How The Left Prospers From Prosperity

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Abstract

This paper investigates the relationship between fluctuations in economic growth, unemployment, and voting along a left–right axis. I estimate a model that explains how political fluctuations are caused by economic fluctuations in the OECD countries. I find that higher economic growth causes a shift to the left of policy sentiments. I hold the provision of social insurance by the welfare state to be the key to understanding this relationship. I also find that the relationship changes over the sample period. I hold the tax increase needed to finance the expansion of the welfare state to be the reason for this.

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1. Introduction

Small changes in policy sentiments may alter the majority and lead to large changes in government. Yet, researches often ignore these fluctuations.

These short-term changes are not exclusively random, they seem to be systematic. But policy sentiments fluctuate so rapidly that they cannot be caused by changes in structural factors such as inequality, class, education and urbanization. To treat voter fluctuations that do not originate from such structural factors as political windfalls, is an unsatisfactory approach when trying to understand the interplay between policy sentiments and economics.

One particularly interesting view, put forward in the seminal papers by Durr (1993) and Stevenson (2001), claims that policy sentiments shift leftwards when the economy is prospering and to the right during a recession. Their contributions are mainly empirical. Using different empirical approaches, they find fairly robust relationships. Support for the political left increases during periods of economic growth, and falls during periods of high unemployment.

The demand for social insurance provided by the welfare state, can help us understand how economic conditions influence policy sentiments. When voters sense that they are getting richer, they also demand more insurance. Note that this is the response to an aggregate shock as booms and recessions have an impact on the whole economy. This explanation is supported by the data. However, using a social insurance argument to explain why voters move to the right when the unemployment rate goes up is slightly more difficult. Hence, many questions remain unanswered. Understanding the impact of idiosyncratic shocks is dealt with in the literature on social mobility, and is not the topic of this paper.

Are shifts in policy sentiments caused by political parties changing policies or by voters changing their political party of choice? This fundamental question is raised in the empirical analysis. The results indicate that more political fluctuations are caused by parties changing policies

than by voters changing parties. However, the question of whether parties change their policies in response to changes in voters' preferred policies, remains unanswered.

The most common approach in the literature on economic voting has been to study how economic performance may benefit or punish the incumbent. Kramer (1971) shows how "an economic upturn [was] helping congressional candidates of the incumbent party, and economic decline [was] benefiting the opposition. This result has since then been verified by several researchers.

Durr (1993) and Stevenson (2001), present an alternative approach. The effect of economic fluctuations on political preferences is here investigated along a right-left political dimension. They show that policy sentiments shift to the left when the economy is prospering and to the right during an economic recession. This paper examines their findings and gives the following three contributions to the field:

(1) The demand for social insurance provided by the welfare state can be the key to understanding how economic conditions influence policy sentiments. In a simple model, based on Meltzer and Richard (1981) and Moene and Wallerstein (2003), voters choose between consumption and tax-funded social insurance. Depending on their personal economy, they cast their vote to get the optimal policy. I show that the findings of Durr (1993) and Stevenson (2001) are partly in accordance with this theoretical framework.

(2) The main results from Durr (1993) and Stevenson (2001) are partly confirmed using election – not survey – data. Higher growth rates move policy sentiments to the left, but the relationship between unemployment and policy sentiments is unclear. The results also indicate that the shifts in policy sentiments are caused by political parties changing policies rather than voters changing political parties.

(3) The effect of growth on policy sentiments, found both by Durr (1993) and Stevenson (2001), is not consistent. The empirical findings in this paper indicate that the effect of economic

growth on policy sentiments found by Durr and Stevenson is valid only until the mid 1980s. They claim that high levels of economic growth cause a shift to the left of policy sentiments. In the late 1980s and 1990s, however, the relationship seems to have been the opposite, i.e. high levels of economic growth and policy sentiments shifting to the right. The reason for this may be that in order to increase the level of social insurance, taxes also need to be raised. An increasing dead-weight loss of taxation makes it self-evident that taxes cannot be raised forever. Consequently the relationship between economic growth and the demand for social insurance will seize to exist at high levels of taxation.

Using data from 223 parliamentary elections between 1960 and 1995 in 20 OECD countries I investigate the effect of economic fluctuations on voting behavior. My hypothesis builds on Durr (1993) and Stevenson (2001): Policy sentiments move to the left when the economy prospers, i.e. when economic growth is high and unemployment is low, and to the right when the economy is in recession. I also put forth that the influence of economic growth on voting behavior seizes to exist at high levels of taxation.

The paper is organized as follows: In section 2, I present the arguments used by Durr and Stevenson. I explain the need for a different theoretical approach and present an alternative theoretical framework. In section 3, I present the empirical methods used, including a simple model that bridges the gap between the short-run arguments and the traditional sociological explanations. The empirical results are presented in section 4, and the conclusions are drawn in section 5.

2. Why and how could the economy influence elections?

On election day, the voter chooses between two or more parties. The voter may vote for his or her preferred party, or vote tactically.[1] The choice of political party is the result of a

[1] In the sense that he votes for a party that is his second-best option but has a higher probability of winning.

consideration based on the voter's information about the policies of the different parties, and his preferred policies.[2]

Given that voters are well informed and do not vote tactically, the decision of whom to vote for follows *directly* from the voter's preferred policies. The economy can here exert *indirect* influence on voting behavior. The answer to the question of how and why the economy could influence voting behavior can be found by looking at how voters' preferred policies are influenced by the economy.

The left–right political axis (LRA) can be identified as the underlying dimension of the political opinion in several separate political issues (Stevenson 2001, p. 622). In an analysis of shifts in policy sentiments in the US, Durr (1993) claims that "the liberal policy agenda has explicitly cited the need for an active federal government as provider and protector of jobs, health care, schools, housing, civil rights and the like." Stevenson (2001) claims the conservative agenda to be the opposite. This dichotomy between liberals and conservatives in the US is not easily exported to other western democracies. In Europe both liberals and conservatives belong to the right and socialists constitute the left side. Hence, I choose to use the labels *left* and *right*, instead of the American *liberal* and *conservative*. Stevenson (2001, p. 622) also claims that several other sources conclude that citizens' preferences across a wide range of policy issues are "highly correlated with a single left/right dimension".

