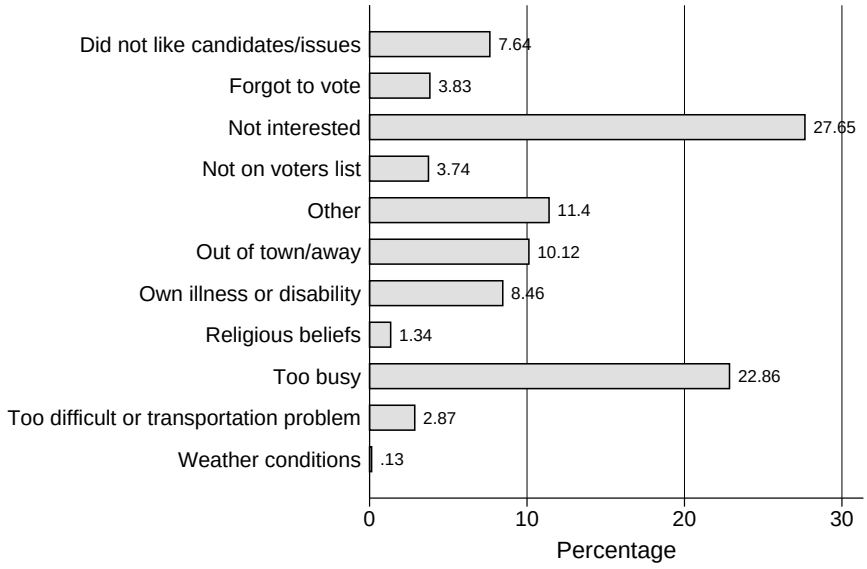

Figure 4: Why voters did not vote in Canada's 2011 General Election

Source: Labor Force Survey commissioned by Elections Canada, May 2011

participation as a fraction of the total voting age population. The fact that VAP turnout captures turnout as a fraction of the voting age population and not the *eligible* voting age population does raise some concerns as, for example, expatriates and other non-citizens of voting age might be included in the population. However, because registering to vote is likely correlated with other determinants of turnout, using *turnout* raises additional concerns related to endogeneity. In addition, voter registration figures, according to IDEA, can be inaccurate or unavailable. These considerations lead me to choose VAP turnout as they key explanatory variable in the study. In practice, however, the two measures are very similar and the results of the study are robust to both.[5] The IDEA database also includes an indicator for whether a given election was presidential or parliamentary,[6] and a Freedom House index of political rights, both of which I use as controls. Lastly, the database maintains a dummy variable for whether a nation has compulsory voting laws, which I use to instrument turnout in the final part of the analysis.

Information regarding the top marginal tax rates comes from the OECD, but are compiled by the World Tax Database. I also obtain unemployment and population figures from the OECD

[5]Figure A.2 in the Appendix shows trends as well as differences between the two measures.

[6]Eleven countries in the sample have presidential and parliamentary elections in the same year. The analysis is insensitive to whether I use only the presidential election data or only their parliamentary election data. However, I choose, according to which election is more politically relevant, the most sensible election for each country. I report which elections from which country I use in Table A.3 in the Appendix.

statistical database.

I used the World Bank Open Data to obtain data on GDP per capita as well as annual growth in GDP. These are important control variables as they may have a direct bearing both on voter turnout as well as on government tax policy decisions. In addition, the World Bank data include figures for tertiary education enrollment rates which allows me to control for any education-related effects that may confound the analysis.[7]

Table 1 provides descriptive statistics of the variables used in the analysis. Although the sample covers nearly 40 years, the unit of observation is the country-election, of which there are 357 in total.

Table 1: Summary Statistics: Entire Sample

	Mean	SD	Min	Max	Observations
Turnout (%)	77.0	12.4	42	96	356
VAP Turnout (%)	73.5	12.5	35	95	357
Tax Rate (%)	49.0	14.1	12	91	319
GDP Per Capita (1000s)	22.2	17.8	1.3	114	354
GDP Growth (%)	2.8	2.9	-7.3	11	350
Unemployment rate	7.0	4.1	.25	24	340
Population (millions)	30.5	50.1	.22	314	354
Tertiary Education Enrollment (%)	43.5	22.9	1.4	114	288
Presidential Election	0.2	0.4	0	1	357
Political Rights	1.2	0.6	1	5	349

Figure 5 shows a steady downward trend in both voter turnout and the top marginal tax rates in 34 countries of the sample. To obtain initial understanding of the strength of the relationship between the two variables, I plot, in Figure 6, the residuals from a regression of top marginal tax rates on year dummies and country fixed effects against the corresponding residuals of turnout. Plotting the residuals enables me to observe variation in the two variables when all country and time heterogeneity have been accounted for, thereby alleviating concerns of compositional effects that may arise in a straightforward scatter plot. As shown, the relationship between the two variables is positive and significant.

[7]The World Bank data does not have tertiary education information for Japan and so it is dropped from the analysis.

