

POLITICAL ECONOMY OF GOVERNMENT GROWTH

Government Growth

The Borcharding Model

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Introduction

Government spending has grown relative to government output in most countries with elected government in the post-war era. This increase is claimed to be independent of budget and tax systems, federal or national governments, the size of bureaucracy. However, the relatively rates of change in different countries are dependent on different arrangements.

The aim of this course paper is to say something about the growth of governments between 1995 and 2005 for some 20 selected OECD-countries. I use the Borchering government growth model to estimate a predicted growth rate and then compare this to the actual growth rate. This gave me predicted growth rates and actual growth rates with different signs. I try to explain the main findings from my estimation and I argue on the basis of several growth theories. There is no clear trend in my findings, but I conclude that Rodrik and Person and Tabellini can explain some of the trends. Openness matters, as well as elections.

Research Questions

By the research I want to detect which characteristics of a country that can influence the government growth rate. My overall suspicion is that all the countries in my sample have experienced a growth in government. This prediction is this is especially aimed at the Scandinavian welfare states. I suspect that the growth rate is smaller in the liberal welfare states as the United Kingdom, and the corporatist welfare states of Continental Europe and in the US. I will also expect that the larger increase in GDP per capita, the larger the increase in government growth will be. Since we can witness more and more advanced welfare states, I will also expect the growth rates of rival goods to be higher than the non-rival goods. The wave of New Public Management (NPM) can restrain this growth, so I expect the country of the NPM-origin, the UK, to have a smaller growth rate. This I also expect to hold for other liberal democracies and the US.

Further, I believe that semi-presidential democracies and single-party majority governments will have a smaller growth rate, since this can function as controllers of inefficient universalistic allocation and overspending. Another suggestion is that majoritarian election democracies have a larger government growth than proportional representation democracies.

Finally, I will also suspect small and open economies to have larger public expenditure to be able to stand against economic shocks, than the big and more self-sufficient countries in my sample.

Method

I have made my own dataset with the use of statistics from the OECD. The dataset consists of 20 countries and the following variables; population, GDP, total government expenditure, total government expenditure by the functions general public expenditure, defense, public order and safety, economic affairs, environment protection, housing and community amenities, health, recreation, education and social protection expenditures. I have experienced difficulties in finding complete datasets existing of several variables suitable for decomposition into non-rival and rival goods. This made my sample size fall from 30 possible OECD-countries to the 20 included (OECD 2008). My primary plan was to have a time span from the 1970s till today. This turned out to be very difficult because of a large number of missing values. I ended up with the time span 1995 till 2005 to get a complete dataset.

The different growth rates are GDP growth, GDP per capita growth, population growth, unit cost growth, public consumption as share of GDP growth, and the predicted growth rates of public consumption and actual growth rates. My calculations are done in Excel, using Borchering's growth model and by calculating the different growth factors. The output is shown in table 1 and appendix 1.

The Borchering model demands data on the countries' median income. This turned out to be a hard task. The only available source I could find for my selected countries and time interval was the Luxembourg Income Study (LIS 2008). This turned out to be useless, since the data provided by LIS was in national currencies and for many countries before the transition in to Euro. In the light of this, I have assumed an median income-average income ratio of 0,9 in 1995 and 0,95 in 2005. I am aware that this ration will very likely differ among my selected countries.

To get the growth rate in the unit cost, I have set the unit cost to 100 in 1995 and 116 in 2005. This will give a growth rate of 1,5%. This might be an over estimation that can result in a too high government growth. But I justify this with a more productive public sector in

many countries in my time interval because of technological innovation and new public management.

The growth of government budgets can be separated into a-institutional and institutional components (Borcherding 1985:359). To do this, I have separated my dataset into rival and non-rival goods. The rival goods¹ include general public services, housing and community amenities, health services, recreation, education and social protection. The non-rival goods² include defense, public order and safety, economic affairs and environment protection, all measured in 1995 and 2005.