[2] Stevenson (2001) p. 632 uses the term "preferences" instead of "preferred policies". Seeing as I consider the effect of short term fluctuations on voting behaviour, I put forth that the preferences are unchanged, while the preferred policy mix changes with economic fluctuations.

The arguments

Durr (1993) uses a simple consumer theory approach to explain how voting behavior is affected by economic fluctuations.[3] He claims that voters have diminishing marginal returns to money, and therefore will increase their sharing with others when their income increases. Durr's argument implies that, all other things equal, the rich should vote more radically than the poor. According to Lind (2004, p. 68) "the rich vote more conservatively, but not because they are rich". I believe that Durr's argument gives the right prediction, albeit for the wrong reasons. In his framework, the voter chooses between own consumption and the welfare of others. I will instead use demand for social insurance from the welfare state as a possible key to shed light on the mechanisms behind economic voting.

The model

The welfare state can be divided into two main components: redistributive policies and social insurance. Governments spend roughly 20-25% of their country's GDP on what is usually deemed the welfare state (Moene and Wallerstein 2003, p. 485). Since changes in the income distribution are too slow to be relevant when analyzing short-run fluctuations in policy sentiments, I here disregard the redistributive aspects and focus only on social insurance. I will consider a model where the agent chooses between consumption and social insurance. In order to obtain more insurance, he has to pay higher taxes.

The model I present here is a slightly modified version of the model used in Moene and Wallerstein (2003). Social insurance is here defined as unemployment benefits, and the risk of needing it is the risk of being out of work.

[3] Stevenson (2001) claims that Durr (1993) is the only published paper giving a theoretical explanation for the relationship between economic fluctuations and voting behavior.

Let w denote the voter's expected future private wealth after tax. Let b denote unemployment benefits received if unemployed. To simplify, I let these be equal for all. Let p be the probability of keeping the job in the future, i.e. job security, and $(1-p)$ be the probability of loosing it, i.e. job uncertainty. The voter casts his vote in order to maximize his expected utility, which is given by:

$$V = pU(w) + (1-p)U(b) \qquad (1.1)^4$$

Net income is equal to gross income after tax:

$$w = (1-t)W \qquad (1.2)$$

Benefits b is financed over the government budget. To keep the analysis simple I let b be the only component in this budget. Let γ denote the employment rate and let N be the size of the population. $\bar{W}$ denotes the pre-tax expected average income while $\tau(t)$ is the net tax function of the government. For each tax rate it gives the implicit tax rate that the government receives. An increasing dead weight loss from taxation is then given by the following assumptions: $\tau'(t) > 0, \tau''(t) < 0$. The budget then becomes:

$$\tau(t)\gamma\bar{W}N = (1-\gamma)Nb \Leftrightarrow b = \tau(t)\frac{\gamma}{1-\gamma}\bar{W} \qquad (1.3)$$

By maximizing the agent's utility with respect to the tax rate we get the following first order condition:

$$\frac{\partial V}{\partial t} = -p\frac{\partial U(w)}{\partial w}W + (1-p)\frac{\gamma}{1-\gamma}\bar{W}\frac{\partial U(b)}{\partial b}\frac{\partial \tau(t)}{\partial t} \equiv g(t, W, \gamma, p) = 0 \qquad (1.4)$$

The first part of the first order condition is the marginal utility from a tax-increase when working. The second part is the marginal utility from a tax-increase when unemployed. An agent with a

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4 $U(0) = 0, U'(0) = 0, U'(j) > 0, U''(j) < 0$ where $j = w, b$

completely secure job, i.e. *p=1*, will have a negative marginal utility from taxes at all tax levels and will thus never prefer a positive tax-rate. For agents with *p* between 0 and 1, the tax-rate is an instrument to smooth utility between the two states. The agent will thus prefer a positive tax rate in order to reduce risk. The hypotheses below are calculated by differentiating the first order condition in (1.4) with respect to the tax rate and the other variables of interest. The effect of a change in a variable *x* on the tax rate *t* is thus given by (1.5).

$$\frac{dt}{dx} = -\frac{\frac{\partial g(t,W,\gamma,p)}{\partial x}}{\frac{\partial g(t,W,\gamma,p)}{\partial t}}, \quad x = \{t,W,\gamma,p\} \tag{1.5}$$

Note that $\frac{\partial g(t,W,\gamma,p)}{\partial t}$<0, such that the object of interest is mainly the sign of $\frac{\partial g(t,W,\gamma,p)}{\partial x}$.

1. A rise in income leads to increased demand for social insurance

By differentiating the first order condition with respect to the wage and the tax rate, I get the following result:

$$\frac{dt}{dW} > 0 \tag{1.6}$$

The desired tax rate, i.e. the demand for social insurance, increases with income. The result rests on the assumption that the rate of relative risk aversion is greater than one. Social insurance is a normal good. See appendix for evidence.

2. The desired tax-rate function is concave

There is an increasing dead-weight loss from taxation. As $\frac{\partial \tau(t)}{\partial t} \to 0$ for high tax-levels, the extra insurance gained from paying more taxes approaches zero as well. Consequently, the

properties of the desired tax-rate function capture an idea of a maximum desired tax-rate, a "tax roof". From the concavity of the desired tax-rate function we should thus expect the effect of economic growth on voting to diminish at high tax levels.

