The Impact of Fiscal Policies on Economic Activity: New Evidence for Europe

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Abstract

This study provides new evidence of the impact of fiscal policy on economic activity. With the use of quarterly data spanning the 1990–2013 period for a selected group of European countries, I show that the effect is conditional on two key determinants: the state of the economy and the financial fragility. The results are derived from the use of a novel set of instruments for government spending based on the political orientation of the government in place. In terms of economic performance, the fiscal multiplier is found to be statistically significantly larger than zero only when the economy operates at a rate below either its country's historical average or the corresponding European average. Further, I find that country's debt-to-GDP ratio must be lower than the European average for the fiscal policy to be effective.

I would like to thank Gregor Smith for his great supervision and very useful advice. Any remaining errors are my own responsibility.

Contents

1 Introduction

At the Washington Summit in November 2008, G20 leaders agreed to implement coordinated fiscal measures to improve economic conditions worldwide (University of Toronto, G20 Information Centre). With fiscal stimulus programs and a deep global recession, public debt increased in many countries during the crisis. Following the onset of the euro-area debt crisis, many economists (Reinhart and Rogoff, 2010, for example) and policy-makers (David Cameron in the United Kingdom among others) have argued for, or have implemented, austerity measures. Austerity measures were also imposed by international and European authorities on the peripheral euro-area countries, especially in such troubled economies as Greece, Portugal and Spain.

One of the most important policy questions today is the need for a better understanding of the effects of these expansionary or restrictive fiscal policies on economic activity. The literature is rapidly expanding and is a critical research subject in the United States, Canada and Europe. As well, a special issue of the *Economic Journal* (2013) has recently addressed this topic. The period since 2008 is particularly relevant for this research, since the short-term nominal interest rate in many countries has reached the zero lower bound (ZLB). Krugman (1998) pointed out that this situation, which had been observed in Japan, was a reincarnation of Keynes's "liquidity trap", where the effects of fiscal policy may be enhanced.

This essay has three goals: (i) to quantify the effects of fiscal policies on economic activity and to estimate the extent to which the effects differ with respect to (ii) the state of the economy and (iii) financial fragility. Quarterly data are used for 14 European Union member states spanning from 1990 to 2013. To assess the effectiveness of fiscal policies, a novel set of instruments is employed taking advantage of the fact that the size of government

varies upon the left-right spectrum. A simultaneous equations model is used to control for the endogeneity of government spending and estimated with two-stage least squares while accounting for the other determinants of economic growth.

The essay's main results are the following. First, the size of government does vary across the political spectrum: other things being equal, left-wing incumbent parties are associated with faster government consumption growth. However, the difference in the response of government consumption to the state of the economy across political parties' orientation is statistically insignificant. Second, the average fiscal multiplier on government consumption differs in its effect according to the state of the economy. When domestic growth is above its average value or the European average value, the fiscal multiplier is statistically insignificant. On the other hand, when the economy operates below either average, the fiscal multiplier ranges between 2.20 (1.23) and 2.93 (1.44) [1]. Third, financial fragility is another determinant of the size of fiscal multipliers. In particular, the multiplier of the sample's most indebted nations, such as Greece and Italy, is not statistically different from zero while the one of the least indebted nations ranges between 2.76 (1.56) and 3.34 (1.78).

The essay is constructed as follows: Section 2 provides a literature review on the effectiveness or ineffectiveness of fiscal policies and on the role played by political factors in their implementation. Section 3 describes the data used. Section 4 presents the empirical analysis and results. Section 5 concludes.

2 Related Research

From the empirical point of view, Auerbach and Gorodnichenko (2012) is one of the recent studies in this area. With the use of a regime-switching model and U.S. quarterly data,

[1] The standard errors are in parentheses.

the authors find that the difference in the effect of fiscal policies over the business cycle is substantial. They evaluate the multiplier effects of total spending and its major components in periods of recession and expansion. The fiscal multiplier of total spending ranges from 2.24 to 2.48 in recession compared with -0.33 and 0.57 in expansion, with defense spending having the greatest impact.

Mountford and and Uhlig (2009) is another recent study focusing on the efficiency of the different instruments of fiscal policy, *i.e.* whether governments use tax reductions or increases in spending. Using a vector-autoregressive model and US quarterly data for the 1955–2000 period, the authors assess the impact of increased government spending, tax cuts and tax increases on U.S. GDP. After controlling for business-cycle and monetary policy shocks, their results suggest that tax cuts have the largest multiplier effect, and more precisely that a one-dollar reduction in taxation raises GDP by a total of five dollars (in present-value terms), spread over four quarters after the fiscal policy change is implemented.

Another recent study in this area is the one by Ilzetzky, Mendoza, and Végh (2013) showing that the effectiveness of fiscal policies depends on several economic factors. The authors use quarterly data for the 1960–2007 period. Their sample consists of 44 countries including both developing and developed countries. The paper's main results show that economies that are more developed and more open to trade have relatively bigger fiscal multipliers as do those that use fixed exchange rates. Finally, they provide evidence for a threshold of 60% of government's debt as a percent of GDP above which the impact of fiscal policy becomes negative. Those studies certainly help explain why a wide range of fiscal multipliers have been found in the literature. For a contemporary overview of the literature see Parker (2011) and Ramey (2011).

In terms of the determinants of government spending, Blais, Blake, and Dion (1993) review

the existing literature on the role played by political parties. While variations in government spending have been consistently found to be contingent on economic factors, the estimated impact of political variables has shown conflicting results in cross-sectional and longitudinal studies. While some studies show that the more leftist a government is, the bigger the size of the government (*e.g.* see Cameron (1978) or Berry and Lowery (1987)), other studies find that those differences are conditional on the type of government expenditure, the level of development of the country, and the historical period considered. Blais, Blake, and Dion in turn analyze this question using pooled data. With a more extensive sample consisting of 15 developed countries for the 1960–1987 period, their study shows that the difference between left parties and right parties in government expenditure is small but positive on average and, more importantly, that whether it is a majority government or whether the government has remained in power for a significant amount of time (evaluated at 5 years) amplify significantly this positive difference.