The Borcherding Model of Government Growth

In the article "The Causes of Government Expenditure Growth: a Survey of the U.S Evidence", Thomas Borcherding presents a model to explain the growth of governments. The model assumes that the government's budgets emerges from rational decision making under competitive and democratic political circumstances where the real decision maker is the average citizen in the community, the median voter. The median voter demand the quantity q of a public good, shown by the equation

$$(1) q = As^\eta y^\delta m^\Phi, \text{ where}$$

$\eta = \text{price elasticity}$, $s = \text{price}$, $y = \text{income median voter}$, $\delta = \text{income elasticity}$,
 $m = \text{institutional factor impact}$, $\Phi = \text{institutional elasticity}$

It is assumed that there is a perfectly price elastic supply of the public service to produce q .

$$(2) q = \frac{X}{N^\alpha} \Leftrightarrow X = qN^\alpha, \text{ where } X \text{ is the amount of public service produced and } N \text{ is the}$$

number of inhabitants. When $\alpha = 1$ we have a rival good, and when $\alpha = 0$, the good is non-rival.

¹ Private goods and common pool goods

² Toll goods and public goods

(3) $s = \frac{pX}{q}t$, where p is the marginal cost of producing X , and X is the total quantity

produced. Then pX is the total cost of the public sector. $\frac{pX}{q}$ is the price of the public service seen from the median voter. t is the percentage share of the cost of X , paid by the median voter.

(4) $g = \frac{pX}{\bar{y}N}$ is the total revenue, where g is the public spending as share of GDP and \bar{y} is the average income in society.

When inserting (2) in (4) and (2)-(4) in equation (1) we will have the following equation expressing g as a function of the other parameters;

$$Ap^{(\eta+1)}\bar{y}^{(\delta-1)}N^{(\alpha\eta+\alpha-1)}t^\eta k^\alpha m^\Phi = g$$

Now g is depends on the price in the price elasticity plus 1. When the price increases, g will increase as well. The average income will increase (and then increase g) if the elasticity is larger than 1. If the elasticity is smaller than 1 and the income increases, g will increase.

If the population increases, the level of g will decrease. However, the impact of the population is less in the case of a non-rival good than in the case of a rival good. When t , the share of the cost paid by the median voter increases, the g will decrease since the impact depends on the negative price elasticity. $k = \frac{y}{\bar{y}}$, and depends on the income elasticity.

When k increases, g increases. The calculation of the growth factor is as follows;

$$r = 1 + p$$

$$Y_t = Y_0 + r^t, \text{ where } t \text{ is the number of years.}$$

$$r = \left(\frac{Y_t}{Y_0}\right)^{\frac{1}{t}} = \sqrt[t]{\frac{Y_t}{Y_0}}$$

To simplify, it is assumed that \dot{i}, \dot{k} and $\dot{m} = 0$. This gives us a predicted growth rate, g , that depends on the growth rate of the unit cost, the growth rate of the average income relative to the growth rate of the GDP and the growth rate of the population. Further, g depends on the price elasticity and the income elasticity.

$$(*) \dot{g} = (\eta + 1)\dot{p} + (\delta - 1)\dot{y} + (\alpha\eta + \alpha - 1)\dot{N}$$

The first part of the equation is the Baumol cost effect, or the price effect of increasing unit cost of public services (Borcherding 1981: 364-365). This is explained by the fact that the government is mostly a service producing industry with low labour-capital intensity. This implies that the productivity will increase more in industries like manufacturing and other primary sectors, making these prices decrease relative to the prices in the public sector. It is likely to believe that workers in the primary sector will become more productive due to technological innovations than the sectors relying on human activities. Because of the difficulties of measuring unit cost growth, my analysis is based on a fixed unit cost of 1,5% for all the countries.³ The second part is the income effect, namely the Wagner's Law (Economy Professor 2008). This income effect predicts that the development of an economy will be accompanied by an increased share of public expenditure in the gross national product (Borcherding 1981: 365). The latter part is the population growth impact, dependent on whether the good is a public or a private good. It is expected that the population growth explains a negative growth rate of the public expenditure (Borcherding 1985: 367).

