

GOVERNMENT: A NEVER ENDING GROWTH?

(Preliminary version)

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Abstract:

During decades economists have debated about the role of the government and its size. It is a fact that societies cannot reach high levels of economic growth without a strong government. But which is the optimum size of government and how does this size relates to economic growth? John Maynard Keynes and John Kenneth Galbraith have argued that an economy needs to be continually fine-tuned by an activist government to efficiently operate (Keynes, 1936). But other authors such as Milton Friedman or Frederick von Hayek have argued that the existence of private sector instability and inefficiency is mostly due to an activist government.

In this paper we want to see to what extent government size fosters or hampers economic growth in European countries. For that reason we analyze three different periods of time under different economic situations in the European Union. In order to do that we use panel data from EU-countries both traditional EU-15 and extended EU-30 throughout the period 1992-2010.

We show that once government expenditure has reached a certain level, it stops growing during economic booms and in some cases even descends. In fact, most of the European countries decreased their government size until 2008, that is, till the beginning of the economic crisis. However from then onwards it started to grow again. This may confirm the pattern that government expenditure has a countercyclical behavior. One of the claims arising from our preliminary results is to think about the fact that while government expenditure do hampers growth it seems to be less detrimental in countries with relatively smaller governments. Thus the future tendency should be to try and reduce government expenditure once a certain level of development is achieved.

Keywords: *Government size, economic growth, government expenditure, public sector performance, welfare state.*

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1. Introduction

During decades economists have debated about the role of government. John Maynard Keynes and John Kenneth Galbraith have argued that an economy needs to be continually fine-tuned by an activist government to efficiently operate (Keynes, 1936). However other authors such as Milton Friedman or Frederick von Hayek have argued that the cause of private sector instability and inefficiency is mostly due to an activist government (Garrett and Rhine, 2006).

As it is known when an economy grows a growing government is also necessary to correct for market failures. There are a few goods known as “public goods” that market cannot provide or they are costly to provide. In European countries with a mixed economy government expansions help provide those “public goods” such as education, health and infrastructures, which are the basis for economic growth. But we need to ask whether this is helpful or not during recessive periods. When market seems to fail is government intervention the solution? Some authors say that government should only exist to ensure that private market operates efficiently but it should not replace market. Others say that when market fails government should intervene to solve market failures. Sometimes government continues growing not because of a market failures but because of political reasons.

When government spending is zero it is supposed to be little economic growth due to the existence of enforcing contracts protecting property, thus developing an infrastructure would be difficult (Mitchell, 2005). Government introduces the protection of property rights and the rule of law and in societies where it gets more involved it will tend to expand its size to offer, as said before, health care, education and pension systems. We know that in some cases the costs of government exceed benefits, mainly because governments become too large or expenditures are misallocated.

When government takes part in the economic process it increases its size and it sometimes becomes bigger than necessary. Some theories say that this expansion is inherent and continuous, others however insist on downsizing government. But all of them discuss the size of government since politicians use it as an instrument to foster economic growth. Olson (1965) and Moe (1980) have said that also interest groups can increase the size of government by applying political measures more effectively than individual citizens. They can obtain a desired policy offering benefits to the interest groups but at a cost for million taxpayers.

European countries tend to have bigger governments than for example United States because of the welfare state. The increase in total expenditure in Europe must be seen as governments trying to fulfill “Musgravian” goals: macroeconomic stabilization, income redistribution, and more efficient resource allocation. It is said that a large government sector is associated with a higher tax burden and more government debt (Mitchell, 2005).

The ideal goal is to find an optimum size defined as that point just before government becomes too large and starts reducing the rate of growth and job creation. In any case, the crucial point is that economic growth is a key aspect since it has helped countries to achieve long-term prosperity. Hence, if we are to design a government that will maximize economic growth one of the most important questions we should pose is how large would that government be? In our paper we will examine data that will give us some clues about it.

During the last decade government expenditure has been reduced or kept the same, from middle nineties until 2006-2007 as shown in *Figure 1* (Annex 1). Now it seems to increase again everywhere, once the economic crisis has been generally accepted as such.

Public choice theory says that governments will expand in size beyond its efficient level. In this paper we evaluate the impact of government expending on economic performance. We measure the size of the government by its expenditures. There are other measures that can also be used, such as taxes (Meltzer and Richard, 1981), but most of the studies use expenses and besides it is the most homogeneous variable across countries. We want to see if this size negatively affects economic growth in European countries. For that reason we analyze three different periods with different economic situations in the European Union.

Do we need a never ending government during periods of economic crisis? Our results show that while government expenditure do hampers growth it seems to be less detrimental in countries with relatively smaller governments. Thus the future tendency should be to try and reduce government expenditure once a certain level of development is achieved. This paper shows that an excessively large government reduces economic growth. That could be the case of Sweden, with a high government size, where an increase in public expenditure may hamper growth.