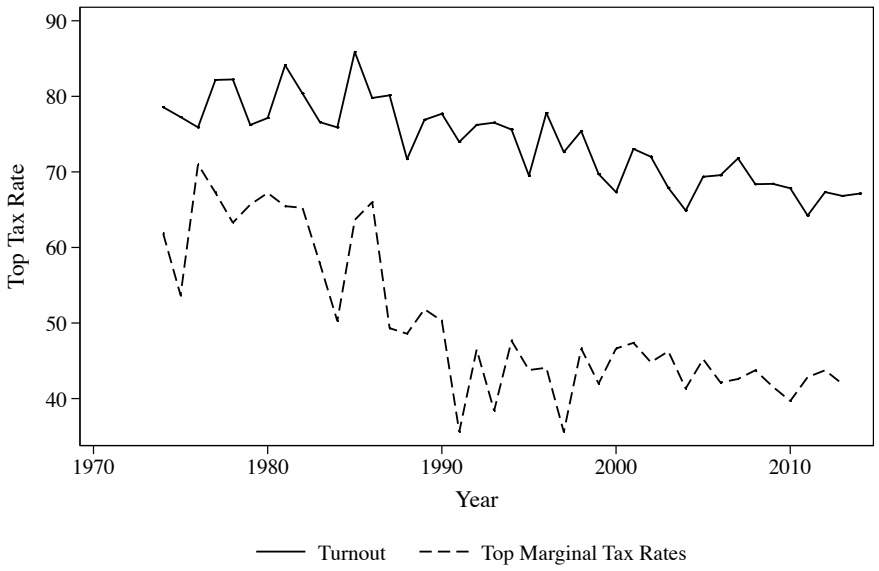

Figure 5: Top marginal tax rates and voter turnout in OECD countries

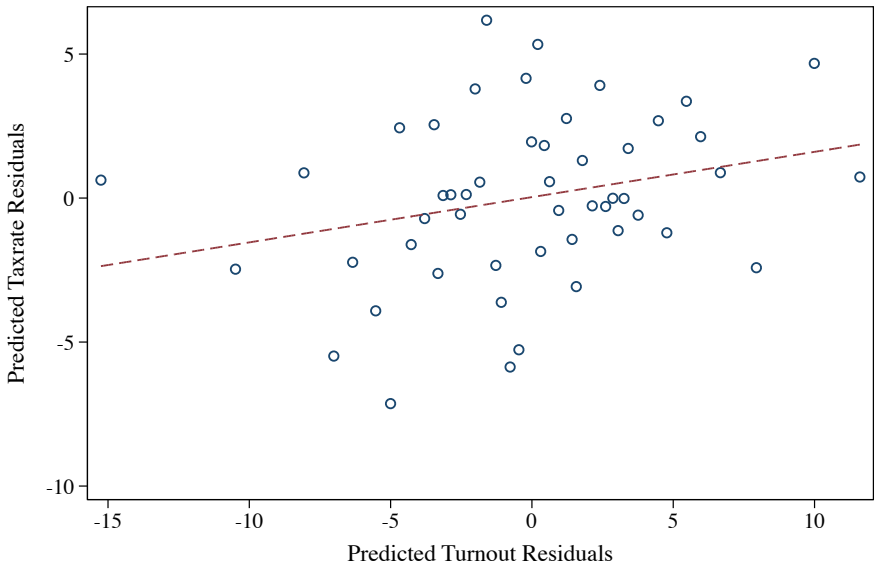

Figure 6: Binscatter of residualized tax rates and turnout

Note: This figure plots the residuals of a regression of top marginal tax rates on year and country fixed effects against the corresponding residuals on voter turnout. The graph uses binscatter with 50 bins. $\beta = .157, t = 1.85$

3.2. Baseline Estimates

To more formally assess the strength and direction of the relationship between voter turnout and the top rate of marginal tax, I estimate, for country i in year t, the parameters of the following

specification:

$$y_{it} = \beta_0 + \delta_i + \alpha_t + \beta_1 VAP_{it} + \Gamma \mathbf{X_{it}} + u_{it} \tag{1}$$

Where y denotes the top marginal tax rate and X_{it} contains a vector of country-specific controls as discussed in the preceding subsection. I take into account unobserved year- and country-specific heterogeneity through the inclusion of year and country fixed effects, denoted by α_t and δ_i, respectively. The former allow me to control for any unobserved fixed differences in the tax rate across years that may occur as a result of global shocks to the economy, such as the Great Recession of 2008. The latter eliminates unobserved country-specific heterogeneity and allows me to understand the within-country variation between the variables of interest. The idiosyncratic disturbance term is shown as u_{it} which is clustered at the country level. The parameter of interest is β_1 which estimates the impact of turnout, expressed as a percentage of the voting age population, on top tax rates.

The results are shown in Table 2. Column 1 shows the univariate relationship between turnout and tax rate whilst Column 2 introduces the baseline controls. Neither the coefficient nor its precision are affected in any way through the inclusion of controls. These results suggest that a 10 percentage point increase in turnout leads to a 6 percentage point increase in the top marginal tax rate. In Column 3 I introduce year fixed effects and in Column 4, which is the preferred specification, I include country fixed effects. The magnitude of the coefficient decreases by about 50 percent compared to Columns 1 and 2 but is precisely estimated and remains economically meaningful. The coefficient suggests that a 10 percentage point increase in turnout leads to a 2.96 percentage point increase in the top marginal tax rate.