When using the model, in addition to assume the constant k and m , further assumptions are taken;

- i) The price elasticity = -0,4
- ii) The income elasticity = 1,05
- iii) Alpha (rivalness) = 0,05

Theoretical Discussion

By the article, Borcherding seeks to address *why the US choose to spend one-twelfth of their income through the public sector at the beginning of this century's beginning, but over one-third today?* When breaking the growth of government budget down into a-institutional⁴ and institutional⁵ components, the former component is believed to be the most important factor for government growth (Borcherding 1985; 359). To look at the source of growth of

³ This is a broad assumption. The countries are likely to have different growth rates in the unit cost.

⁴ Familiar substitution, income and population/public goods sharing effects (Borcherding 1985)

⁵ Rent-seeking political redistributions, bureaucracy and perceptual/information impedimenta (Borcherding 1985)

the government, I will analyze my data with the Borcharding model. The model allows changes in the independent variables, to check the predicted effect on spending.

Meltzer and Richard suggest that the size of government depends on the relation of mean income to the income of the median voter (Meltzer and Richard 1981:916). As empirical studies shows that the income distribution is right skewed, the mean income is larger than the median voter's income. This will lead to more redistribution, demanded by the median voter. This will increase the size of government. When the mean income rises relative to the median voter, the tax share will rise (ibid). Thus, the larger inequality, the larger the size of government will be.

More and more goods have developed into the category public good. Organizations as governments have been created with the authority to use force to take assets needed to supply public goods. By turning the population into "forced riders" instead of "free riders", the government is an instrument for enforcing decisions, and in many cases also provision, of the good (Savas 2000: 64). By making more and more services to be provided or organized through the welfare state, the government will grow larger. In addition it will develop bureaucratic costs from maintaining and operating a service from the government, or a transaction cost from monitoring and making agreements with private selected to carry out the given task (ibid). This can make us suspect the advanced Nordic welfare states to have a larger increase in government growth than the liberal and corporatist welfare states. However, the wave of New Public Management that took place in the mid 80's to 90's might be expected to work against this growth. The public sector in general and the professionals in particular, was looked at with great skepticism (Le Grand 2003). The introduction of quasi-markets, where the state remains control of financing of the public services, but not necessary the provision is by many claimed to be an effective way of reducing public spending. The argument for this reduction is the effectiveness gained by the competition.