The scheme of this paper is as follows; in section 2 we talk about some theories referring to government size and economic growth, in section 3 we present the data and the methodology we have used, section 4 shows the results that we have obtained and finally we conclude with some policy implications.

2. Theoretical framework

John Maynard Keynes and John Kenneth Galbraith have argued that an economy needs to be continually fine-tuned by an activist government to operate efficiently. As an economy grows, a growing government is also necessary to correct private-sector inefficiencies. This school of thought grew primarily out of the Great Depression, when

markets seemed to fail and government intervention was viewed as the means to restore economic stability. Other 20th century economists, such as Frederick von Hayek and Milton Friedman, have argued that an activist government is the cause of economic instability and inefficiencies in the private sector. It should exist to ensure that a private market operates efficiently but it should not act to replace the market mechanism (Garret and Rhine, 2006).

Garret and Rhine (2006) argued that there are two distinct categories of theories with respect to the relationship between government size and growth. The first category is citizen-over-state theories of government. These theories begin with the premise that citizens demand government programs and the government is simply responding to the will of the people. The other category is state-over citizen theories of government growth. Here the size of government is independent from citizen demand and government grows because of inherent inefficiencies in public sector activities and incentives facing government bureaucrats.

There are two opposite views regarding the relationship between public expenditure and economic growth: Keynesian and Wagnerian. Keynes treats public expenditure as exogenous, which could be used as a policy instrument. He believes that causality runs from public expenditure to economic growth. Keynesians think that government can use public expenditure as an instrument for economic growth. This is supported by Bird (1970), Beck (1979) and Ansari (1993) among others. On the other side Wagnerians argue that growth in public expenditure is an outcome from growth in economic activity. Empirical work by Gupta (1967), Beck (1981) and Ahsan et al (1986) find evidence in favor of Wagner's hypothesis. This implies that public expenditure can be treated as an outcome, or an endogenous factor, rather than a cause of growth.

In this line we can refer to Wagner's law (1877), which states that when the demand for governmental services has income elasticity in excess of one they become "luxury goods" instead of public goods. Baumol (1967) points to the unbalanced growth between the private and public sectors and finally Niskanen (1971) talks about bureaucratic expansionism.

There is a commonly perceived fact that public expenditure tends to grow both in the short run and the long run no matter the size of the economy. This turned into the law of increasing state spending, known as we have said as Wagner's law, which has been deeply analysed. Most accurately, it predicts that economic development will always go hand in hand with an increased level of public expenditure in terms of gross national product. Whether the causality runs from national income to public expenditure or it is the other way around (Keynesian way) is not clear and attempts to check both theories have been extensively carried out.

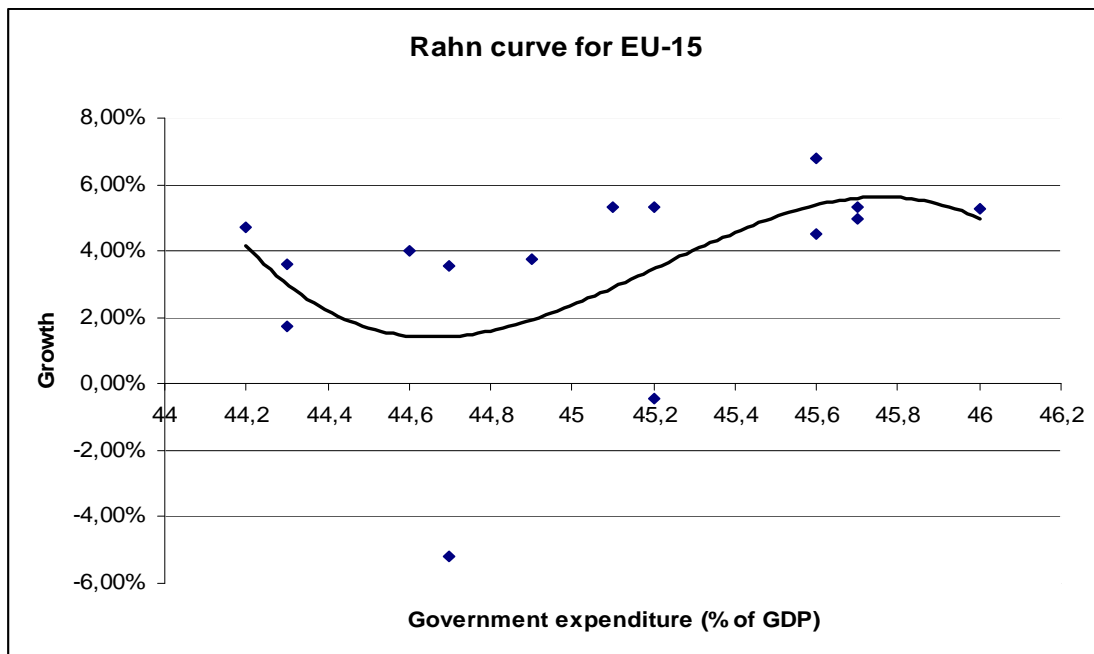
Keynes (1936) said that government spending grows by injecting purchasing power into the economy. According to this, government can borrow money from private sector or issue debt. The Keynesian theory argued that government spending could provide short-term stimulus to help end a recession. Policymakers should be prepared to reduce government spending once the economy recovered in order to prevent inflation. But this does not normally happen. Keynesians also argued that budget deficits boost growth by injecting purchasing power into the economy. But we have to take into account that this money comes from taxes or borrowing. Keynes said also that economic performance would be undermined if government spending exceeded 25 per cent of gross domestic product (GDP) (Kerr, 2003). Consequently Keynes would nowadays probably advocate for smaller governments, given that the government burden in some European countries is above 50 per cent.