Another factor considered as a political determinant of government spending is the 'electoral calendar'. There is an important literature on the theory of political business cycles stating that the use of policy tools such as monetary and fiscal policy is conditional upon election dates. The utility induced by government's re-election creates a greater incentive to use fiscal policies in the months preceding an election, hence the possible emergence of an electoral-economic cycle. But, by examining the British government's transfer data, Schultz (1995) demonstrates that the use of fiscal policies to manipulate the economy is conditional on the state of the economy. In particular, those measures are only used when the government feels a political need. Otherwise, the costs in terms of reputation and future macroeconomic performance are too high. The author argues that not considering the state of the economy at election time is likely to explain why empirical studies have found only weak evidence of electoral business cycles.

3 Quarterly European Data

The sample consists of 14 developed European countries for the period from 1990Q1 to 2013Q4. The fourteen countries are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Spain, Sweden, and the United Kingdom. The main model specification in this study includes government consumption and gross domestic product (expenditure approach) data. Both data series are from the Quarterly National Accounts reported by the OECD. Government final consumption consists of two broad categories of expenditures: public goods and services and private goods and services. It excludes transfers. All levels of government, *i.e.* central governments, state governments if applicable, and local governments are included. Both growth rate from the previous quarter and from the same quarter in the previous year are studied to ensure stationarity. The series are in real terms and seasonally adjusted. More details on the data sources can be found in the appendix.

4 Empirical Analysis and Results

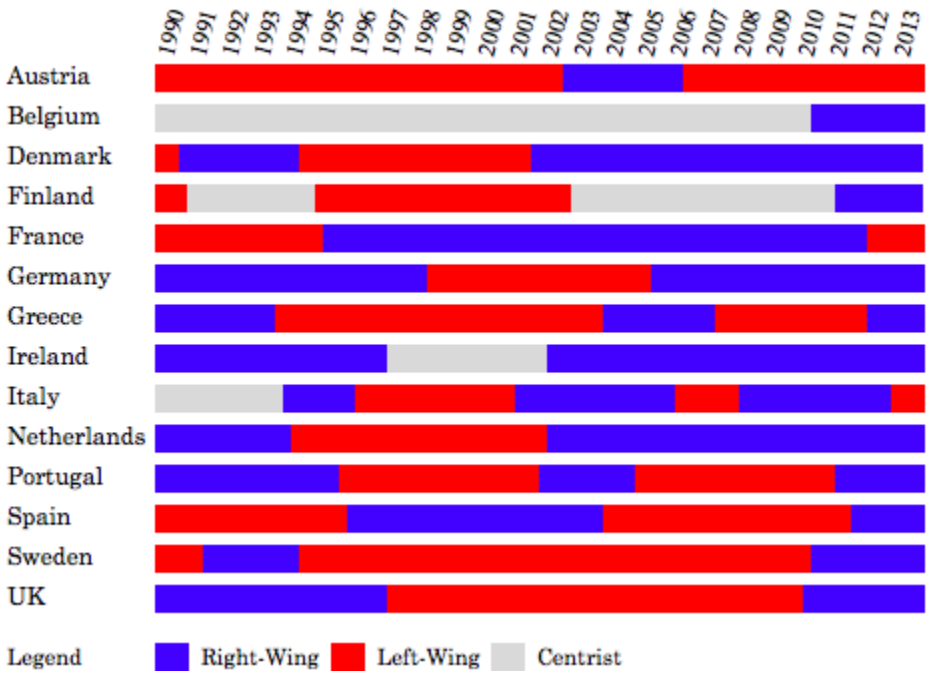
4.1 Instruments

A central issue that arises in identifying fiscal multipliers is the endogeneity of government spending. As fluctuations in output cause in turn fluctuations in government expenditure, the needed assumptions for the use of standard OLS procedures are not valid. Apart from the use of structural VAR and DSGE models, one main approach that has been employed up until now is the use of an exogenous component of total government spending — military spending — as a proxy for total government spending. Examples of their applied use include

Barro (1981) and Ramey and Shapiro (1998).

This paper employs a simultaneous equations model as in Martineau and Smith (2014) and proposes a new set of instruments for government expenditure based on political factors. Three different measures are constructed. All the statistics used to conduct those measures are from the *Parties and Elections in Europe* database. The first two are measures based on the idea that government expenditure may vary upon the left-right spectrum. Let $i = 1, ..., 14$ denote the country and $t = 1990Q1, ..., 2013Q4$ denote the time. The first instrument is a political orientation dummy variable, ori_{it}, indicating if the sitting government is left wing, right wing, or centrist. The classification of the parties was validated with the one made by Beck, Clarke, Groff, and Wals (2001). A list of each country's parties and their classification is shown in table 1. For instance, the last presidential election in France was on 6 May 2012 in which François Hollande from the Socialist Party was elected. Before that, Nicolas Sarkozy, from the Union for a Popular Movement, was elected President of the Republic in May 2007. In this case, ori_{France} would take the value of 0 (right-wing government) for the period 2007Q2–2012Q1 and 2 (left-wing government) for the remaining period (2012Q2–2013Q4). Note that centre-right governments, such as the Conservative and Unionist Party in the United Kingdom, were considered right-wing governments while centre-left governments, such as the Social Democratic Party in Germany, were counted as left-wing governments. Otherwise, there would not be enough variation as the majority of parties are neither right nor left wing. Figure 1 presents the ori_{it} variable.