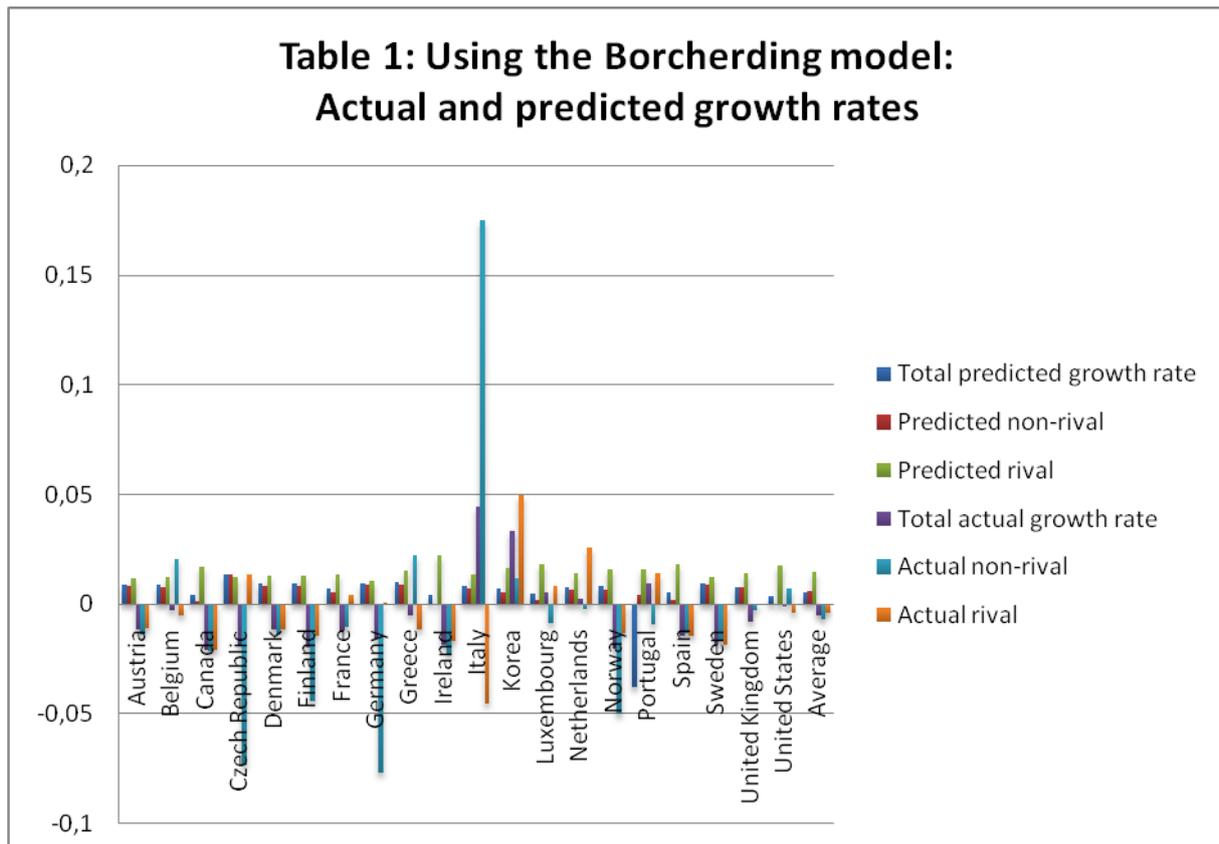
The hypothesis from Imman and Fitts, suggests that the growth in public spending arises from a coordination game for the allocation of a common pool resource. This is explained by a game where the players are the elected representatives in legislatures, and they want to be re-elected. For each of them it is rational is play by the norm of the "Weingast universalism". The common pool resource is the current and future national taxable capacity

and the harm is an overutilization of this resource, namely pork barrel politics or log rolling (Imman and Fitts 1990). They suggest that there is two mechanisms that can control this inefficient allocation, strong party control and strong presidents. A single party that has a majority in parliament is expected to contribute to a smaller public spending than a minority coalition. An independent or strong president should also be more able to control the legislatures (ibid). Person and Tabbellini argues that majoritarian elections increase competition between parties by focusing at some key marginal districts, which leads to policies favoring redistribution to the key districts at the expense of broader public goods. This election system is claimed to lead to larger government than presidential regimes (Person and Tabbellini 1999). Hence, countries with strong presidents as in the semi-presidential systems of Finland and France are expected to have a smaller government growth than for example the UK and Ireland with majoritarian election systems.

Rodden (Rodden 1998) argues that the scope of governments has been larger, not smaller, in economies taking greater advantage of world markets and that governments have expanded fastest in the most open economies. This is explained by the risks of being exposed to macroeconomic shocks. The government is considered as the safe sector. In open countries, especially those dependent on one or few export commodities as for instance oil, create a larger government sector to stand against shocks. The government in such countries functions as a safety net. By this argument, small and open economies as Denmark, Finland and Luxembourg which rank high at the Index of Economic Openness should therefore be expected to have a larger growth in the government (Rodden 1998, World Index of Economic Freedom 2008).

Empirical Analysis

Table 1: Using the Borcharding model. Predicted and actual growth rates for the 20 countries, sorted in the contribution from rival and non-rival goods (for numbers, see appendix 1).