We have to say that the composition of public spending is also a relevant issue and for the aim to promote growth, the focus should be put on the most productive items of the budget, even if the balance between the various functional items of the budget can vary according to the particular circumstances and priorities of each country (Afonso and Furceri, (2008)). Lucas (1988) argues that public investment in education increases the level of human capital and this can be seen as a main source of long-run economic growth. Also Barro (1990) mentions the importance of government expenditure in public infrastructure for economic growth and Romer (1990) stresses the relevance of research and development expenditure.

There are also some studies that do not find any relation between government size and economic growth such as Ram (1986), Easterly and Rebelo (1993) and Mendoza et al. (1997). However there are other studies that find out this relationship is non-linear, such as Barro (1997) and Grossman (1988). Solow (1956) suggested that while some economies may be wealthier than others, in the long run they should all grow at the same rate. Others authors such as Quah (1996) and Gwartney and Lawson (1997) suggested that not only do economies have substantially different growth rates over lengthy time periods, but it is also believed that countries can maintain these various growth rates. This is an important point because if long run growth rates are approximately the same across countries long term consequences from economic policies impeding growth would be less severe (Gwartney et al, 1998).

Furthermore policymakers can enhance economic performance by reducing the size of government. However we can also say that the relationship between government spending and economic growth may depend on factors changing over time. The Rahn curve (*Figure 2*) shows us this relationship for European countries.

Figure 2: Rahn curve



Source: self elaborated

During years it has been argued that reducing deficit fosters economic growth because lower budget deficits lead to lower interest rates, which facilitates investment and more investment leads to higher productivity meaning higher growth. But empirical data show deficits may have a small impact on interest rates since those are being determined by capital markets or central banks. Besides it is not clear that interest rate acts as the main determinant of investment since we have also faced high interest rates in periods with strong economic growth (Mitchell, 2005).

Government size has a major impact on economic growth but there are other important variables such as tax policy, monetary policy, trade and regulatory policies and finally private property also influencing growth. Thus we have to think whether the measures policymakers are enforcing at present are the right ones or, on the contrary, if it is the case that they are so worried about debt they are leaving economic growth aside.

3. Data and Methodology

The relationship between growth and government expenditure has been deeply analyzed from different points of view; even so it is not free from controversy. For example, Checherita and Rother (2010) find evidence for a non-linear impact of public debt on growth for European countries, Yamamura (2011) analyses the negative effect of government size on growth through capital accumulation, Reinhart and Rogoff (2010) explore the concept of “debt intolerance” over the last two centuries, Rebelo (2001) analyses debt crises focusing mainly on growth slowdowns, or Easterly and Rebelo (1993) show that the relationship may become non-significant after including certain control variables in a growth regression. When undertaking our analysis we have paid special attention to this aspect trying to be as much accurate as possible in order to come out with representative results, which can help understand the role of government expenditure across the European Union, its variability depending on the location of the country as well as the period under analysis. Once the analysis is carried out we would like to be able to describe a possible trend for the future evolution of government expenditure both across countries and throughout the years.

With respect to the time span used, we have to take into account that policy variables are likely to be influenced by other variables, introducing correlation and biasing the estimations. Besides analysing together the two parts of the economic cycle may induce mistakes when trying to find out the best policies to undertake. We also have to bear in mind that over long time spans it is easy not to take into account all information on within-country variation. Thus we need to introduce period dummies in order to do it.

Therefore, we will use a panel data approach, in order to minimize these likely errors.