Figure 1: Political Orientation of Sitting Governments 1990–2013



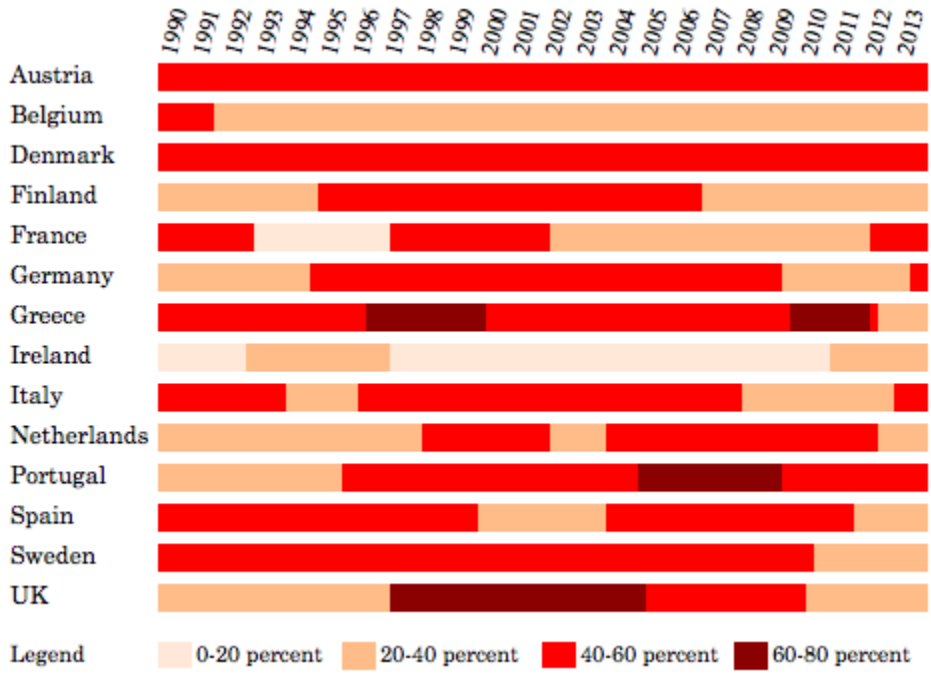
A look at figure 1 shows that there are variations of government ideologies both across countries and over time which should facilitate the identification of exogenous variations in government consumption. There is also a noticeable move toward right-wing governments since the last financial crisis.

The second instrument, $seat_{it}$, is the percentage of the seats in the parliament belonging to left-wing parties which might offer a more thorough representation of what the population wants and what the government can do. Consider the example of the United Kingdom. David Cameron (Conservative and Unionist Party) won the last election on May 6 2010, with 307 out of 650 seats in the House of Commons. Gordon Brown (Labour Party) and Nick Clegg (Liberal Democrat Party) won 258 seats and 57 seats, respectively. The remaining 28 seats were from minor parties and were not included in the computation. As only the Labour Party is considered left wing, 41% of seats were counted as left wing (258 out of 622) for the 2010Q2–2013Q4 period. In the case of France, the percentage of the seats was computed

from the National Assembly even though the country has a presidential system.

Figure 2 presents the $seat_{it}$ variable. Ireland stands out from the group with a significantly lower percentage of the seats held by left parties. The percentage of the seats held by members of left parties in the parliament seems stable over time and ranges from 30 to 35 percent.

Figure 2: Seats Held by Left-Wing Parties 1990–2013



Another factor to consider is that differences in government expenditure might be amplified in the case of a majority government or a presidential system. In both cases, the government has the power to pass legislation without having to constantly negotiate with other parties. Thus, the last instrument constructed, maj_{it}, is a dummy variable that distinguishes between minority governments versus majority governments or presidential systems. Note that France is the only country within the sample that has a presidential system. The variable is used in interaction with the variable ori_{it} allowing for a different slope according to the majority status. For instance, suppose that members of left-wing parties attach more im-

portance to state intervention than do right-wing parties. Leftist parties would be expected to spend more in a majority position, having more control over policy decisions than in a minority position. While the coefficient on the variable ori_{it} captures the average difference of government consumption between parties of the left, right, and centre, the coefficient on the interaction variable ($ori_{it}maj_{it}$) would capture the additional difference in government consumption when the party has the majority in the Parliament. Note that the requirement to form a majority government is different across countries. In Spain, for instance, 50% plus one seat is required in both the Congress and the Senate to form a majority government. In the case where a party holds the majority of seats in only one house, the variable maj_{it} would take the value of 0.5. The variable maj_{it} is depicted in figure 3.

Figure 3: Majority Status of Sitting Governments 1990–2013

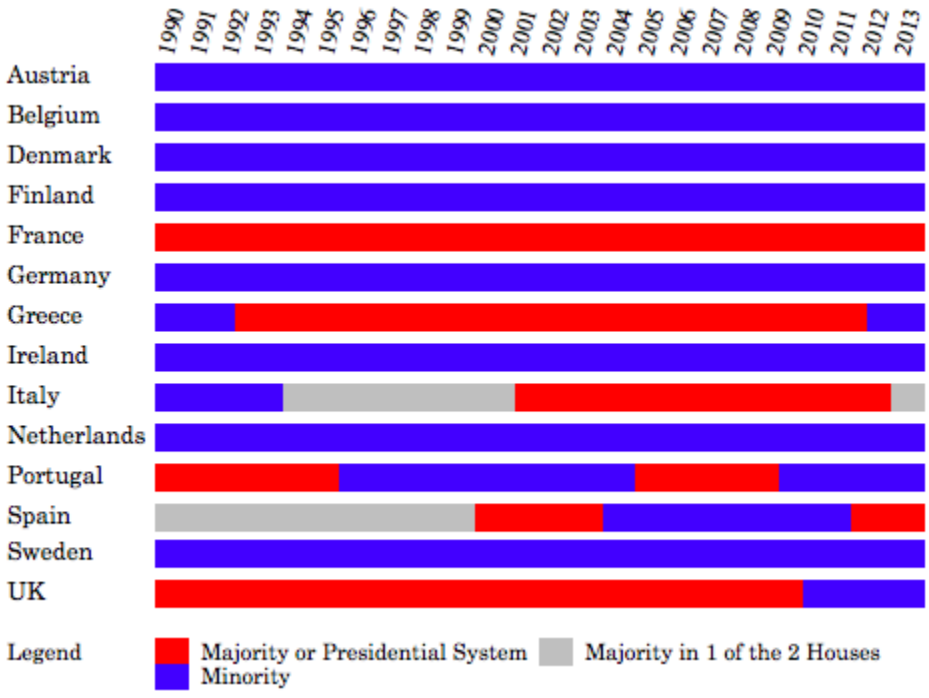


Figure 3 illustrates how European parties are more likely to form a minority government. When considering only the parliamentary systems, the average majority status is 0.25, that is, the European countries in the sample had a majority government 25% of the time for the

1990–2013 period. It is interesting to note that more than half of the countries did not have a majority government at any time in this period.