3.3. Timing of the Effect

The baseline results indicate that voter turnout in election year t has a contemporaneous effect on top marginal tax rates. One may wonder, however, whether governments react that quickly to voter preferences. To increase confidence in the estimates, I regress top marginal tax rates in years $t+1$, $t+2$ and $t+3$ on turnout. I also regress the average value of the top marginal tax rate

Table 2: Baseline Results

	Outcome: Top Marginal Tax Rates			
	(1)	(2)	(3)	(4)
VAP Turnout (%)	0.534***	0.591***	0.469***	0.296**
	(0.0852)	(0.0828)	(0.0835)	(0.143)
Controls	No	Yes	Yes	Yes
Year Dummies	No	No	Yes	Yes
Country Fixed Effects	No	No	No	Yes
Observations	319	252	252	252
Number of Countries	34	33	33	33

Notes: Standard errors (in parentheses) are clustered at the country level. The dependent variable is top marginal tax rates in percent. VAP Turnout is the number of voters in a given election expressed as a percentage of the voting age population. Control variables include log of country population, the unemployment rate, GDP per capita, GDP growth, tertiary education enrollment rate, an indicator for whether the election was Presidential or Parliamentary and a Freedom House index for political rights. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

over the entire election cycle for each election in each country on turnout.[8] Results are shown in Columns 1 to 4 of Table 3 which shows that the relationship remains significant at conventional levels. The magnitudes in Columns 1 to 3, which use, respectively, tax rates in years $t + 1$, $t + 2$ and $t + 3$ as the outcome are slightly smaller than the baseline. Encouragingly, however, when examining the relationship between turnout and the tax rate over the entire election cycle, as shown in Column 4, the precision of the estimate increases and the magnitude is comparable to that of the baseline.

As a further check, I carry out a placebo test by regressing the top tax rate in year $t - 1$ and the average tax rate from years $t - 1$ to $t - 3$ on turnout in election year t. The idea is that voter turnout provides a mandate for the tax policies of the *incoming* government and not the outgoing one; accordingly, I do not expect elections in period t to have an effect on government policies in periods that precede it, that is to say, in period $t - n$. Results are shown in Columns 5 and 6 of Table 3 and show that, as expected, turnout has no explanatory power over tax rates in the years prior to an election.

[8]The total number of elections and the average length of the electoral cycle in each OECD country for the period of the sample are shown in Figures A.3 and A.4 in the Appendix.

Table 3: Baseline Results with Time Leads and Lags

	Outcome: Top Marginal Tax Rates in period...					
	(1) $t+1$	(2) $t+2$	(3) $t+3$	(4) Election Cycle	(5) $t-1$	(6) $E[t-1,2,3]$
VAP Turnout (%)	0.206*	0.162**	0.196**	0.264**	0.188	0.203
	(0.115)	(0.0785)	(0.0943)	(0.111)	(0.115)	(0.124)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	251	243	234	259	245	233
Number of Countries	33	32	32	33	33	33

Notes: Standard errors (in parentheses) are clustered at the country level. The dependent variable is top marginal tax rates in percent. VAP Turnout is the number of voters in a given election expressed as a percentage of the voting age population. Control variables include log of country population, the unemployment rate, GDP per capita, GDP growth, tertiary education enrollment rate, an indicator for whether the election was Presidential or Parliamentary and a Freedom House index for political rights. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

3.4. Instrumental Variables

Thus far, the analysis has shown a statistically significant relationship between voter participation and the top marginal tax rate. Naturally, the correlation uncovered does not necessarily imply that the relationship is causal. In this subsection, I undertake an instrumental variables strategy in an effort to push the causal interpretation of the results. Specifically, I use an indicator variable for whether or not a country has compulsory voting laws as an instrument for voter turnout. In doing so, I follow Hoffman *et al.* (2015) who use compulsory voting as an instrument to study the impact of turnout on social spending in Austria. The intuition is that compulsory voting laws have no effect on tax rates except through voter turnout. Between 1974 and 2013, 10 of the OECD countries had, or continue to have, compulsory voting laws. Table A.2 in the Appendix illustrates the various experiences of the OECD countries with compulsory voting laws and makes clear that such laws do not change frequently.

A limitation of instrumental variable approaches is that the results rely, in part, on the exclusion restriction of the instrument which cannot be tested. In this particular context, the exclusion restriction implies that compulsory voting laws effect top marginal tax rates *only* through voter turnout. A better understanding of the nature of compulsory voting laws provides

evidence in support of the claim that the instrument satisfies the exclusion restriction. In this respect, two ideas stand out. First, although compulsory voting laws are enacted and repealed within some countries, such changes do not occur often. For instance, just four of the countries in the sample changed their compulsory voting laws; the low rate at which such laws change make it difficult to understand how such laws could have a direct impact on tax rates which have changed so much over the 40 years of the sample.

A second point to bear in mind is *why* such laws were introduced in the first place. The precise reasons vary but in nearly all the cases of the OECD the laws were introduced to accompany such changes to the political system as expansion of suffrage or protection to civil rights in the first half of the twentieth century. A research report prepared by the Electoral Commission of the United Kingdom (Younger, 2006), for example, makes clear that compulsory voting is introduced in various countries mainly to address low rates of turnout (Australia); to restore a sense of civil duty (Italy); or to accompany universal enfranchisement (Belgium). Compulsory voting laws, therefore, are not introduced—at least not explicitly—to serve economic purposes. Instead, they have been introduced to accompany other changes to the political system and as such they seem to have little direct bearing on redistributive policy. Table 4 shows the country characteristics for those countries with compulsory voting laws and without. As shown, countries with and without compulsory voting laws are otherwise indistinguishable with respect to economic observables like population, unemployment, and GDP.