We will estimate the following growth equation:

$$\begin{aligned}
 g_{it} = & \alpha + \beta_1 Debt_{it} + \beta_2 Expense_{it} + \beta_3 Expense_{it}^2 + \beta_4 Tax_rev_{it} + \beta_5 GFKF_public_{it} \\
 & + \gamma_1 Labour_{it} + \gamma_2 Part_time_{it} + \gamma_3 Tertiary_{it} + \mu_1 Population_{it} \\
 & + \mu_2 Unemployment_{it} + v_t + \epsilon_{it}
 \end{aligned}$$

where the index i ($i=1, \dots, 30$) denotes the country and the index t ($t=1992, \dots, 2010$)

denotes the period under analysis.

g_{it}	is the growth rate of GDP
$Debt_{it}$	is the government debt as a percentage of GDP
$Expense_{it}$	are the government expenses as a percentage of GDP
$Expense_{it}^2$	are the squared government expenses
Tax_rev_{it}	are the taxes as a percentage of GDP
$GFKF_public_{it}$	is the public gross fixed capital formation as a percentage of GDP
$Labour_{it}$	is the labour participation rate
$Part_time_{it}$	is part time employment as a percentage of total employment
$Tertiary_{it}$	is level of tertiary education enrolment
v_t	are the time fixed effects
ϵ_{it}	is the error term

The estimation technique is panel fixed-effects corrected for heteroskedasticity. All the results are presented in tables 1 to 3 in Annex 2.

We focus on EU countries, both traditional EU-15 and extended EU-30. Hence the countries included in the analysis, apart from the traditional EU-15 (Austria, Belgium, Denmark, France, Finland, Germany, Greece, Italy, Ireland, Luxemburg, Netherlands, Portugal, Spain, Sweden and U.K.) are the following ones: Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Iceland, Latvia, Lithuania, Malta, Norway, Poland, Romania, Slovakia, Slovenia and Switzerland.

First we will study the behaviour of the whole EU-30 and then we will split it into EU-15 and new members to see if there is a dual behaviour. On the other hand, in order to check for similarities we have also decided to undertake the analysis according to the location of countries. For this purpose we have divided them into Northern/Central (Denmark, Finland, Iceland, Norway, Sweden, Austria, Czech Republic, Germany, Estonia, Hungary, Latvia, Lithuania, Poland and Romania), Western (Belgium, France, Ireland, Luxembourg, Netherlands, Slovenia, Slovakia, Switzerland and United Kingdom) and Southern (Bulgaria, Cyprus, Greece, Italy, Malta, Portugal and Spain) Assembling the countries this way we might be more precise when trying to define the sources of growth and the impact of debt as well. This offers a great advantage since it allows us to compare the differences in behaviour depending on the location of countries.

On the other hand, with respect to the time span, and bearing in mind the fact that from 1992 to 2010 the European economy has moved from a recession towards a boom whereas during the last years it has moved again into a recession, we have also considered the possibility of an analysis for each time period, that is from 1992 to 2000,

from 2001 to 2006 and finally from 2007 to 2010. Problems arise especially for the last period due to a scarce number of data but at the same time we come out with some appealing results, which deserve our attention.

Since all countries are EU members we have no problems of data comparability. Data have been obtained mainly from the World Bank, except for expenses and GDP, from Eurostat.

4. Results and discussion

Our results show that when government increases its size more than necessary in periods of economic crisis this may hamper economic growth. However when it is the case that governments have a low-to-regular size the effect may be the opposite one, thus fostering economic growth. This may suggest that during periods of economic crisis we may need a never ending government. However this could be the case only for those countries where government size is small in order not to add a further burden to the economy.

The estimates of the influence of government spending on growth are reported in tables 1 to 3. The results suggest that expense to GDP exerts always a negative or null increasing influence on GDP growth. In both recessive periods it appears to be negatively related. More specifically, a percentage point increase in government expenses to GDP would decrease output growth by 1 to 8 percentage points depending on the group of countries under analysis. In contrast, during the prosperity period (2001-2006) it does not appear to be significant in any case. This is clearly opposed to a

Keynesian view of the government, therefore questioning its role in the economy, and stays more in line with monetarists and Wagnerian views.

Different implications emerge from analysing the effect of debt throughout the different time spans and across countries. It has mostly a negative relation to growth both for the first crisis and the following recovery but if any, it has a positive impact during the present crisis. In particular, for the EU-15 countries a percentage point increase in debt would increase output growth by 0.12 percentage points. This would be in line with the policies undertaken in Europe and led by Germany when deciding to rescue the European banks suffering from serious liquidity problems. To finish with government variables, we have introduced public gross fixed capital formation as a proxy to analyse the productivity of government expenditure. The results show a gross variability across countries and throughout time spans. It emerges a clearly positive influence during the 1992-2000 period, except only for Western countries. During the boom period the influence turns to a negative one except for Southern countries. Finally, during the last years it seems to positive influence growth only in the case of Northern/Central countries. The main concern with respect to this variable is maybe the positive influence maintained throughout the economic cycle for Southern countries. This could be interpreted as a strong dependency of these countries on public capital formation, whereas the rest of the countries rely on it mainly during recessions. When analysing the complete time-span, we also face this dual behaviour, since there is a positive influence for EU-15 countries and Southern ones, whereas for EU-enlarged the effect of public fixed capital formation on growth is clearly negative and it is not significant for Northern/Central or Western countries.