I also considered other political factors as instruments. First, as mentioned by Blais, Blake, and Dion, there might be some delay before seeing a significant difference in the actions of right-wing parties versus left-wing parties when a party comes to power. For instance, the party is likely to be dependent on policies followed by its predecessors or it might take time before recognizing the impact of new policies. Thus, a dummy variable indicating whether the party has remained in place for a significant amount of time was constructed and used in interaction with the variable *ori*. When the party has been in power for at least 5 years, the dummy variable takes the value of 1 until a new government is elected. Other cut-off points were tried, such as 4 years, but these did not change the results: in all model specifications, the variable was not statistically significant for government spending failing to meet the key requirement for the validity of the instrument. Second, in an attempt to take into consideration political business cycles, a dummy variable was constructed taking the value of 1 in the quarter preceding an election. If the coefficient were to be positive, this would provide evidence for the manipulation of policy instruments by governments right before elections to improve their public image. Again, this variable was statistically insignificant.

4.2 Statistical Model

Two different scenarios in which the political orientation of the government might influence the government expenditure are considered. The first scenario presented here analyzes whether the growth of government expenditure varies upon the left-right spectrum. The second investigates whether it is the fiscal policy responses to domestic business cycle that differ across the left-right spectrum.

4.2.1 Scenario I

Certainly other factors than government consumption influence short-run fluctuations in output growth. For instance, economic conditions worldwide tend to impact domestic output growth due to spillovers from trade and investment. Other examples include monetary policies and past fluctuations in output as a result of economic growth rate persistence. Whether it is done on a discretionary basis or naturally through built-in stabilisers, government consumption responds in turn to economic events. Thus both economic activity and government consumption are simultaneously determined. In order to control for the endogeneity of government consumption, a simultaneous equations model is employed. The structural equation for output is first described. Let $\dot{y}$ denote the growth rate of GDP, $\dot{g}$ the growth rate of government consumption, and x one or more exogenous variables. Equation (1) presents the general model for output growth for country i in period t:

$$\dot{y}_{it} = \theta_{yi} + \beta \dot{g}_{it} + \omega x_{it} + \epsilon_{yit}. \tag{1}$$

The parameter of interest, β, measures the impact of the growth in government consumption on GDP growth while the parameter (or possibly vector) ω captures the impact of the exogenous variable(s) on GDP growth. With the inclusion of fixed effects, the constant term θ_{yi} is allowed to vary across countries, thus controlling for time-invariant heterogeneity. However, note that the slope parameters are not allowed to vary across countries nor across time. Thus β represents an average effect of fiscal policies.

Let *pol* denote the exogenous political variables, *i.e.* $\{ori_{it}, seat_{it}, ori_{it}maj_{it}\}$. Equation (2) presents the general form of the structural equation for government consumption for country i in period t:

$$\dot{g}_{it} = \theta_{gi} + \alpha \dot{y}_{it} + \delta pol_{it} + \epsilon_{git}. \tag{2}$$

The parameter α estimates the reaction of government expenditure to the business cycle while the parameter (or possibly vector) δ estimates the impact of the exogenous political variable(s). Again, the intercept θ_{gi} can differ across countries.

One approach to estimate a simultaneous equation model is to solve for the reduced form equations. Equations (3) and (4) present the results:

$$\dot{y}_{it} = \frac{\theta_{yi} + \beta\theta_{gi}}{1-\alpha\beta} + \frac{\omega}{1-\alpha\beta} x_{it} + \frac{\delta\beta}{1-\alpha\beta} pol_{it} + \frac{\beta\epsilon_{git} + \epsilon_{yit}}{1-\alpha\beta} \tag{3}$$

$$\dot{g}_{it} = \frac{\theta_{gi} + \alpha\theta_{yi}}{1-\alpha\beta} + \frac{\alpha\omega}{1-\alpha\beta} x_{it} + \frac{\delta}{1-\alpha\beta} pol_{it} + \frac{\alpha\epsilon_{yit} + \epsilon_{git}}{1-\alpha\beta}. \tag{4}$$

As $\dot{y}$ and $\dot{g}$ are now functions of only exogenous variables, each equation of the reduced form system can be estimated validly using OLS.

As there is one endogenous regressor on the right hand side in equation (1), there must be at least one exogenous variable omitted from equation (1) and appearing in equation (2) to allow the identification of the original coefficients, θ_{yi}, β, ω, θ_{gi}, α, and δ from the 6 reduced-form coefficients. This is known as the order condition. The variable *pol* must also not be perfectly correlated with $\dot{y}$ in which case the identification of α and δ would not be possible.

Equivalently, equation (1) above can be estimated with instruments $z_{it} = \{x_{it}, pol_{it}\}$. For the instruments to be valid, the two standard requirements must hold. First, the instruments need to be weakly exogenous such that

$$Cov(z_{it}, \epsilon_{yit}) = 0.$$

Intuitively, this condition requires that a government's political ideologies are uncorrelated with the state of the economy. Otherwise, the instruments would be correlated with the error term from equation (1). There are numerous reasons why this could occur. One example is if every time there is a recession the population elects a left-wing government thus implying that political ideologies are a consequence of output growth. Alternatively, the exogeneity assumption would be rejected if favourable economic conditions increase the probability that the government calls an early election. The latter scenario was analyzed in a study by Alesina, Cohen, and Roubini (1993) who found that amongst the 14 OECD countries studied, this case of endogenous timing of elections was observed only in Japan. Fixed election dates, as in France and Norway, certainly reduce further this type of endogeneity problem.

Another type of endogeneity would arise if political ideology turns out to be a determinant of output growth. For example, consider the case where right-wing governments implement programs that are more growth-oriented than left-wing governments. This would mean that the exogenous political variables, *pol*, were in fact omitted from equation (1). Research on the impact of political factors on output growth has identified a few determinants of economic growth. Amongst those is political instability, which is shown to have a negative impact on economic growth through the decrease in investment and saving (Alesina *et al*, 1996). However, the role played by political ideology (if any) with regards to economic growth remains a little explored area. Using data on developed and developing countries, Bjornskov (2005) found that the political transmissions through which political ideology affects economic growth are mainly the size of the government and the quality of the legal system. The author demonstrates that while left-wing governments are associated with larger governments, right-wing governments establish stronger legal systems offering for instance greater protection of property rights. However, with a sample of advanced economies, it is hard to conceive that the quality of the legal system will vary across the political spectrum.

Second, the instruments need to be relevant so that

$$Cov(\dot{g}_{it}, pol_{it}) \neq 0.$$

This condition ensures that there must be a correlation between government expenditure and the government's political ideology. While the first condition is not directly testable, the second can easily be tested in the first-stage regression which is similar to equation (4) above and can be written as:

$$\dot{g}_{it} = \lambda_{gi} + \lambda_x x_{it} + \lambda_{pol} pol_{it} + \eta_{it}.$$

Thus, verifying whether λ_{pol} is non-zero ensures the relevance of the instruments because this implies a non-zero δ as shown by equation (4).