Table 4: Country Characteristics in Elections With and Without CV Laws

	CV Laws			No CV Laws			Difference	
	Mean	S.D	N	Mean	S.D	N	Mean	S.D
Log Population	9.42	[1.41]	88	9.28	[1.61]	266	0.15	(0.19)
Unemployment	6.72	[3.78]	81	7.10	[4.22]	259	-0.39	(0.52)
Tertiary Education	32.3	[21.8]	71	47.2	[22.0]	217	-14.9***	(3.00)
GDPPC	21.3	[22.5]	88	22.5	[15.9]	266	-1.27	(2.19)
GDP Growth	2.84	[3.43]	88	2.78	[2.67]	262	0.056	(0.36)
Presidential Elections	0.15	[0.36]	88	0.19	[0.40]	269	-0.046	(0.047)
Political Rights	1.52	[0.95]	88	1.12	[0.34]	261	0.40***	(0.069)

Table 5: Instrumental Variables Regression

	Outcome: Top Marginal Tax Rates in period...		
	(1) t	(2) $t+1$	(3) Election Cycle Average
VAP Turnout (%)	0.254	0.373*	0.312
	(0.251)	(0.218)	(0.198)
Controls	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes
Observations	252	251	259
Number of Countries	33	33	33
F–Stat (excluded instruments)	277.02	314.91	647.16
No. Excluded Instruments	30	30	31

Notes: Standard errors (in parentheses) are clustered at the country level. The dependent variable is top marginal tax rates in percent. VAP Turnout is the number of voters in a given election expressed as a percentage of the voting age population. Control variables include log of country population, the unemployment rate, GDP per capita, GDP growth, tertiary education enrollment rate, an indicator for whether the election was Presidential or Parliamentary and a Freedom House index for political rights. The set of excluded instruments includes an indicator for whether a country has compulsory voting laws interacted with year dummies. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

An empirical challenge with using an indicator for compulsory voting laws as an instrument is that the variable is time-invariant for all but four countries. This means I rely on variation in four countries to predict exogenous variation in a sample of over 30. To get around this obstacle, and to leverage as much variation as I can, I interact the compulsory voting indicator with year dummies and use this interaction as my instrument. The results are shown in Table 5. In Column 1 I use contemporaneous tax rates as the outcome variable of interest. The coefficient is slightly smaller in size compared to the corresponding OLS estimate but is indistinguishable from zero. In Column 2, consistent with the thinking that governments need time to react to voter preferences, I use the tax rate in year $t + 1$ as the outcome of interest. Here, the coefficient is around 80 percent larger than the corresponding OLS result and is precisely estimated at the 10 percent level. To the extent that this coefficient reflects the true causal effect of turnout on tax rates, this suggests that the OLS regressions are, if anything, biased downwards. In Column 3, I use the average tax rate over the election cycle as the outcome of interest. The coefficient is now very similar to the corresponding OLS estimate but is estimated imprecisely. As shown, the

$F-$statistic on the excluded instruments from all first-stage regressions is well over 10, signaling a strong set of instruments. Given, however, the results are estimated with precision in just one specification, I take this evidence as suggestive. Still, it is encouraging that the 2SLS estimates are comparable in magnitude and sign to those generated using OLS.

3.5. Turnout and Top Earners

To the extent that greater participation in elections leads governments to adopt higher top marginal tax rates, it might be reasonable to think that top earners would be affected disproportionately more than others. To test this assertion, I obtain the share of national income accruing to those in the top 10 and 1 percent of the income distribution and regress these on voter turnout.[9] The results are shown in Columns 1 and 2 of Table 6. As shown, the coefficients are negative and precisely estimated. Interestingly, the coefficient is larger, in absolute terms, for the share of income accruing to those in the top 10 percent of the income distribution. This is consistent with the idea that the super-rich may have better access to tax avoidance strategies than the mere rich. In any case, the coefficients are small but are nevertheless precisely estimated which is encouraging given the size of the sample in these specifications.

These data are only available for 18 countries in the sample. Given that I cluster my results at the country level, one may be concerned that the standard errors are inconsistently estimated. To address this concern, I compute $p-$values using a wild bootstrap and report these, as well as the analytical $p-$values in the table. As shown, in both cases, the null hypothesis that the coefficient equals zero can be rejected, at the 1 percent level for those in the top 10 percent of the income distribution and at the 5 percent level for those in the top 1 percent.

To test whether top earners are affected more than others, in Column 3, I regress the share of national income owned by those in the bottom 50 percent of the income distribution on rates of turnout. On the one hand, more turnout, I have argued, benefits lower earners and so we would expect to see a positive relationship between tunrout and the earnings of the bottom 50 percent. On the other hand, turnout alone may be insufficient to significantly raise the share of income owned by those at the bottom of the distribution. Consistent with this line of thinking,

[9]These data were obtained from wid.world.

the coefficient in Column 3 switches sign and becomes positive but is indistinguishable from zero.