Next we have analysed the effect of three labour related variables: participation, part time employment and unemployment. We have chosen labour participation since it is one of the sources of economic growth, whereas to control for labour market differences we have introduced part-time employment. Finally unemployment is a measure of labour idle resources in the case of labour production. What surprises us the most is the negative effect that sometimes arises from labour participation. It is not easy to interpret since we normally accept that a higher participation rate in labour market should lead to more production and growth, except maybe for those countries with very low productivity levels or countries producing low tech products. But this does not seem to be our case. In fact, labour appears to have a negative impact during the first crisis on EU-15 countries as well as on Northern/Central, Western and Southern countries. During the recovery period it has a positive effect only on Northern/Central countries, whereas for the present crisis period it positively influences growth in the case of EU-15 countries. It is certainly a surprisingly result that undoubtedly deserves deeper analysis in a revised version of our paper.

On the other hand, part-time employment follows a different pattern. It has no effect on growth during the boom period and a mostly positive effect during the first crisis, except for western countries, which seem to negatively react to increases in part time employment. The pattern is completely different when we move to the present crisis, since it has a negative effect for EU-15 and Northern/Central countries. More specifically, an increase of one percentage point in part time employment with respect to total employment decreases growth by 1 to 1.5 percentage points. During the last years and in order to try and reduce unemployment most European countries have adopted new labour measures, an increase in part-time employment being one of them. Our results show that even though these measures will reduce the unemployment level,

they may have no positive effects on economic growth (see last records on growth in Germany).

When analysing unemployment, the influence on growth has the expected negative sign with three exceptions: Southern countries and then Western and EU-15 countries (only for the last crisis period). First of all, the negative sign for Southern countries may be interpreted in terms of a different employment system, causing the opposite expected influence. More should be analysed on undeclared work in Southern countries in order to come up with a plausible explanation. Besides, with respect to the positive influence emerged from unemployment during the last years, we can think of it as a rearrangement of the internal labour markets, which is expected to lead again to a negative influence once the adjustments have finished.

In terms of human capital, the first thing emerging is the great variability. Apart from this, the results seem to be somehow discouraging since the effect of tertiary enrolment on growth is sometimes negative. More specifically, during the first crises it had a positive influence only in Northern/Central and Western countries, which is likely to be interpreted as a certain need to acquire high education in order to face the future with a greater probability of getting a [better] job. Furthermore, we could think of the fact that during the boom period people ceased to study and moved to less demanding jobs in terms of education without foreseeing what would be next. And next, a further crisis even worse than the previous one, came. But in this case, for Northern/Central countries as well as for enlarged-EU countries, tertiary enrolment seems to be again detrimental to growth. Only for EU-15 it shows a positive sign meaning that there are some countries following a complete different pattern in terms of education.

5. Concluding remarks

During the last decades government participation seems to be playing an increasing role in the European economy. The rise is primarily due to the growth of transfers and subsidies, which will require either higher tax rates or more debt issuing or both. From some theoretical points of view, government size is likely to be detrimental to economic growth, partly due to inefficiency of government activities. Besides, it is well known that government increases tend to bring along the problem of rent-seeking (when people attempt to enhance their wealth by means of addressing government benefits directly to themselves rather than engaging in productive activities). Regarding this point, many studies have claimed that a reduction in government size could be favourable to growth. This is just what we have found in our paper, with some exceptions mainly related to the last crisis.

According to our results debt (and deficit) may not be such critical variables as initially thought, the key aspect being the size of government more than how it is financed. Thus one of the claims arising from our preliminary results makes us think about the fact that while government expenditure does hamper growth it seems to be less detrimental in countries with relatively smaller governments. Hence the future tendency should be to try and reduce government expenditures once a certain level of development is achieved.

In this paper we have examined the effects of government size on growth across countries and for different time spans. It is clear that undertaking a unique analysis both for a large period of time covering different business cycles and for a unique bunch of