Table 2 presents the results of the first-stage regression. In the benchmark model (columns (1) and (2)), x_{it} is measured by $\dot{y}_{it-1}$. The parameter ω thus captures the persistence of a shock to GDP growth. In the augmented model (columns (3) and (4)), x_{it} is measured by $\dot{y}_{it-1}$ with the addition of $\dot{y}_{EUt}$, the aggregate GDP growth of the European Union member states. The latter serves as a proxy for the export market conditions as the core of the EU member states' trading partners are also members of the EU but also captures the world business cycles.

In all the model specifications, the coefficient on ori_{it} is statistically significant either at the 5% or 1% level of significance providing evidence for the relevance of the instrument. The coefficient is positive indicating that the growth of government consumption increases when the parties are left wing. The variables $seat$ and $ori \times maj$ are not individually statistically significant at conventional levels of significance. However, the null hypothesis that the three political variables are jointly insignificant can be rejected at the 1% level in favour of the alternative.

Table 3 presents the corresponding second-stage results. When $\dot{y}_{EUt}$ is omitted, the coefficient on government consumption growth is statistically significant at the 5% level and positive ranging from 0.698 to 0.740 depending on the instruments used. However, note that the coefficient estimates represent an elasticity rather than the traditional fiscal multiplier. As GDP figures are greater than government consumption figures, the coefficient estimates under-estimate the fiscal multiplier. The average ratio of government consumption to GDP can be used to convert the GDP series into the same units as the government consumption series, a requirement to obtain multipliers. This is done by multiplying the coefficient estimate, β, by the sample average of Y/G (4.72). Thus, the fiscal multiplier ranges from 3.29 to 3.49 across model specifications implying that a one euro increase in government consumption increases output by 3.29 to 3.49 euros.

The addition of $\dot{y}_{EUt}$ reduces the explanatory power of government consumption: the coefficients on $\dot{g}$ are statistically insignificant in columns (3) and (4). Further, when the aggregate GDP growth of the European Union member states is included, there seems to be a negative first-order serial correlation in GDP growth. Columns (3) and (4) also demonstrate countries' economic dependence on European trade: the coefficients on $\dot{y}_{EU}$ are statistically significant at the 1% level of significance and indicate that an increase in the growth rate of the EU-28 countries increases domestic growth by about 1.1%.

When $z_{it} = \{x_{it}, pol_{it}\}$ such as in columns (1) and (3), it is possible to use the Sargan test to evaluate the validity of the instruments, more precisely, whether the instruments are uncorrelated with the error term of equation (1). This is because the number of instruments is greater than the number of endogenous regressors. In both cases, the null that the overidentifying restrictions are valid is not rejected, with Sargan-Hansen statistics ranging from 2.43 to 2.98, providing evidence for the exogeneity of the instruments.

After visual inspection of each country's residuals, it is concluded that there is neither an observable pattern in the residuals over time nor the appearance of autocorrelation. Thus conventional standard errors are used.

In what follows, the same analysis is performed with the year-over-year growth rates of GDP and government consumption. Let g_{it} denote the government consumption at time t for country i. Let $\dot{g}_{it}$ now denote the growth rate of government consumption from period $t-4$ to period t. If in period t there is change of government's political orientation, the resulting variation in $\dot{g}$ would be expected to be initially very small in period t, less so in period $t+1$ and so on. To account for the new features of the data, the variables *ori*, *seat*, and $ori \times maj$ are transformed as their average of the past four quarters.

Table 4 presents the results of the first stage. The variable *ori* is statistically significant at the 1% level and positive indicating again that left parties are on average associated with faster government consumption. Now the *seat* variable is statistically significant as well and positive: as the percent of seats held by members of left-wing parties increases, the growth of government consumption increases. Thus variations in political ideologies do cause variations in the growth of government spending satisfying again the key requirement for the validity of the instruments. As before, the variable $ori \times maj$ is not statistically significant. The coefficients on $\dot{y}_{it-1}$ and $\dot{y}_{EUt}$ are now statistically significant in the first-stage regression. While high past growth increases current government consumption growth, the impact of current EU-wide growth on government consumption growth is negative.

Table 5 presents the results of the second stage. The autoregressiveness of GDP growth is larger and statistically significant, ranging from 0.55 to 0.87 across model specifications. The coefficients on $\dot{y}_{EUt}$ are again positive and statistically significant. But, strikingly, government consumption growth now seems to have no significant impact on output growth

in all model specifications.

4.2.2 Scenario II

The second scenario analyzes whether the fiscal policy responses to the domestic business cycle differ across the left-right spectrum. This is modelled by allowing the *slope* in the reaction function to vary across political ideologies. Again, let $\dot{y}$ denote the growth rate of GDP, $\dot{g}$ the growth rate of government consumption, x one or more exogenous variables and *pol* the exogenous political variables. Equations (5) and (6) present the general form of the model:

$$\begin{aligned} \dot{y}_{it} &= \theta_{yi} + \beta \dot{g}_{it} + \omega x_{it} + \epsilon_{yit} && (5) \\ \dot{g}_{it} &= \theta_{gi} + (\alpha + \delta pol_{it})\dot{y}_{it} + \epsilon_{git}. && (6) \end{aligned}$$

The parameter δ now measures whether the government consumption response to change in output growth differs with the political orientation of the government. If α and δ were to be of the same sign, this would demonstrate that government spending is more responsive to changes in output growth in presence of a left-wing government. This could indicate that left-wing governments implement on average more counter-cyclical fiscal policies. As before, the simultaneous equation model can be estimated using either the reduced form or instrumental variables where $\dot{g}_{it}$ is now instrumented by $z_{it} = \{x_{it}, x_{it}pol_{it}\}$. The first-stage regression can now be written as:

$$\dot{g}_{it} = \gamma_{gi} + \gamma_x x_{it} + \gamma_{pol} pol_{it} x_{it} + \mu_{it}.$$

Both measures of growth rate are again used sequentially.

Table 6 presents the results of the first stage. The hypothesis that it is the reaction

to domestic business cycle that differs between right-wing and left-wing governments seems clearly disconfirmed: the estimated coefficient on the interaction term is not statistically significant in all model specifications. In fact, none of the variation in the growth (from the previous quarter) of government consumption seems to be explained by the model.