Table 6: Turnout and Top Income Shares

	Outcome: Income Shares		
	(1) Top 10	(2) Top 1	(3) Bottom 50
VAP Turnout (%)	-0.00284***	-0.00115**	0.000337
	(0.000696)	(0.000441)	(0.000267)
Controls	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes
p-values:			
A. Analytical values (clustered at the country level)	.001	.019	.218
B. Wild Bootstrap values (clustered at the country level)	.005	.030	.297
Observations	134	140	188
Number of Countries	18	18	26

Notes: Standard errors (in parentheses) are clustered at the country level. The corresponding p-values are derived both analytically, using Stata's conventional `vce(cluster)` command as well as through Wild cluster bootstrapping generated using Roodman et al. (2018) `boottest` command. The dependent variable is the share of pre-tax national income accrued by the top 10, top 1 and bottom 50 percent of the income distribution. VAP Turnout is the number of voters in a given election expressed as a percentage of the voting age population. Control variables include log of country population, the unemployment rate, GDP per capita, GDP growth, tertiary education enrollment rate, an indicator for whether the election was Presidential or Parliamentary and a Freedom House index for political rights. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

4. Discussion

Across a number of specifications, the results derived in this paper suggest that a ten percentage point increase in voter turnout leads to an increase in the top marginal tax rate in the order of 3 percentage points. If the correlations uncovered are indeed causal, then the 12 percentage point decrease in VAP turnout in the OECD countries between the late 1970s and early 2010s, from 79 percent to 67 percent, is associated with a 3.6 percentage point decrease in top marginal tax rates. Given that the average tax rate across the OECD has dropped by 22 percentage points, from 64 percent to 42 percent over the same time period, the fall in voter turnout explains some

16 percent of the fall in tax rates. Conversely, let us imagine a hypothetical situation in which voter turnout increased by 12 percentage points from the 1974–1978 average. This would imply a 3.6 percentage point increase in the top marginal tax rate to 68 percent. Interestingly, this number resembles tax rate figures of several advanced industrial nations in the not-so-distant past. Germany, for example, experienced top marginal tax rates as high as 75 percent in the early 1950s and a 90 percent rate in the late 1940s (Piketty, 2014). The United Kingdom set top income tax rates as high as 98 percent in the 1950s, 1960s and 1970s while the United States levied a 91 percent tax on top incomes in the 1950s and 1960s and then relaxed the rate to 70 percent or more throughout the 1970s Piketty (2014). The purpose of this section is not to argue for a certain tax rate or even to suggest that the super-rich ought to pay more to the public purse. Instead it is intended to illustrate the degree to which ordinary citizens could exert influence on public policy through their right to vote.

Are the results derived in this paper causal? On the one hand, a limitation of large, cross-sectional studies like this one is that sharp identification, from which causal inference can be made with greater confidence, is difficult. As mentioned in the subsection on instrumental variables, only four countries in my sample experience variation in the variable that serves as instrument, which makes isolating exogenous variation difficult and which may explain why the 2SLS results are estimated with less precision than the OLS results. On the other hand, the results of the paper seem to suggest more than just a spurious correlation: estimates derived using OLS, panel methods and instrumental variables all point in the same direction: greater turnout has a positive effect on government redistributive policy. Given that this is, to my knowledge, the first study that investigates the relationship between turnout and tax rates, the results of this study, rather than cast doubt on the nature of the relationship, call out for further research, perhaps using micro-level or sub-national data in order to benefit from sharper identification strategies.

5. Conclusion

This paper adds to the literature that aims at better understanding the economic consequences of voter turnout. For the most part, this literature has focused on the relationship between

voter turnout and government redistribution, as measured by how much governments allocate to spending on social ends such as health, education and pensions. In this paper, I have built on these studies by exploring the relationship between voter turnout and a more direct measure of redistribution, namely, the top marginal tax rate. The theoretical motivation that guided my empirical analysis was the median voter theorem: if governments are intended to respond to the preferences of the median voter, a question arises as to what the economic consequences are when voter turnout declines and when that decline is marked along class lines. I have shown that increased participation in elections is associated with a positive and statistically significant impact on top marginal tax rates.

To assess the strength and direction of the relationship between the two, I undertook a number of empirical strategies. First, I included for a range of social and economic characteristics that may confound the analysis. I then exploited the panel nature of my dataset to account for any unobserved country or time heterogeneity. As a final step, I employed an instrumental variables strategy in an effort to isolate only the exogenous variation voter turnout and found that the results confirmed the OLS estimates. I also take into account that governments may take time to respond to the mandate given to them by voters. To this end, the results indicate that turnout has a significant impact on tax rates in periods $t + n$ as well as over the entire electoral cycle but not in periods preceding the election. Across all these specifications, the results confirm the hypothesis that more turnout leads to more redistribution.

On the whole, the results of this paper underscore what may seem to be a self-evident truth: voting matters. Yet, in spite of the veracity of such a seemingly simple claim, fewer and fewer people are turning out to vote. This study shows that doing so is not without consequences.

References

Acemoglu, Daron, & Robinson, James A. 2015. The Rise and Decline of General Laws of Capitalism. *Journal of Economic Perspectives*, **29**(1), 3–28.

Alesina, Alberto. 1988. Credibility and policy convergence in a two-party system with rational voters. *The American Economic Review*, **78**(4), 796–805.

Autor, David H. 2014. Skills, education and the rise of earnings inequality among the "other 99 percent". *Science*, **344**(6186), 843–851.

Downs, Anthony. 1957. *An Economic Theory of Democracy*. New York: Harper Brothers.

Franzese, Robert J. 2002. *Macroeconomic Policies of Developed Democracies*. Cambridge: Cambridge University Press.