The most striking about this estimation is that the predicted and actual growth rates are mostly with opposite signs. This can be an indication of that my assumptions in the model does not fit. I will expect the median income/average income ratio to be smaller than my assumption in several cases, but I choose to hold this constant because of the lack of data on it. The assumption of the price elasticity, the income elasticity and the alpha will most likely also differ in a sample of countries with such a big difference in their characteristics. Luxembourg and Belgium, followed by the US, the country the original model tried to explain, are the countries with the smallest gap between the actual and the predicted values. Portugal counts for the largest gap, followed by the Czech Republic, Italy and Ireland.

The overall impression from the predicted values is that there is a larger growth in the spending of rival goods, than in the spending of non-rival goods. This corresponds with hypothesizes saying that when we get richer, we will demand more goods in general, and that there has been a “governmentization” of private goods. As welfare states have developed, we can expect a larger and broader demand of public provided goods. As health, housing, education and other general public services are in this category of goods, this

prediction supports this hypothesis. However, the actual growth values are pointing in a different direction. The majority of the countries can show a larger negative growth for non-rival goods, than for the rival. This shows that the decrease in spending has larger for non-rival goods, than for rival goods. This indicates that there still is a relatively larger spending for rival goods for many of the chosen countries. This might also be explained by the baumol-effect, since we can expect less productivity in provision of health, education and other social benefits, than in for example in defense.

The UK, the primus motor of the New Public Management (NPM), followed by the US, has small predicted growth rates. This fits well with the theory. However, the actual growth rates show a smaller negative growth rate in spending than most of the countries. My data is from 1995 and 2005. It could be that the mentioned countries have a smaller decrease because they were early movers in the NPM-wave and that they have become more stabilized. The last democratized countries of Europe, the Czech Republic, Portugal and Spain show larger negative values for the actual growth rates. The Scandinavian countries show a larger negative growth in public spending than the average. One factor to explain this can be the last decade's attempts to increase the efficiency in the Scandinavian welfare states. However, I will expect this growth rates to look different with a larger time span.

It is difficult to see if the hypothesis from Imman and Fitts can explain some of the findings, since the data cannot provide all the information needed. But the two mechanisms for controlling the Weingast universalism can be investigated to a certain level. The semi-presidential Finland and France are predicted to have a smaller growth, and the predicted growth rates show a smaller decrease than the average. The actual growth rates show a larger negative growth than the average, so I am tempted to claim that this hypothesis still holds. The majoritarian democracy, UK, does however show a smaller decrease than the majority of the countries. This is a contradiction to the hypothesis. The Scandinavian countries with rather stabile coalitions show a smaller negative growth. By this, it can seem that Person and Tabbellini can explain this better. More majoritarian democracies, as the UK, Ireland, Canada and France should have larger growth than the more proportional representation (PR) democracies as the Netherlands and Belgium. The actual values shows that the majoritarian democracies has on average a smaller decrease in spending than many of the PR countries. This indicates that majoritarian democracies spends relatively more than

the PR-democracies, with the exception of Canada. However, the Czech Republic, Finland, Germany, Norway and Portugal have larger negative growth than the most prominent PR-countries.

To follow Rodrik's hypothesis, the small and open countries should have a large public expenditure than big and more self-sufficient countries. Denmark, Finland, Luxembourg and the Netherlands rank amongst the highest of the selected countries in the World Index of Economic Freedom. Hence, these countries should have the largest spending. Luxembourg and the Netherlands are the only of these three countries having an actual positive total growth and is in line with Rodrik's argument. However, Denmark and Finland shows a negative growth. If the more homogenous the countries are is an important factor, we should expect the small open economy of Denmark to spend more than Belgium. The actual values show that there is a larger negative growth in Denmark than in Belgium. Denmark and definitely Finland is decreasing the spending more than the average. Belgium, ranking quite high at the mentioned index, can also show a larger increase in the non-rival good spending, but the total spending is declining. Korea, the country showing the largest increased growth rate, is ranked down as number 41, scoring a total of 69, 7%. Even though Korea liberalized in the aftermath of the Asian financial crisis, they are still behind most of the other countries examined in this paper regarding openness (Index of Economic Freedom 2008).