Table 7 presents the results of the same model but with the year-to-year growth rates. The same transformations to the political variables as in the first scenario are applied. There is some evidence that left-wing parties respond more to past business cycles as shown by column (4). The second-stage results are not reported given the very weak instruments.

While weak evidence is found regarding a difference in the reaction of government consumption growth to recessions across the left-right spectrum, robust evidence is found regarding the assumption that the difference in growth rates of government spending stems partly from difference in political orientation. Contrary to what Blais, Blake, and Dion demonstrated, the difference in government consumption is not amplified in the case of majority governments. On the other hand, there is some evidence that the percentage of the seats held by left-wing parties is a determinant of government consumption. Overall, the impact of fiscal policy on economic activity is statistically significantly larger than zero with multipliers ranging from 3.29 (1.51) to 3.49 (1.59) across regressors.

4.3 Instrumental Variables versus Ordinary Least Squares

For comparison purposes, it is interesting to ignore the endogeneity of government consumption and to use OLS to estimate the benchmark model. Recall equation (1):

$$\dot{y}_{it} \quad = \quad \theta_{yi} + \beta \dot{g}_{it} + \omega x_{it} + \epsilon_{yit}.$$

Let $\hat{\beta}^{OLS}$ be the OLS estimate and let $\hat{\beta}^{IV}$ be the IV estimate with *pol* and x as instruments. As a first step, only $\dot{y}_{t-1}$ is included as a predetermined regressor. With this specification, $\hat{\beta}^{OLS}$ is found to be positive and statistically significant, but more interestingly, the IV coefficient is larger than the OLS coefficient (0.698 vs 0.137). The same result emerges with the inclusion of $\dot{y}_{EU}$ as an additional regressor (0.172 vs 0.129).

The direction and magnitude of the difference between the OLS coefficients and the IV coefficients is informative. This finding could potentially stem from a measurement error in the government consumption data. Thus, using instrumental variables would not only eliminate the simultaneous equation bias but also the measurement error bias, which would explain why the IV estimates are larger than their OLS counterparts. Alternatively, the simultaneity bias could bring $\hat{\beta}^{OLS}$ down if government consumption growth is negatively correlated with ϵ_{yit}.

Another possible, though worrisome, explanation is if the assumption that the political orientation of the government is correlated with GDP growth only through government consumption is mistaken. For instance, consider the case where left-wing governments implement on average policies with less distortive effects. Those differences could have in turn a positive impact on GDP growth which would feed into $\hat{\beta}^{IV}$.

4.4 Fiscal Multipliers and the State of the Economy

Since the last financial crisis, policymakers have relied heavily on the use of discretionary and non-discretionary fiscal policy in an attempt to stabilize the economy. In the Keynesian view, when resources are unutilized as a result of slack in the labour market, the crowding out following expansionary fiscal policies will be minimal. As such, the impact of fiscal policy is expected to be enhanced during recessions.

From the empirical point of view, very few studies have shed light on this question as noted by Parker (2011). Amongst these are the studies by Auerbach and Gorodnichenko (2012) and Ramey and Zubairy (2014). The former study finds that for the components of total spending that are also included in this essay, consumption, investment and non-defense spending, the multiplier ranges from 1.09 to 3.42 in recession compared to -0.25 to 3.02. However, the latter study estimates that there is no difference in the impact of fiscal policy according to the amount of slack in the economy.

In an attempt to evaluate the extent to which the impact of fiscal policy varies with the state of the economy, I divide the sample into episodes of high economic growth and those with low economic growth. First, each country's observations are sorted according to its time series average of past output growth. The sample is divided in two groups according to whether the economy's growth rate is above or below the average during the previous quarter. The basic specification is:

$$\begin{aligned} \dot{y}_{it} &= \theta_{yij} + \beta_j \dot{g}_{it} + \omega_j x_{it} + \epsilon_{yit} \\ z_{it} &= \{x_{it}, pol_{it}\} \end{aligned}$$

where

$$j = \begin{cases} 1 & \text{if } \dot{y}_{it-1} \leq \bar{\dot{y}}_i \\ 2 & \text{otherwise.} \end{cases}$$

The coefficient β_j represents the average response of the 14 European countries of output growth to government consumption growth and can differ across the two states. The intercept θ_{yij} and the coefficient ω_j on the exogenous variable, x_{it}, are also allowed to differ across states.

Table 8 presents the results. The exogenous variable, x_{it}, is measured by $\dot{y}_{it-1}$. Columns (1) and (2) present the results when $\dot{y}_{it-1}$ is above its time series mean $\bar{\dot{y}}_i$. In this case, the coefficients on $\dot{g}_{it}$ and the ones on $\dot{y}_{it-1}$ are statistically insignificant. On the other

hand, when $\dot{y}_{it-1}$ is below its time series mean $\bar{\dot{y}}_i$, such as during the 2008–2009 period, the coefficient on $\dot{g}_{it}$ is positive and statistically significant ranging from 0.61 to 0.62 across columns indicating a fiscal multiplier ranging between 2.88 and 2.93. This is somewhat smaller than the one identified for the whole period. This can be explained by the fact that although not significant, the fiscal multiplier in the high state is much larger. As for the coefficient on past growth, it is positive and significant indicating persistence.

For comparison purposes, it is also interesting to repeat the analysis using OLS and see if the same conclusions are drawn. The coefficients on government consumption growth are statistically significant at the 1% level and positive in both sub-samples ranging from 0.11 in the low state to 0.15 in the high state. The difference in the coefficients between the two states is not statistically significant. Thus, using the political instruments to control for endogeneity leads to a different conclusion in which β varies with the state of the economy.

Second, the sample is divided in two parts according to whether past output growth is above or below the cross-sectional average, $\bar{\dot{y}}_{t-1}$. The model is the following:

$$\begin{aligned}\dot{y}_{it} &= \theta_{yij} + \beta_j \dot{g_{it}} + \omega_j x_{it} + \epsilon_{yit} \\ z_{it} &= \{x_{it}, pol_{it}\}\end{aligned}$$

where

$$j = \begin{cases} 1 & \text{if } \dot{y}_{it-1} \leq \bar{\dot{y}}_{t-1} \\ 2 & \text{otherwise.} \end{cases}$$

Note that with this classification, some countries are over-represented in a given state for a period of time. For instance, before the financial crisis, Ireland's output growth was 63% of the time above the European average. As for after the financial crisis, Germany was 60% of the time above the European average while Spain and Italy were 80% and 60% of the time below the European average respectively.