Harder, Joshua, & Krosnick, Jon A. 2008. Why Do People Vote? A Psychological Analysis of the Causes of Voter Turnout. *Journal of Social Issues*, **64**(3), 525–549.

Hicks, Alexander M., & Swank, Duane H. 1992. Politics, Institutions, and Welfare Spending in Industrialised Democracies, 1960-1982. *American Political Science Review*, **86**(3), 658–674.

Hoffman, Mitchell, Leon, Gianmarco, & Lombardi, Maria. 2015 (August). *Compulsory Voting, Turnout and Government Spending: Evidence from Austria*. Barcelona Graduate School of Economics Working Paper.

Hotelling, Harold. 1929. Stability in Competition. *The Economic Journal*, **39**(153), 41–57.

Larcinese, Valentino. 2007. Voting over Redistribution and the Size of the Welfare State: The Role of Turnout. *Political Studies*, **55**, 568–585.

Lee, David S, Moretti, Enrico, & Butler, Matthew J. 2004. Do voters affect or elect policies? Evidence from the US House. *The Quarterly Journal of Economics*, **119**(3), 807–859.

Lindert, Peter H. 1996. What Limits Social Spending? *Explorations in Economic History*, **33**, 1–34.

Mahler, Vincent A., Jesuit, David K., & Paradowski, Piotr R. 2014. Electoral Turnout and State Redistribution: A Cross-National Study of 14 Developed Countries. *Political Research Quarterly*, **67**(2), 361–373.

Meltzer, Allan H., & Richard, Scott F. 1981. A Rational Theory of the Size of Government. *The Journal of Political Economy*, **89**(5), 914–927.

Oxfam. 2015. Wealth: Having it All and Wanting More. January.

Piketty, Thomas. 2014. *Capital in the Twenty-First Century*. Harvard University Press.

Stefano DellaVigna, John A. List, Ulrike Malmendier Gautam Rao. 2014. Voting to Tell Others. *NBER Working Paper*.

Younger, Sam. 2006 (June). *Compulsory Voting Around the World*. Tech. rept. The Electoral Commission of the United Kingdom.

A. Appendix

Table A.1: Summary Statistics for the First and Last 5 Years of the Sample

	Mean	SD	Min	Max	Observations
Panel A: 1974 to 1978					
Turnout (%)	83.1	10.6	52	95	35
VAP Turnout (%)	79.3	10.9	44	95	35
Tax Rate (%)	64.4	11.0	40	91	27
GDP Per Capita (1000s)	6.4	2.8	1.4	11	35
GDP Growth (%)	2.5	3.4	-7.3	8.2	35
Unemployment rate	4.1	2.8	.25	9.8	31
Population (millions)	25.4	41.8	.22	218	35
Tertiary Education Enrollment (%)	20.1	7.1	1.8	31	30
Presidential Election	0.1	0.4	0	1	35
Political Rights	1.4	0.7	1	4	34
Panel B: 2009 to 2013					
Turnout (%)	70.9	12.4	42	93	49
VAP Turnout (%)	66.8	10.9	40	87	49
Tax Rate (%)	42.0	11.0	15	60	49
GDP Per Capita (1000s)	41.7	24.5	10	114	49
GDP Growth (%)	1.0	3.6	-7.3	11	49
Unemployment rate	8.3	4.2	3.2	24	49
Population (millions)	31.9	53.3	.32	314	49
Tertiary Education Enrollment (%)	71.6	14.8	29	114	39
Presidential Election	0.2	0.4	0	1	49
Political Rights	1.1	0.4	1	3	48

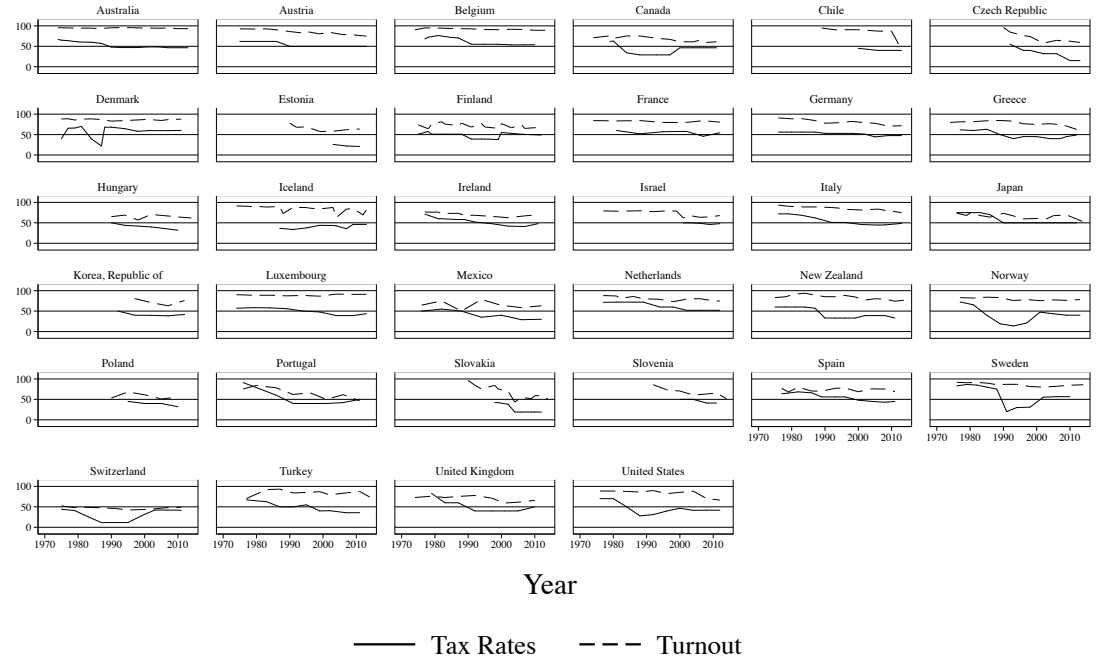

Figure A.1: Trends in Top Marginal Tax Rates and Voter Turnout in each OECD Country