3. A rise in unemployment leads to increased demand for social insurance

In the model, we have two variables associated with the unemployment rate; the probabilities of ending up in the two different states, and the employment rate in the budget constraint. I will first consider the case of perfectly correlated shocks, by setting $p = \gamma$. By differentiating (1.4) with respect to the employment rate, we get (1.7).

$$\frac{\partial \mathrm{g}}{\partial \gamma} = \bar{W}\left(\frac{\partial U}{\partial b}\frac{\partial \tau}{\partial t}\left(1-\frac{\mu}{1-\gamma}\right)-\frac{\partial U}{\partial w}\frac{W}{\bar{W}}\right) < 0 \Rightarrow \frac{dt}{d\gamma} < 0 \qquad (1.7)$$

μ is the coefficient of relative risk aversion, and the argument again rests on the assumption that this is larger than 1. Thus we see that the effect of increased employment on tax demand is negative, and consequently that increased unemployment should shift policy sentiments to the left. By assuming that *p* is independent of γ, we introduce idiosyncratic shocks. This makes it straightforward to show that $\frac{dt}{dp} < 0$. This simply implies that the agent demands less insurance when the probability for needing it decreases. We are also able to find the effect on tax demand of a change in the employment rate.

$$\frac{\partial g}{\partial \gamma} = \frac{1-p}{(1-\gamma)^2}\bar{W}\frac{\partial \tau}{\partial t}\frac{\partial U}{\partial b}(1-\mu) < 0 \Rightarrow \frac{dt}{d\gamma} < 0 \qquad (1.8)$$

When the employment rate increases, the price of insurance is reduced. Hence, the substitution effect works in the direction of buying *more* insurance . However, at the same time the amount the agent receives if unemployed will increase since it is shared among fewer people. This income effect makes it possible to obtain the same amount of insurance for a lower tax rate. From the

assumption of risk aversion greater than 1, the income effect will dominate the substitution effect and the demand for insurance increases when unemployment increases.

3. Data

Measuring policy demand

Durr (1993) uses a policy measure developed by Stimson (1991) which consists of a "single time series of public opinion data based upon hundreds of distinct survey marginals" (Durr 1993, p. 160). He estimates an equation where this policy measure is explained by a business expectations measure stripped for policy expectations.[5] Stevenson (2001) uses two separate measures of what he calls *policy mood*. He obtains most significant results when he uses *Eurobarometer* data, collected every six months in all European Union countries. The respondents are asked to identify their position on a left–right axis between 1 and 10. Stevenson also uses election results weighted for the parties' position on the left–right axis.[6] He interpolates the data between elections such that he can estimate the model for all years.

The estimation procedures in this paper are different from those used by Durr (1993) and Stevenson (2001). Even in modern "media politics", politicians are elected through elections, not opinion polls. In an opinion poll, voters can protest against the incumbent by "threatening" to cast their vote for the opposition. There is also a possible causality problem related to the use of survey data between elections. Alesina (in Nordhaus et al. 1989, p. 55) argues that left incumbents tend to boost public spending in

[5] The method is described in Durr (1993) 160-162.

[6] Kim and Fording (1998): "Voter Ideology in Western Democracies, 1946-1989", European Journal of Political research 33:73-97.

the years following an election. This may create *spurious* support for the hypothesis when inter-election data from surveys are used, as in Stevenson (2001).

In order to measure policy demand, I have used two separate datasets resulting in four different political indicators. The simplest and most transparent indicator is based on a dataset provided by Duane Swank, covering 21 OECD countries in the period 1950-1999. He uses mainly Castles and Mair's (1997) schema to classify parties in groups, i.e. "left", "right", "center" and "Christian democrat". He then reports the share of the total vote received by these party groups. From these data I have constructed a simple indicator *pol = right – left*. The center and Christian democratic parties are kept out of the indicator since they cannot be consistently included on either side. The indicator will assume values between -100 and 100 where -100 signifies that all the votes are received by parties on the left. A more detailed description of the construction of this indicator is included in the appendix.

This simple indicator does not account for the fact that political parties' position on the left–right axis also changes over time. Hence an identical election result in two subsequent elections will be interpreted as a constant policy demand. This may be misleading. The other set of indicators are based on the Kim-Fording methodology and is provided by Michael D. McDonald.[7] The methodology used to construct these indicators gives a solution to the problem described above – the difficulty of observing the real political shifts causing a change in the electoral outcome. McDonald's dataset is based on the work of Budge et al. (2001) where political parties are positioned along a left–right scale based on the content of their political programs. They have first identified a list of "left policies", i.e. economic planning, expansion of public education and health services

[7] This description of the six indicators leans heavily on McDonald's codebook.

etc., and "right policies" such as free enterprise and law and order.[8] The political parties' programs are then evaluated and they are given a score according to their content of left and right policies. When the political parties positions over time are set, one can, based on the electoral outcome, calculate the position of the median voter. Hence, instead of describing the distribution of voters across the political parties directly, both the *distribution* of voters across the political parties and the actual *position* of these parties on the left–right axis are included. If one lets the parties as well as the voters move on the left–right axis between elections, a change in the indicators will signify a real political change in the country. This is a major advantage of these indicators. The drawback is that we do not know whether the change originates from a different electoral outcome or an alteration of the political parties' programs. Since the position of the political axis has to be determined manually and is highly subjective, there is also a danger of systematic bias. While the simple indicator is highly transparent, an indicator where both parties and voters move between elections is not.

McDonald's dataset covers each constitutionally based election from 1950 through 1995 in 21 countries. There are three different indicators in the dataset. The indicators differ in how fast the political parties are moving along the left–right axis. For the indicator *mdnvotr1*, the parties' positions are set for each election separately. In contrast, *mdnvotr3* is based on non-moving parties, i.e. their position is equal to their average post-war position. For the last indicator, *mdnvotr2*, the average position for the last three elections is used, i.e. a three-election moving average. To calculate the median voter position, McDonald uses a formula for computing a median from grouped data, originally provided by Kim and Fording (McDonald 2002). For the forthcoming analysis it is useful to label the indicators in the following way:

[8] See a detailed list in the appendix.

Dynamic:	*mdnvotr1*
Semi-Dynamic:	*mdnvotr2*
Static:	*pol* and *mdnvotr3*

Measuring economic fluctuations

In the following I will assume that voters' income rises with the growth in real GDP. I use economic data for unemployment and real growth in GDP, provided by the OECD, to measure economic fluctuations. Since elections are held at different times of the year, I have used quarterly data as it enables me to measure the fluctuations at the time of the election more accurately.