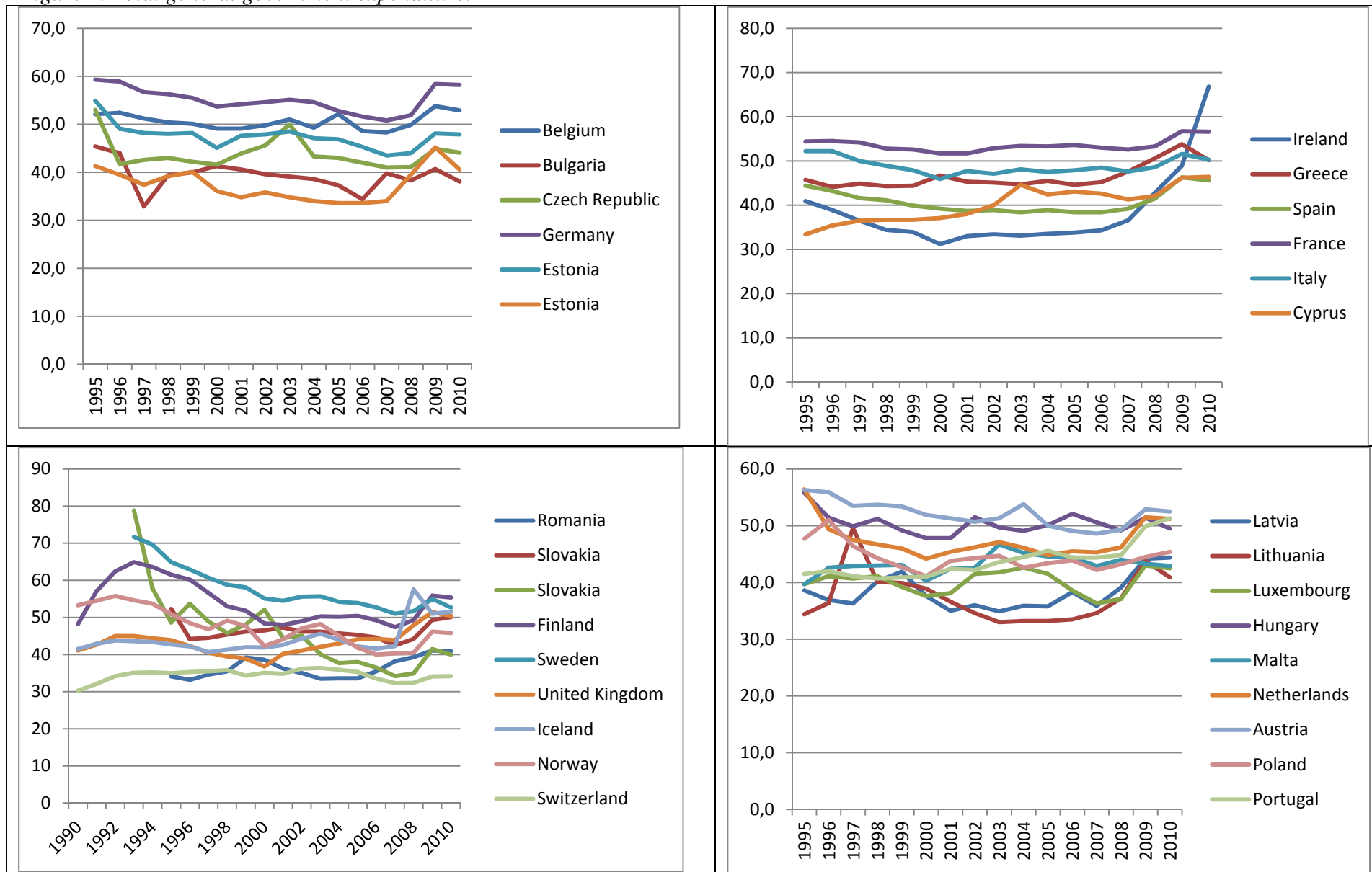
countries (most of them with different governmental rules) leads to mixed results, which do not really help us reaching any clear conclusions. However, when splitting them up into more homogenous groups the results become much more explanatory. Consequently we can come out with different and more accurate policies for each homogenous group of countries as well as for each time period. In other words, we could minimize policy mistakes when taking into account countries' specificities. Our results show that applying the same policies does not lead to the same results. On the contrary, same policies may hamper economic growth in some countries, due to very different economic basis. So first of all, to work as an economic unit we have to thoroughly analyse all economies taking part of the European Union trying to come out both with the weaknesses and strengths of each of them in order to find out the best way to foster economic growth.

A clear example of this could be the case of human capital, which has only a positive influence in Northern/Central and Western countries whereas for the rest it has no significant effect.

All in all, our results make us think whether the measures policymakers are enforcing at present are the right ones or it may be the case they are so worried about debt that they are leaving economic growth aside. Furthermore, we actually end up doubting about the existence of two different theories about government size, since it seems as though they were two sides of the same coin and it might be the case that even Keynes would nowadays agree that some governments are hyper-sized and need to be downsized because they have exceeded the optimum government size.

Annex1. Government Expenditure.

Figure 1. Total general government expenditure.



Source: self elaborated

Annex 2. Estimation results.