Table 9 presents the results. Again, when past output growth is above average, government consumption does not appear to have an impact on output growth. On the other hand, an increase by 1% of government consumption growth increases current output growth by 0.47 to 0.53 percent depending on the instruments when past output growth is below average implying that the fiscal multiplier is between 2.20 and 2.5. When using the cross-sectional mean as the cut-off point, the point estimates of government consumption growth are somewhat smaller. This suggests that fiscal policies are likely to be more effective in times when a country is characterized by low domestic growth compared to its average value than to the European value.

The same analysis is again conducted with OLS. The coefficient estimate on $\dot{g}_{it}$ when domestic growth is above the European average is 0.097 and is now statistically significant. Again, this different finding shows the impact of instrumenting with the political variables. However, this is a smaller value than the lower bound of the 95% confidence interval of the coefficient estimate when domestic growth is below the European average. Thus the difference in the impact of government consumption between the two states is statistically significant.

Overall, then, the conclusion that the impact of fiscal policy is enhanced when economic conditions are less favourable is robust to changes in the model specification. The 'Keynesian multiplier' extends between 2.20 and 2.93 across model specifications when the economy operates at a rate below average which is consistent with the results of Auerbach and Gorodnichenko (2012). As for when the economy operates at a rate above average, the confidence interval for the coefficient on $\dot{g}_{it}$ is wider and includes both positive and negative values which is also in line with what Auerbach and Gorodnichenko found for the US.

4.5 Fiscal Multipliers and Financial Fragility

One might expect that the fiscal multiplier will be smaller during episodes of high public debt. Under those circumstances, stimulus programs are likely to be followed by (possibly drastic) austerity measures in the future. Thus, the data is now sorted based on the value of the debt-to-GDP ratio. The measure of debt employed is the general government gross debt at an annual frequency reported by the IMF. The observations are grouped in two categories according to whether they are above or below the cross-sectional mean. Countries like Finland, Sweden, and the United Kingdom will be mainly in the category 'low debt' while countries like Greece, Italy and Belgium will be in the 'high debt' category. The y-equation becomes:

$$\dot{y}_{it} = \theta_{yij} + \beta_j \dot{g_{it}} + \omega_j x_{it} + \epsilon_{yit}$$

where

$$j = \begin{cases} 1 & \text{if } debt_{it} \leq \overline{debt}_t \\ 2 & \text{otherwise.} \end{cases}$$

Table 10 shows results. Depending on the instruments used, the estimated impact of government consumption growth is positive and statistically significant at the 10% level of significance when the debt-to-GDP ratio is below the cross-sectional mean. Using the same method to convert elasticities to multipliers, those range between 2.76 and 3.34. In episodes of high-debt, the impact of government consumption growth is still positive but smaller and statistically insignificant regardless of the instruments used (columns (3) and (4)). The coefficient on past output growth is again statistically significant and positive in all model specifications.

One drawback with using the average of the debt-to-GDP ratio as the cut-off point for financial fragility is that there are twice as many observations below the average than above.

This could explain why the coefficients on $\dot{g}$ are statistically significant only when *debt* is below the cross-sectional average. Hence, the same analysis was performed with the median as the cut-off point (not shown) and the same results were found.

Similar conclusions are drawn using OLS: the coefficient on $\dot{g}$ is positive and statistically significant when the debt-to-GDP ratio is below its cross-sectional average value but statistically insignificant when above.

4.6 Controlling for Monetary Policy

In the previous sections, past output growth and EU-wide business cycles have been the only exogenous factors assumed to influence contemporaneous output growth. In this section, the model is augmented to control for an indicator of monetary policy.

In an attempt to analyze the effect of monetary policy on output, a large part of the literature has relied on VAR models to estimate the impact of identified monetary policy shocks. One common finding is that while monetary policy is highly dependent on the state of the economy, it explains only a small fraction of the overall movement of the price and output series (see *e.g.* Uhlig 2005 or Leeper *et al* 1996).

The proxy used in this study for monetary policy is the policy interest rate set by central banks reported by the OECD. Certainly, other measures, including the expectation of the policy rate or the term spread, could have been employed as a proxy for monetary authorities' actions. To take into account the joint endogeneity of monetary policy and output growth, the interest rate variable *int* is lagged by one period. The model thus becomes:

$$\dot{y}_{it} = \theta_{yi} + \beta \dot{g}_{it} + \omega x_{it} + \epsilon_{yit}$$

where

$$x_{it} = \{\dot{y}_{it-1}, int_{it-1}\}.$$

Table 11 reports the results. Each set of exogenous regressors is estimated first with the full set of political instruments and then with the only political instrument individually significant, *ori*.

Last period's monetary policy does not seem to affect current output growth as shown by the coefficients on *int*: those are statistically insignificant regardless of the choice of instruments. As for the ones on government consumption growth, they appear to be sensitive to changes in model specification. When the political orientation is the only political variable used as an instrument, the effect of fiscal policy is larger in its impact than when the three political variables *ori*, *seat*, and $ori \times maj$ are included (1.110 vs 0.664) once monetary policy is controlled for. On the other hand, past output growth continues to be significant at the 1% level and its coefficient is still around 0.25 with the inclusion of the policy rate.

As a second attempt to evaluate the impact of monetary policy on output growth, the change in the last period's overnight rate is included instead, measured by the first difference of the overnight rate series. The exogenous variables influencing output growth are now $x_{it} = \{\dot{y}_{it-1}, \Delta int_{it-1}\}$.

Table 12 presents the results. Although it is generally agreed that higher interest rates would contribute to slower output growth, the coefficients on the lagged change in the overnight rate are positive and statistically significant at the 1% level. This suggests that 'expansionary' monetary policy has just the opposite effect on output growth than the one predicted by economic theory, or that I have not identified a policy shock. Alternatively, this positive correlation could reflect a forward-looking interest rate rule according to which the nominal interest rate should be raised in response to a rise in expected output. Changes in

the policy rate might have a negative impact on output growth only several quarters after, which is why VAR models might be a more appropriate tool to assess the effects of monetary policy shocks.