From economic theory, one could expect estimating the effect of both real growth and unemployment on a third variable to be problematic due to collinearity. Okun's law "associates fluctuations for real GDP around its trend growth path with fluctuations in the opposite direction of the unemployment rate around its equilibrium rate" (Burda and Wyplosz, 2001, p. 249). In the sample I use for estimation, growth and unemployment are positively correlated in some countries and negatively correlated in others. There is, however, no indication of a relationship close enough to cause problems of collinearity.

Measuring structural relations

Over the years, societies go through fundamental changes. These changes also affect politics and policy demand. In order to capture this I have included several variables that I call *sociological* variables. These are religion, education, immigration, pre-tax inequality, size of the population between 15 and 64 years, openness to trade, life

expectancy, share of self-employed workers, union density and bargaining coverage. All variables are not available for the whole period. I use these variables to determine long-run relationships, trends and country-specific effects. I have both interpolated and extrapolated these data to cover the whole period.

The distinction between trends and fluctuations

The idea of including both sociological and economic variables is to distinguish between changes in policy sentiments caused by long-run trends and short-run fluctuations. I argue that policy sentiments have a long-run trend which can be partly explained by changes in the sociological variables. The actual policy sentiments fluctuate around this unobservable trend.

4. Results

As a point of reference I have found it reasonable to use the semi-dynamic indicator *mdnvotr2* as a benchmark for estimation. Over time, political parties move slowly along the left–right axis. They probably move *slower* than voters since they also carry an ideological and historical heritage. Denoting the political indicator *P*, real growth *g* and unemployment μ , the basic models estimated are:

Fixed effects model:

$$P_{i,t} = \alpha + \lambda_i + \mathbf{X}\gamma + \beta_1 g_{i,t} + \beta_2 \mu_{i,t} + u_{i,t}$$

Autoregressive model:

$$P_{i,t} = \alpha + \kappa P_{i,t-1} + \mathbf{X}\gamma + \beta_1 g_{i,t} + \beta_2 \mu_{i,t} + e_{i,t}$$

The subscript *i* indicates country and the subscript *t* indicates year. **X** is a matrix containing the sociological variables. λ_i is a country-specific constant, or the *fixed effect*.

[TABLE 1]

The results show that increased unemployment tends to move policy demand to the right while increased real growth moves policy demand to the left. These findings are in accordance with the results obtained by Durr (1993) and Stevenson (2001). The effect of growth on policy sentiments is also in accordance with (1.6) above. The effect of unemployment, however, conflicts with the insurance arguments made above. In order to control the validity of the results and check the impact of the assumptions underlying the different political indicators, I have estimated the same models using the other three political indicators. I have used the efficient FGLS estimator, the same way as in estimation 5 above.[9] Since the use of the sociological variables results in a large reduction in the number of observations, I have estimated both models without including these variables.

[TABLE 2]

The results in table 2 show that the results from Table 1 are confirmed when using the *dynamic* indicator *mdnvotr1*. The dynamic indicator allows political parties to change position along the left–right axis from one election to another, while the party position are fixed for the static indicators. It is striking how the estimated coefficients are larger and more significant in the dynamic case. When the parties' positions are moving slower as in the semi-dynamic case, coefficients are reduced both in magnitude and

[9] The test shows the presence of heteroskedasticity and autocorrelation in all estimations.

significance. The results when using the *static* indicators *mdnvotr3* and *pol* are insignificant.

This indicates that the changes in policy demand due to economic fluctuations are driven by the political parties – not the voters. Economic fluctuations seem to influence political parties' programs and not for whom the voters cast their votes. This can be interpreted in at least two ways: (1) Economic fluctuations have no direct impact on voters. Political parties are partisans and change their programs as the economy changes. If "right" policies are tax cuts and reduced welfare spending and "left" policies the opposite, this interpretation of the results implies that political parties tend to respond to economic booms with tax increases and increased spending. (2) Voters are influenced by economic fluctuations and the political parties alter their political programs to maximize their share of votes. This last interpretation supports the arguments made in this paper.

Robustness of the results

The empirical results need to be interpreted with some caution. The dataset is rather small and the significance of the coefficients is somewhat shaky. One particular potential problem is the possible non-stationarity of the unemployment rate. The existence of a unit-root may cause spurious regression, i.e. the variables may share a common trend. While the trend for the political indicators has been a move to the right, the unemployment increases.

This can have at least three possible explanations: (1) There is a common underlying trend but no causal relationship. If this is the case, the estimated results are spurious. (2) The political shift towards the right is the cause of the increased

unemployment. If this is the case, the causality is reversed from the predictions in the paper. (3) The increase in unemployment causes the political shift towards the right.

To test for unit-roots when the number of observations within each country is as small as eight to twelve, will in many cases fail to reject a null hypothesis of non-stationarity even in the case of clearly stationary variables. From the literature we know that unemployment in some cases is shown to be stationary, and in other cases to have a unit root.

By estimating the model on differences instead of levels, we get a robustness check of the above results. I have also estimated the fixed effects model, including a time variable which simply counts the quarters from 1960 and onwards. The results are presented in table 3.

[TABLE 3]

When I estimate on first differences, we see that all the estimated coefficients turn out to be insignificant. In the fixed effects model we can see that the inclusion of a simple time variable removes the significance of the unemployment rate. It is therefore difficult to rule out the possibility of spurious regression. Note, however, that the signs of the estimated coefficients are kept from above. The signs of the coefficients are also in accordance with the results from Durr (1993) and Stevenson (2003). It is worth keeping in mind that all estimations are made using robust estimation techniques that are highly consistent but less efficient than other possible estimators.

The effect of economic growth on policy demand changes over time

I have estimated several models in order to investigate the persistence of the effect of growth on policy demand. Estimations 2 and 5 use a linear changing cross-effect. Let *time* be a variable taking the value of 0 in 1960, 1 in 1961, 2 in 1962 etc., such that time = 35 in 1995. Let *timegrowth* be *time* multiplied with *real growth*. This variable will capture a change in the effect of growth on policy demand over time if such a change exists and if the change is linear in time. Estimations 3 and 6 are made with a different procedure. Let *dummy 1970s* be a variable taking the value zero in all years except the years 1970-79. *dummy 1980s* and *dummy 1990s* take the value zero in all years except the 1980s and 1990s respectively. When not zero, these variables take the value of *real growth*.