Table 1: Dependent variable: GDP growth rate. 1992-2000 and 2001-2006

Variables	1992-2000				2001-2006			
	North/Central	Western	Southern	Total	North/Central	Western	Southern	Total
<i>Constant</i>	-22,342*** (-3,821)	-7,407 (-1,161)	-0,594 (-0,116)	-0,983 (-0,404)	-21,535** (-2,740)	3,886** (2,2533)	12,116*** (3,269)	0,469 (0,309)
<i>Debt</i>	-0,208* (-1,7547)	-0,0910*** (-3,686)	0,127 (1,695)	-0,008 (-0,201)	-0,033 (-0,462)	-0,003 (-0,101)	-0,002 (-0,046)	-0,0546*** (-2,712)
<i>Expense</i>	-5,251*** (-3,635)	0,393 (1,241)	-5,477* (-2,385)	-1,515* (-1,783)	-1,027 (-0,722)	0,946 (1,389)	6,420 (1,343)	0,117 (0,206)
<i>Expense²</i>	5,462*** (3,721)	-0,380 (-1,521)	5,488* (2,381)	1,381* (1,903)	0,924 (0,663)	-1,237 (-1,480)	-7,661 (-1,372)	-0,379 (-0,657)
<i>GFKF_pub</i>	0,3442 (1,419)	-0,445* (-2,139)	1,940** (4,850)	0,413** (1,553)	-0,309** (-2,743)	-0,298*** (-3,341)	1,153*** (8,924)	-0,064 (-0,921)
<i>Labour</i>	-0,939** (-2,324)	-0,849*** (-4,136)	-2,992*** (-12,264)	-0,254 (-1,392)	0,617* (1,850)	0,4186 (1,063)	-0,848** (-2,292)	-0,116 (-0,590)
<i>Part_time</i>	1,844*** (4,840)	0,0651 (0,459)	1,172 (1,180)	0,377 (1,641)	0,056 (0,373)	-0,316** (-2,740)	0,781*** (4,646)	-0,140 (-1,262)
<i>Population</i>	1,552*** (3,897)	0,477 (1,248)	0,166 (0,599)	0,084 (0,545)	1,408*** (2,784)	-0,259* (-2,024)	-0,828*** (-3,387)	-0,018 (-0,184)
<i>Tax_rev</i>	0,562 (1,285)	0,779*** (7,716)	-0,295 (-0,788)	0,210 (1,323)	-0,039 (-0,165)	-0,311 (-1,250)	-0,306 (-1,541)	0,080 (0,778)
<i>Unemployment</i>	0,199 (0,726)	-1,147*** (-4,613)	0,435* (3,080)	0,055 (0,278)	-1,006*** (-4,354)	-0,224 (-1,699)	0,965*** (6,972)	-0,103 (-0,776)
<i>Tertiary</i>	0,447** (4,725)	-0,231*** (-6,787)	0,232 (0,817)	0,059 (0,697)	0,073 (1,588)	0,190*** (3,790)	-0,055* (-2,149)	-0,021 (-0,746)
<i>Year dummies</i>	Included (5)	Included (5)	Included (5)	Included (5)	Included (5)	Included (5)	Included (5)	Included (5)
Nr. observations	43	32	23	98	56	48	33	137
R ² -adj.	0.477	0.961	0.661	0.529	0.774	0.808	0.815	0.768

Notes: t-statistics are in parenthesis. Robust standard errors to control for heteroscedasticity.

*, **, *** Statistically significant at the 10%, 5% and 1% respectively.

Full results regarding these variables are available upon request.

Table 2: Dependent variable: GDP growth rate. 2007-2010 and 1992-2010

Variables	2007-2010				1992-2010			
	North/Central	Western	Southern	Total	North/Central	Western	Southern	Total
<i>Constant</i>	-8,018 (-1,226)	7,368 (0,543)	<i>No data availability</i>	-31,199** (-2,733)	-5,510*** (-4,131)	6,470 (3,786)	1,412 (0,553)	-3,686* (-1,956)
<i>Debt</i>	0,270*** (10,603)	-0,058 (-0,915)		0,016 (0,428)	0,029 (1,024)	-0,006 (-0,322)	0,018*** (2,979)	0,005 (0,218)
<i>Expense</i>	-1,522 (-2,254)	2,525 (1,054)		-2,236** (-2,226)	-3,465*** (-10,040)	-1,089 (-3,566)	0,656 (-0,988)	-2,446*** (-5,187)
<i>Expense²</i>	1,169 (1,648)	-2,775 (-1,090)		1,985* (1,963)	3,416*** (11,411)	1,114 (3,367)	0,704 (0,503)	2,314*** (5,113)
<i>GFKF_pub</i>	0,569** (3,393)	1,617 (4,598)		0,335 (1,426)	-0,012 (-0,148)	0,088 (0,572)	0,149** (2,615)	0,142 (1,337)
<i>Labour</i>	0,451 (0,943)	1,260 (1,216)		0,862 (0,856)	-0,494*** (-2,731)	0,042 (0,254)	0,231 (-0,705)	-0,618*** (-3,318)
<i>Part_time</i>	-0,945*** (-5,361)	-1,528 (-1,382)		-0,069 (-0,157)	0,628*** (4,176)	-0,183 (-1,244)	0,150 (-0,333)	0,313** (2,367)
<i>Population</i>	0,515*** (1,255)	-0,561 (-0,658)		1,977** (2,723)	0,420*** (4,837)	-0,381 (-3,404)	0,096 (-0,402)	0,283** (2,268)
<i>Tax_rev</i>	1,678** (18,971)	0,091 (0,194)		0,085 (0,324)	0,285 (1,458)	-0,016 (-0,179)	0,051 (0,016)	0,123* (1,688)
<i>Unemployment</i>	-0,521** (-3,827)	2,363 (2,982)		-0,286 (-0,918)	-0,488*** (-4,199)	-0,142 (-0,816)	0,082 (0,893)	-0,065 (-0,526)
<i>Tertiary</i>	-0,185*** (-2,644)	0,535 (2,676)		0,030 (0,238)	0,120*** (3,861)	0,028 (0,663)	0,025 (0,146)	0,050** (2,351)
<i>Year dummies</i>	Included (2)	Included (2)		Included (2)	Included (14)	Included (14)	Included (14)	Included (14)
Nr. observations	28	24		67	127	104	71	302
R ² -adj.	0.990	0.182		0.902	0.831	0.873	0.813	0.747