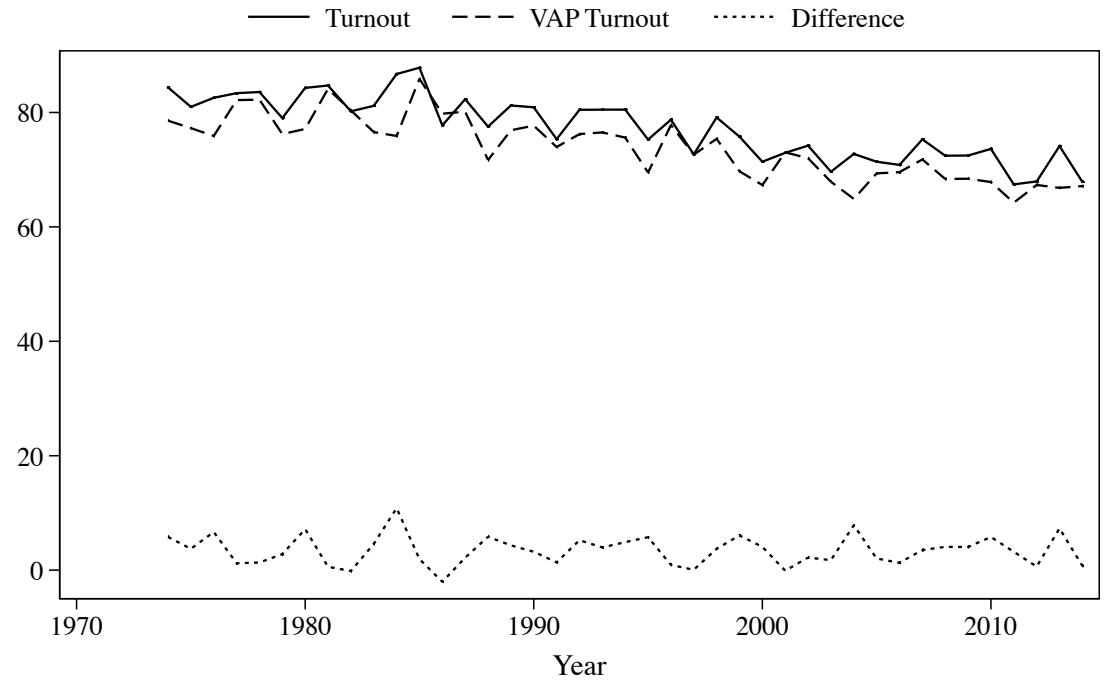

Figure A.2: Turnout and VAPTurnout in OECD countries: 1974 to 2013

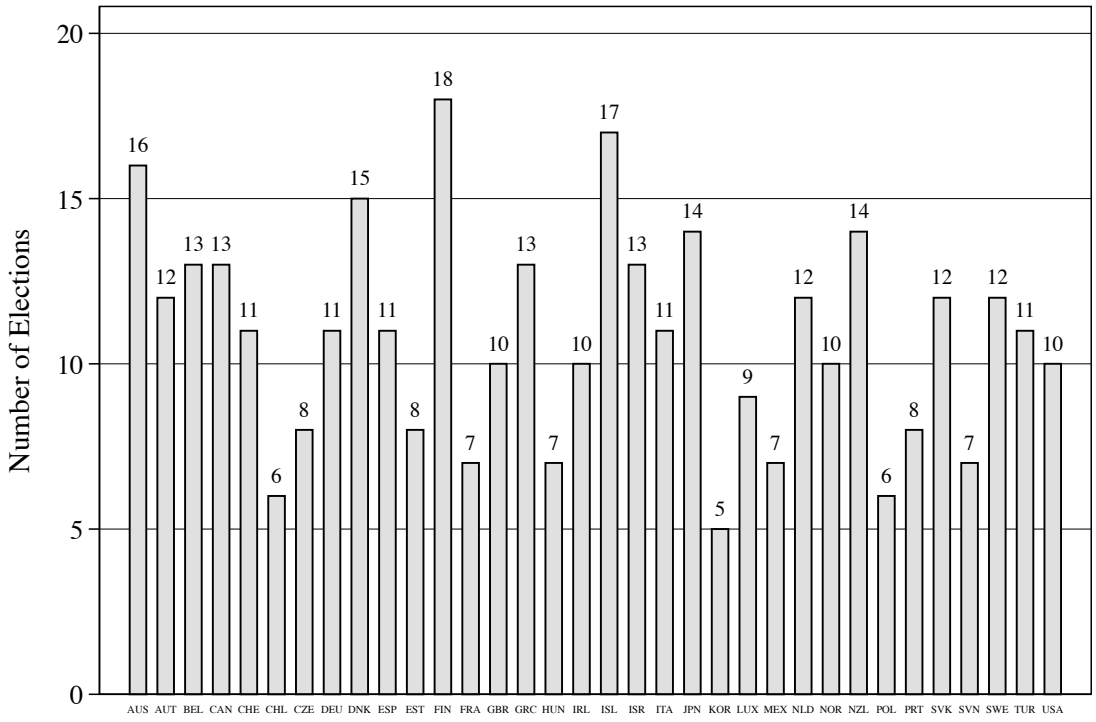

Figure A.3: Total number of elections over the period of the sample in each country