[TABLE 4]

The result is rather convincing. The effect of growth on policy demand found above in Table 1 and 2 seems to have changed fundamentally over the period, making the effect much stronger than the one found above in the 1960s and 70s. This effect seems to have changed signs such that high growth shifts policy demand to the right in the late 1980s and 1990s. It becomes clearer when the marginal effect of growth over time is plotted graphically.

[FIGURE 1]

While the first estimations gave coefficients of approximately minus 1, it appears that the effect of economic growth on policy demand in the 1960s was around three times higher. The effect later declined and in the mid-eighties it was zero.

A possible explanation for this is that it is caused by the concavity of the desired tax rate function. Along with the strong growth in real income after WWII, the public sector grew considerably. There is a roof for the desired tax-rate and thus the demand for tax financed social insurance. Below is a graph showing tax income as a share of GDP in Australia, Belgium, France, Netherlands, Norway and Sweden from the 1970s and onwards. They show a strong growth in the public sector in the 1970s, for some countries peaking during the 80s. An explanation can thus be that the tax rate hit the tax-roof and the insurance mechanism making voters vote more radically in prosperous times vanished here.

[FIGURE 2]

What can the reasons be for the possible changed relationship between economic growth and policy demand in the late 1980s and 90s? The estimation results show that the effect not only has declined, it has turned out to have had the opposite effect in the 1990s compared to the 1960s and 70s. The explanation can be found in the aftermath of the mechanism making the effect disappear. As a consequence of the strong expansion of the public sector, the demand for modernization and improved efficiency of this sector grew strongly in the late 1980s. The demand for what was called a *New Public Management* became strong (Silver, 2002). The parties on the right were to become strongly identified with the agenda of *New Public Management,* with Margaret Thatcher and Ronald Reagan as well known advocates. The efficiency improvements in the public

sector were not made without a cost, i.e. reduced social security. This may explain why the effect of economic growth on policy demand changed during this period. Voters understood the need for reform of the expanded public sector, but would only "afford" the cost of reform - reduced social security - when the economy was prospering.

Some remarks on unemployment and policy sentiments

There are several possible ways of relating unemployment to voting behavior. The pure insurance arguments, at least in a static setting, will generally predict the opposite of the empirical results shown in this section, and also found by other authors. There is, however, need for caution as these empirical results may be spurious due to common trends. One possible argument that can be made is that the risk of being unemployed changes over the cycle. On top of a boom, facing a bust, a *veil of uncertainty* (Rawls, 1971) makes a lot of voters fear for their jobs and hence vote in favor of more insurance. At the bottom of the bust, facing a boom, unemployment is high but the veil is lifted and the uncertainty resolved. The median voter kept his job, and as the economy recovers he perceives his job to be more secure than ever. Such a mechanism can at least partly explain the observed patterns. It could very well be, however, that the insurance motive is a dead end when it comes to understanding the relationship between unemployment and policy sentiment, and that other mechanisms should be explored.

I have also done the estimations using nominal growth rates instead of real growth rates, and I have tried to seasonal adjust the economic data. The results from using nominal growth rates seem to point in the same directions, but with coefficients with higher variance on the estimated coefficients, i.e. less certain estimates. An explanation can be that voters respond different to inflation than to growth. The estimates

for nominal growth will be a mix of the two responses. The results from using seasonal adjusted data are almost indistinguishable from the results presented above.

5. Conclusion

Economic fluctuations have an impact on voting behavior. The estimations indicate that the median voter in the 1960s and 70s voted more radically when the economy's growth rate was high. In the late 1980s and 90s however, the relationship between economic growth and policy demand seems to have been the opposite. The relationship between unemployment and policy sentiments is more dubious, however.

Above, I have argued that the key to understanding these fluctuations is social insurance coupled with the growth of the welfare state. The middle class, which constitutes the main segment of voters in the OECD countries, relies on social insurance provided by the welfare state. Their need for insurance depends on their perception of future income and job security. Consequently, these short-term economic fluctuations can be partly explained by simple microeconomics.

My results are in general consistent with the results from Stevenson (2001) and Durr (1993). The evidence indicating that the effect of economic growth on policy demand has weakened and possibly changed during the late 1980s and 90s, is – to my knowledge – new.

The understanding of how policy changes affect the economy is crucial to economics. Policy changes cannot be treated exogenously. Just as politics affect the economy, economics affect politics.

My findings raise new questions concerning the interaction between voters and the political parties. How are the political parties affected by economic fluctuations? To

what extent is the movement of the median voter caused by a movement of the political parties? How do the various welfare state institutions affect voting behaviour in different countries? The interaction between politics and the economy may shed some light on questions of interest in political science as well as in economics.

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Appendix

(A) Proof for the calculus in chapter 3

(1.1) $V = pu\big((1-t)W\big) + (1-p)u\left(\tau(t)\frac{\gamma}{1-\gamma}\bar{W}\right)$

Maximize (1.1) with respect to the tax rate t and get the F.O.C. in (1.4):

(1.4) $\frac{\partial V}{\partial t} = -p\frac{\partial u(w)}{\partial w}W + (1-p)\frac{\gamma}{1-\gamma}\bar{W}\frac{\partial u(b)}{\partial b}\frac{\partial \tau(t)}{\partial t} \equiv g(t,W,\gamma,p) = 0$

Differentiate $g(t,W,\gamma,p)$ with respect to t and *x* to get:

(1.5) $\frac{\partial g(t,W,\gamma,p)}{\partial t}dt + \frac{\partial g(t,W,\gamma,p)}{\partial x}dx = 0 \Rightarrow \frac{dt}{dx} = -\frac{\frac{\partial g(t,W,\gamma,p)}{\partial x}}{\frac{\partial g(t,W,\gamma,p)}{\partial t}}$

Find first $\frac{\partial g(t,W,\gamma,p)}{\partial t}$:

$$\frac{\partial g(t,W,\gamma,p)}{\partial t} \equiv p\frac{\partial^2 u(w)}{\partial w \partial w}W^2 + (1-p)\frac{\gamma}{1-\gamma}\bar{W}\left[\frac{\partial^2 u(b)}{\partial b \partial b}\frac{\gamma}{1-\gamma}\bar{W}\left(\frac{\partial \tau(t)}{\partial t}\right)^2 + \frac{\partial u(b)}{\partial b}\frac{\partial^2 \tau(t)}{\partial t \partial t}\right] < 0$$

From the assumptions of the first and second derivatives of all the functions we see that this expression is strictly negative.