Notes: t-statistics are in parenthesis. Robust standard errors to control for heteroscedasticity.

*, **, *** Statistically significant at the 10%, 5% and 1% respectively.

Full results regarding these variables are available upon request.

Table 3: Dependent variable: GDP growth rate. EU-15 and new incomers.

Variables	1992-2000		2001-2006		2007-2010		1992-2010	
	EU-15	Incomers	EU-15	Incomers	EU-15	Incomers	EU-15	Incomers
<i>Constant</i>	-2,074 (-0,763)	7,612 (0,885)	3,919** (2,377)	-10,229*** (-2,878)	15,095 (1,325)	-9,394 (-0,826)	6,324*** (4,061)	-6,333*** (-3,863)
<i>Debt</i>	0,015 (0,909)	-0,257* (-1,961)	-0,065** (-2,586)	-0,100** (-2,685)	0,126** (2,835)	-0,070 (-1,670)	0,029*** (3,189)	-0,055* (-1,668)
<i>Expense</i>	-0,103 (-0,374)	-8,371*** (-5,567)	-0,258 (-0,617)	-1,203 (-0,439)	-4,748*** (-7,273)	-4,139** (-2,796)	-1,155*** (-5,858)	-3,610*** (-21,384)
<i>Expense²</i>	0,065 (0,277)	9,266*** (5,744)	0,131 (0,302)	0,895 (0,288)	4,726*** (7,594)	4,213** (2,765)	1,056*** (5,612)	3,625*** (17,688)
<i>GFKF_pub</i>	0,428** (2,228)	0,854** (2,841)	0,049 (0,349)	-0,273*** (-3,227)	-0,374 (-1,431)	0,208 (1,434)	0,272*** (2,633)	0,005 (0,056)
<i>Labour</i>	-0,337** (-2,112)	0,204 (0,367)	-0,149 (-1,187)	0,472 (1,425)	2,176*** (3,617)	-1,238 (-1,582)	0,091 (1,104)	-0,606** (-2,402)
<i>Part_time</i>	0,229** (2,695)	1,646*** (6,442)	0,0119 (0,077)	0,146 (1,341)	-1,482*** (-4,657)	0,865 (1,334)	-0,012 (-0,180)	0,741*** (5,214)
<i>Population</i>	0,132 (0,820)	-0,394 (-0,672)	-0,223** (-2,204)	0,697*** (2,879)	-0,917 (-1,303)	0,759 (0,983)	-0,373*** (-3,917)	0,500*** (4,937)
<i>Tax_rev</i>	0,172* (1,746)	-0,418 (-1,059)	-0,114 (-0,931)	0,051 (0,134)	0,075 (0,325)	0,146 (0,515)	-0,108* (-1,731)	0,061 (0,488)
<i>Unemployment</i>	-0,110* (-1,989)	0,074 (0,150)	0,103 (0,804)	-0,710*** (-3,035)	0,275** (2,307)	-0,817** (-2,840)	0,093 (1,270)	-0,535*** (-5,632)
<i>Tertiary</i>	-0,037 (-0,974)	-0,235 (-1,008)	-0,041** (-2,287)	0,090 (0,892)	0,241** (3,103)	-0,449** (-3,329)	0,007 (0,384)	0,049 (0,698)
<i>Year dummies</i>	Included (5)	Included (5)	Included (5)	Included (5)	Included (2)	Included (2)	Included (14)	Included (14)
Nr. observations	69	29	82	55	37	30	188	114
R ² -adj.	0.848	0.410	0.774	0.694	0.949	0.946	0.876	0.811

Notes: t-statistics are in parenthesis. Robust standard errors to control for heteroscedasticity.

*, **, *** Statistically significant at the 10%, 5% and 1% respectively.

Full results regarding these variables are available upon request.

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