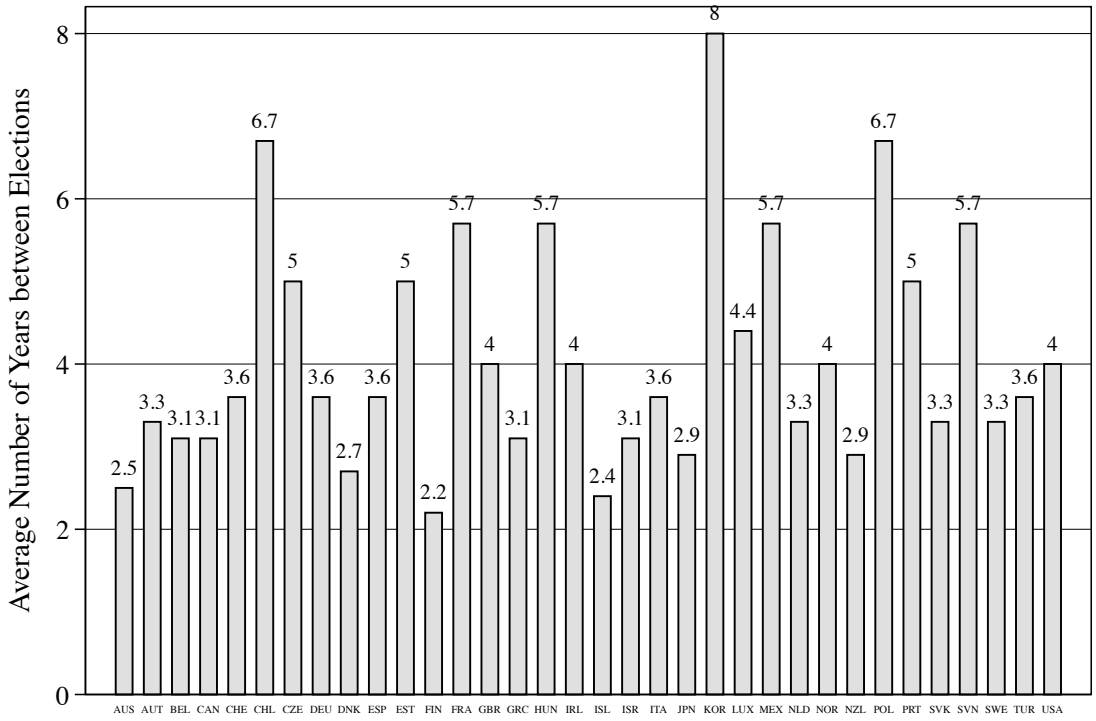

Figure A.4: Average number of years per election cycle in each OECD country

Table A.2: OECD Countries and Compulsory Voting

OECD Countries with Compulsory Voting Laws		
Country	**Year Introduced**	**Enforced?**
Australia	1924	Yes. Non-voter faces a fine.
Austria	1929 to 1982 (all states)	Yes. Non-voters faced a fine.
Austria (Tyrol)	1929 to 2002	Yes. Non-voter faced a fine.
Austria (Vorarlberg)	1929 to 2004	Yes. Non-voter faced a fine.
Austria (Styria)	1929 to 1993	Yes
Austria (Carinthia)	1986 to 1993	Yes
Belgium	1893 (men) 1949 (women)	Yes. Possible imprisonment. Non-participation in 4 or more elections over 15 years leads to disenfranchisement.
Chile	1925 to 2012	Yes. Non-voter faced a fine and possible imprisonment.
France (Senate)	1950s or 60s	No
Greece	1926	No
Italy	1946 to 1993	No
Luxembourg	1919	Yes. Non-voter faces a fine but voting is compulsory only for those who are registered to vote and registering is not mandatory. Voting is voluntary for citizens over 70.
Mexico	Prior to 1946	No
The Netherlands	1917 to 1967	No
Spain	1907 to 1923	No
Switzerland (Schaffhausen)	1904	Yes. Non-voter faces a fine.
Turkey	1982	Yes. Non-voter faces a fine.
United States (Georgia)	1777	No
OECD Countries without Compulsory Voting Laws		
Canada, Czech Republic, Denmark, Estonia, Finland, Germany, Hungary, Iceland, Ireland, Israel, Italy, Japan, Republic of Korea, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Sweden, Switzerland, United Kingdom		

Source: International Institute for Democratic and Electoral Assistance (IDEA). Taken from its Compulsory Voting web page.

Table A.3: Elections chosen for countries with Presidential and Parliamentary Elections in the same year

Presidential Elections	**Parliamentary Elections**
United States	Republic of Ireland
France	Austria
Chile	Czech Republic
Mexico	Slovenia
South Korea	
Portugal	
Poland	