Proof for (1.6):

$$\frac{\partial g(t,W,\gamma,p)}{\partial W} = -p\frac{\partial^2 u(w)}{\partial w \partial w}(1-t)W - p\frac{\partial u(w)}{\partial w} = p\frac{\partial u(w)}{\partial w}\left[-\frac{\frac{\partial^2 u(w)}{\partial w \partial w}w}{\frac{\partial u(w)}{\partial w}} - 1\right] = p\frac{\partial u(w)}{\partial w}[\mu - 1]$$

Where $\mu = -\frac{\frac{\partial^2 u(w)}{\partial w \partial w}w}{\frac{\partial u(w)}{\partial w}}$, is the coefficient of relative risk aversion. Assuming $\mu > 1$ (1.6) follows directly.

(4) $\frac{dt}{dW} = -\frac{\frac{\partial g(t,W,\gamma,p)}{\partial W}}{\frac{\partial g(t,W,\gamma,p)}{\partial t}} > 0$

(1.8) and (1.9) are shown in the text.

(B) Data: sources and treatment

Political data

The political dataset from Duane Swank, used to construct the indicator *pol*, is available on Swank's homepage[10]. The election result in the year of the election, call it year t, is a weighted average of the previous and present election, where the actual month the election took place constitutes the weights. In the year after the election (year t+1) the data for electoral votes in year t is thus correct. However, if there is a new election in year t+1, this data will be a new weighted average. In these few cases this will create a minor error in the data. This problem concerns only a small number of elections. The indicator *pol* is constructed in the following manner:

$$pol_t = leftv_{t+1} * (-1) + centerv_{t+1} * (0) + mcdemv_{t+1} * (0) + rightv_{t+1} * (1)$$

The dataset from McDonald, containing the indicators mdnvotr1–6, is found on his website[11]. The data set contains the six indicators and information of month and year of the election. This is used to sort it into the right quarter.

The left and right policies used for positioning the political parties along the left–right axis were (quoted from Budge et al. 2001, p. 22).

Left	Right
Military: positive	Decolonization
Freedom, human rights	Military: negative
Constitutionalism: positive	Peace
Effective authority	Internationalism: positive
Free enterprise	Democracy
Economic incentives	Regulate capitalism
Protectionism: negative	Economic planning
Economic orthodoxy	Protectionism: positive
Social service limitation	Controlled economy
National way of life: positive	Nationalization
Traditional morality: positive	Social services: expansion
Law and order	Education: expansion
Social harmony	Labor groups: positive

The formula to calculate the median voter position is found in McDonald's codebook and is taken from Kim and Fording. The formula is[12]:

$$M = L + \{(50 - C)/F\} * W.$$

where

M = Median voter position

L = The lower end (left-right score) of the interval containing the median

C = The cumulative vote share up to but not including the interval containing the median

F = The vote share in the interval containing the median

W = The width of the interval containing the median—i.e., the range of midpoints between the party of the median voter and adjacent parties to its left and right

Economic data

[10] http://www.marquette.edu/polisci/Swank.htm

[11] http://www.binghamton.edu/polsci/research/mcdonalddata.htm

[12] Quoted from McDonald's codebook.

The quarterly economic data for growth and unemployment comes from OECD and can be found on Source OECD – Economic Outlook[13].

Sociological data

The variables used, their sources and actual observations are:

Variable	Source	Observations
Religion	World Values Surveys, weekly religious attendance for the 1990s	One observation for each country
Immigration	OECD Factbook 2005 – Immigrant population in OECD countries	Observations for 1990 and 2002
Openness	OECD Economic Outlook, constructed as (Imports + Exports) / 2*GDP	Yearly for the whole period, with few gaps
Pop1564	OECD Economic Outlook, simply scaled down the size of the population in this age group	Yearly observations for the whole period with few gaps
Union bargaining coverage	OECD Employment Outlook 2004 – collective bargaining coverage	Observations for 1980, 1990 and 2000
Union density	OECD Employment Outlook 2004 – trade union density	Observations for 1970, 1980, 1990 and 2000
Pre-tax gini (inequality)	Luxembourg Income Study	Several observations, with gaps from mid 80's and onwards
Exchange rate	OECD Economic Outlook	Available for whole period, with few gaps
Self employment	OECD Factbook – self employment rates	Observations for 1990 and 2003
Education	OECD Factbook – tertiary attainment for age group 25-64	Observations for 1991 and 2002
Life expectancy	OECD Factbook – life expectancy at birth	Observations for 1960, 1970, 1980, 1990 and 2000

[13] http://puck.sourceoecd.org/vl=2920334/cl=104/nw=1/rpsv/statistic/s3_about.htm?jnlissn=16081153

FIGURES AND TABLES:

TABLE 1:

Results 1: The effect of economic fluctuations on policy sentiments.

Policy sentiments are captured by the political indicator mdnvotr2, taking values in between -100 and 100. -100 indicates far left and 100 indicates far right. All estimations are made using robust estimation, clustering on country. Positive coefficients move policy demand towards the right. Standard errors in brackets.