Conclusion

The Borcharding model of government growth has provided me a tool for calculating actual and predicted growth rates. Different theorist has developed theories to explain the growth of governments. I have tried to present some of them in this paper. I am not able to conclude on Meltzer and Richards's suggestion that the larger inequality we experience, the larger the size of government will be. This is because I have a fixed number on the median-average income ratio. This ratio is then exogenously given in my model. By turning free riders into forced riders and more and more services to be provided by welfare states, I believed this to increase government growth. This is supported by my predicted values, though the actual growth rates point in the different direction. However, there are still actual rates showing there is a relatively larger spending for rival goods for many of my chosen countries. The liberal state and NPM, and a smaller growth rate in the UK is supported by the actual growth rates, even though the growth rates show a smaller negative growth rate than most of the countries. Contrary to my believing, the Scandinavian countries show larger

negative growth rates in public spending than the average. The semi-presidential Finland and France are predicted to have smaller growth rates, and the predicted growth rates show a smaller increase than the average. The actual growth rates show a larger negative growth rate than the average. More majoritarian democracies as the UK, Ireland, Canada and France show a smaller negative growth than the PR-democracies. This is a support of the Person and Tabbellini hypothesis. Rodrik has also a hypothesis I can find support of in this research. The small and open economies of Luxembourg and the Netherlands are by the few countries coming out with positive growth rates. Belgium can show an increase the spending on non-rival goods. However, Denmark and Finland comes out with reduce in spending on more than the average.

Since the actual and predicted values differ in this paper, there could be an idea to revise the fixed numbers I have used to do the calculation. Another possible idea is that the Borcharding model is not fit to explain my 20 OECD-countries. It is impossible to land on one conclusion on what is the most valid explanation factor to explain government growth in this paper. If I should chose, I would chose Rodrik's hypothesis since this is the hypothesis that can explain the few positive actual growth rates and the Person and Tabbellini-hypothesis that shows that some of the more majoritarian democracies has a smaller negative growth than some of the PR-democracies.

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Appendix

Appendix 1: Growth rates from the Borchherding modell

	Total predicted growth rate	Predicted non-rival	Predicted rival	Total actual growth rate	Actual non-rival	Actual - rival
Austria	0,0092	0,0086	0,0118	-0,0116	-0,014	-0,0111
Belgium	0,0087	0,0078	0,0126	-0,003	0,0207	-0,005
Canada	0,0042	0,0012	0,0172	-0,021	-0,0216	-0,0209
Czech Republic	0,0135	0,0138	0,0122	-0,0192	-0,0733	0,0135
Denmark	0,0089	0,008	0,0128	-0,0116	-0,0139	-0,0113
Finland	0,0093	0,0084	0,0132	-0,0197	-0,044	-0,0142
France	0,0071	0,0056	0,0136	-0,012	-0,0104	0,004
Germany	0,0093	0,009	0,0106	-0,0154	-0,0768	0,001
Greece	0,0101	0,0089	0,0153	-0,0052	0,0224	-0,0114
Ireland	0,0043	0,0004	0,0225	-0,0182	-0,023	-0,017
Italy	0,0081	0,0069	0,0133	0,0446	0,1752	-0,0454
Korea	0,0074	0,0053	0,0165	0,0332	0,0119	0,0498
Luxembourg	0,0051	0,0021	0,0181	0,0053	-0,0085	0,0081
Netherlands	0,0079	0,0064	0,0144	0,0023	-0,0022	0,026
Norway	0,0083	0,0065	0,0161	-0,0203	-0,0498	-0,0131
Portugal	-0,0375	0,0045	0,0157	0,0093	-0,0093	0,0139
Spain	0,0052	0,0022	0,0182	-0,0143	-0,0134	-0,0146
Sweden	0,0096	0,009	0,0122	-0,0182	-0,0169	-0,0185
United Kingdom	0,008	0,0076	0,014	-0,008	-0,0029	-0,0002
United States	0,0034	0,0004	0,0177	-0,001	0,007	-0,0039
Average	0,0056	0,0061	0,015	-0,0051	-0,0071	-0,0037