	(1) Fixed effects	**(2) Fixed effects**	**(3) Fixed effects**	**(4) Fixed effects incl. soc.variables**
Real growth	-1,24**		-1,14**	-1,06**
	(,44)		(.45)	(,37)
Unemployment		,97*	,82	,58
		(,50)	(,49)	(,55)
No.obs.	195	203	188	134
Number of countries	20	21	20	14
R-squared	,47	,47	,51	,74

	(5) Auto-regressive	**(6) Auto-regressive incl. soc variables**
Lagged dep.var	,61***	,63***
	(,13)	(,07)
Real growth	-,76	-,65
	(,52)	(,51)
Unemployment	,33	,49
	(,21)	(,32)
No.obs.	167	116
Number of countries	19	13
R-squared	,47	,78

* = p ≤ 0,1 ** = p ≤ 0,05 *** = p ≤ 0,01

TABLE 2:

Results 2: The effect of economic fluctuations on policy sentiments, using four different political indicators.

The four different political indicators all take values between -100 and 100. -100 indicates far left and 100 indicates far right. The upper panel displays the estimated coefficients from fixed effects regressions. The lower panel displays the estimated coefficients from an autoregressive model. All estimations are made using robust estimation, clustering on country. Positive coefficients move policy demand towards the right. Standard errors in brackets.

	Dynamic	***Semi-dynamic***	***Static***	
	Mdnvotr1	**Mdnvotr2**	**Mdnvotr3**	**Pol**
Unemployment	1,07**	,82	,12	,28
	(,49)	(,49)	(,13)	(,35)
Real growth	-,68	-1,14**	-,38	-,68
	(,54)	(,45)	(,33)	(,47)
No. obs.:	188	188	188	223
No. countries:	20	20	20	19
R-squared	,43	,51	,72	,91
	Mdnvotr1	**Mdnvotr2**	**Mdnvotr3**	**Pol**
Lagged dep.var	,48***	,62***	,74***	,94***
	(,09)	(,13)	(,08)	(,02)
Unemployment	,57*	,33	,08	,06
	(,28)	(,21)	(,12)	(,14)
Real growth	-,74*	-,76	-,36	-,58
	(,42)	(,52)	(,33)	(,42)
No. obs.:	167	167	167	210
No. countries:	19	19	19	19
R-squared	,33	,47	,61	,90

* = $p \leq 0,1$ ** = $p \leq 0,05$ *** = $p \leq 0,01$

TABLE 3:

Results 3: Robustness check

Change from last election in the political indicators mdnvotr2 regressed on change in unemployment and real growth from last election. (1) shows the results from an Arellano-Bond linear dynamic panel data estimation. (2) shows the results from a first difference estimation, clustering on country. (3) shows an ordinary fixed effects estimation on levels where a time variable is included. *Time* is simply a count for each quarter since the beginning of 1960. Positive coefficients move policy demand towards the right. Standard errors in brackets.

	(1) **Arellano and Bond**	***(2)*** **First difference**	***(3)*** **Fixed effects**
Lagged change in dep.var	,30***		
	(,09)		
Change in unemployment	,37	,35	,37
	(,47)	(,40)	(,54)
Change in real growth	-,53	-,34	-1,00*
	(,57)	(,40)	(,48)
Time			,05
			(,03)
No.obs.:	148	160	188
No.countries:	19	20	20
R-squared		,007	,52

* = p ≤ 0,1 ** = p ≤ 0,05 *** = p ≤ 0,01

TABLE 4:

Results 4: The effect of growth on policy demand changes over time

All estimations are made. The indicator Mdnvotr2 is used for all estimations. timegrowth = (year – 1960) x real growth. Timegrowth2 = (year-1960)^2 x real growth, etc. Dummy variables for decades are multiplied with real growth to capture the changing effect of real growth over time. Positive coefficients move policy demand towards the right. (Robust) standard errors in brackets.

Mdnvotr2	**1. Fixed effects**	**2. Fixed effects**	**3. Fixed effects**	**4. Autoregressive, robust**	**5. Autoregressive, robust**	**6. Autoregressive, robust**
Lagged dep.var				,65***	,63***	,63***
				(,13)	(,13)	(,13)
real growth	-1,24**	-3,72***	-1,98***	-,78	-2,40***	-1,46***
	(,53)	(,82)	(,68)	(,50)	(,54)	(,46)
timegrowth		,19***			,12***	
		(,05)			(,03)	
dummy 1970s			-,01			,55
			(1,02)			(,75)
dummy 1980s			3,26**			1,79*
			(1,26)			(,91)
dummy 1990s			5,31***			3,38***
			(1,71			(1,12)
Number of obs:	195	195	195	170	170	170
No. countries:	20	20	20	19	19	19
R-squared:	,03[14]	,11	,11	,47	,48	,48

* = p ≤ 0,1 ** = p ≤ 0,05 *** = p ≤ 0,01

[14] "Within" R square.

FIGURE 1:

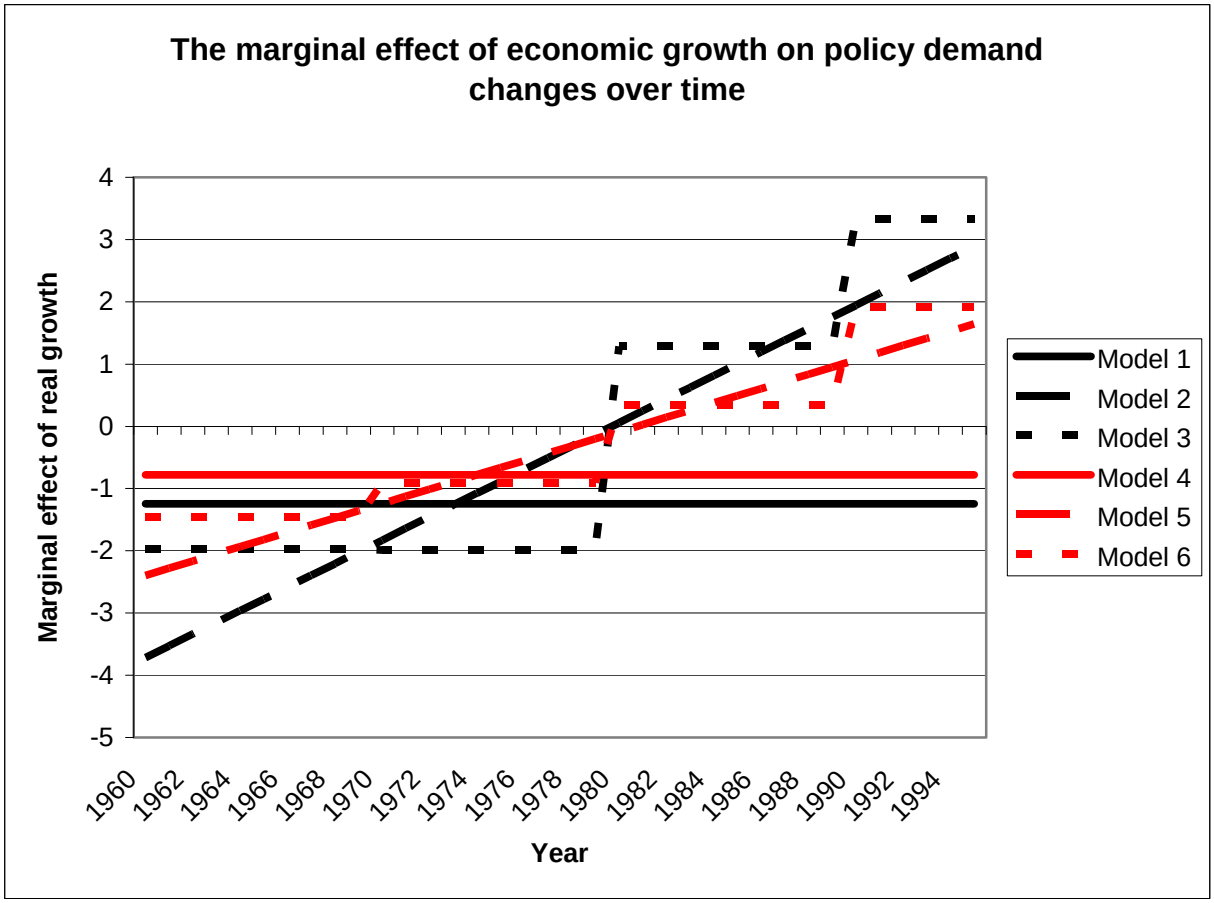

Fig 1: The marginal effect of economic growth on policy demand changes over time.
The numbered lines correspond to the estimations in table 3.

FIGURE 2:

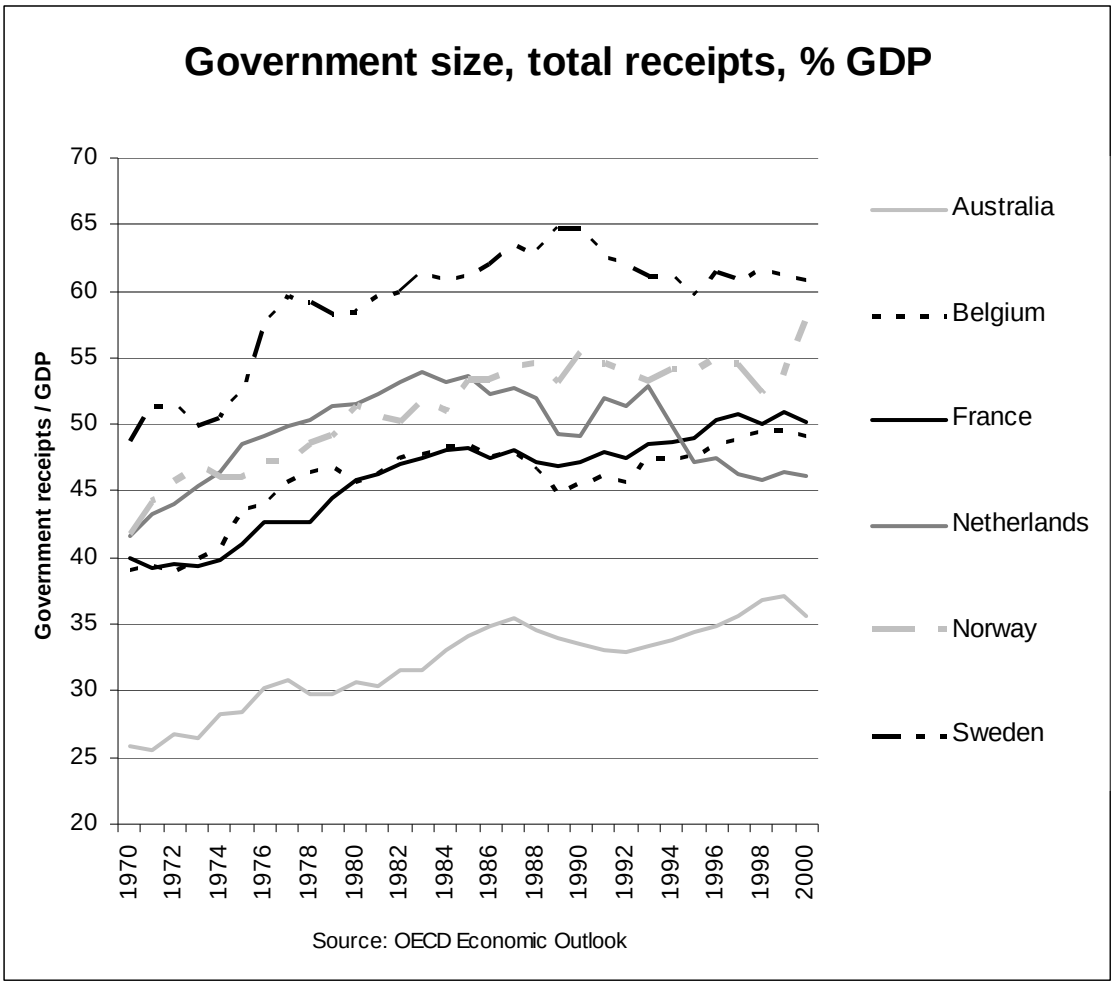

Fig 2: Government size increases over time.
Government size is measured as government receipts / GDP.