After the inclusion of the new monetary policy indicator, the impact of fiscal policy now remains similar. On the other hand, the coefficients on past output growth decrease by around 1.5 standard errors. A possibility is that ω, the coefficient on past output growth, may capture the impact of last period's monetary policy when the latter is omitted.

In sum, given that the coordination of the monetary policy was implemented in 1994 and that only three countries in the dataset are not members of the Eurozone, there is little cross-sectional variation in monetary policy throughout much of the period making it harder to identify the effect of discretionary monetary policy. Further, as mentioned above, using a variable such as the overnight rate to represent the stance of the monetary policy might be dependent on other influences than changes in policy and as such does not represent a policy shock.

4.7 Further Discussion

Recall equation (1):

$$\dot{y}_{it} = \theta_{yi} + \beta \dot{g}_{it} + \omega x_{it} + \epsilon_{yit}.$$

As mentioned previously, the coefficient β represents an elasticity rather than the traditional fiscal multiplier. In order to convert government consumption growth and output growth in the same units, β was multiplied by the sample average of Y/G. However, Ramey and Zubairy (2014) pointed out that using sample averages can create a bias in the compu-

tation of fiscal multipliers by giving the same weight to each observation.

One solution suggested (see *e.g* Barro and Redlick (2011)) is to transform the variable $\dot{g_{it}}$ into the same units as $\dot{y_{it}}$ before estimation, *i.e.* to rewrite the $\dot{g_{it}}$ variable as:

$$\dot{g_{it}} \times \frac{G_{it}}{Y_{it}} = \frac{\Delta G_{it}}{G_{it}} \times \frac{G_{it}}{Y_{it}}$$

which considers each observation of G/Y rather than the sample average.

This procedure was performed and the fiscal multiplier remained very similar differing by only 0.1 in average. The standard errors remained similar as well. Thus, only the original multipliers were reported.

5 Conclusion

The financial crisis has sparked new interest in the impact of both fiscal stimulus and fiscal consolidation on economic activity. As Olivier Blanchard put it (AEA, 2014), a question that was controversial for a number of years is now settled: fiscal multipliers were surprisingly large during the financial crisis. How large is another story. Numerous studies have adressed this question and drawn different conclusions depending on the identification scheme chosen or the period considered. Using quarterly data on a selected group of European countries for the 1990–2013 period, this essay contributes to the fiscal policy discussion by making use of a novel set of instruments to assess its effectiveness.

The hypothesis that the state of the economy matters for the effectiveness of fiscal policy is largely confirmed. A positive and statistically significant multiplier is found only when the economy operates at a rate below average both for the country's specific average or the

European average. This finding reinforces the view that counter-cyclical fiscal policies might help stabilizing the economy.

The estimated average fiscal multiplier is also shown to vary according to the level of debt. In particular, in episodes of high debt relative to the European average, there is no statistically significant impact of government consumption growth on output growth. As was mentioned by the IMF (October 2013), the debt-to-GDP ratio for the advanced economies as a whole is expected to remain at a high level for at least a decade. This evidence suggests that the impact of fiscal policy changes might be small in the future.

6 Appendix

Data Sources

Elections Data
The construction of the three instruments is computed from the *Parties and Elections in Europe* database. Retrieved from `http://www.parties-and-elections.eu/index.html`

GDP Data
OECD. (2014). Quarterly National Accounts.
Retrieved from `http://stats.oecd.org/index.aspx?queryid=350`

Government Consumption Data
OECD. (2014). Quarterly National Accounts.
Retrieved from `http://stats.oecd.org/index.aspx?queryid=350`

Debt Data
International Monetary Fund. (2014) World Economic Outlook Database April 2014.
Retrieved from `http://www.imf.org/external/pubs/ft/weo/2014/01/weodata/index.aspx`

Overnight Rate Data
OECD. (2014). Monthly Monetary and Financial Statistics (MEI).
Retrieved from `http://stats.oecd.org/index.aspx?querytype=view&queryname=86`

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Table 1: Political Parties 1990-2013

Party	Orientation	Date
Austria		
Social Democratic Party	Left	September 2006 to December 2013
People's Party	Right	November 2002 to August 2006
Social Democratic Party	Left	January 1990 to October 2002
Belgium		
New Flemish Alliance	Right	June 2010 to December 2013
Christian Democratic and Flemish	Right	June 2007 to May 2010
Open Flemish Liberals and Democrats	Right	July 1999 to May 2007
Christian People's Party	Right	January 1990 to June 1999
Denmark		
Venstre	Right	November 2001 to December 2013
Social Democratic Party	Left	January 1990 to October 2001
Schluter's Coalition	Right	December 1990 to August 1994
Social Democratic Party	Left	January 1990 to November 1990
Finland		
National Coalition	Right	April 2011 to December 2013
Centre	Centre	March 2003 to March 2011
Social Democratic Party	Left	March 1995 to February 2003
Centre	Centre	March 1991 to February 1995
Social Democratic Party	Left	January 1990 to February 1991
France		
Socialist Party	Left	May 2012 to December 2013
Union for a Popular Movement	Right	May 2007 to April 2012
Rally for the Republic	Right	May 1995 to April 2007
Socialist Party	Left	January 1990 to April 1994

Party	Orientation	Date
Germany		
Christian Democratic Union	Right	September 2005 to December 2013
Social Democratic Party	Left	September 1998 to August 2005
Christian Democratic Union	Right	January 1990 to August 1998
Greece		
New Democracy	Right	May 2012 to December 2013
Panhellenic Socialist Movement	Left	October 2009 to April 2012
New Democracy	Right	March 2004 to September 2009
Panhellenic Socialist Movement	Left	October 1993 to February 2004
New Democracy	Right	January 1990 to September 1993
Ireland		
Fine Gael	Right	February 2011 to December 2013
Fianna Fail	Right	May 2002 to January 2011
Rainbow Coalition	Centre	June 1997 to April 2002
Fianna Fail	Right	January 1990 to May 1997
Italy		
Democratic Party	Left	February 2013 to December 2013
The People of Freedom	Right	April 2008 to January 2013
The Olive Tree	Left	April 2006 to March 2008
House of Freedoms	Right	May 2001 to March 2006
The Olive Tree	Left	April 1996 to April 2001
Pole of Freedoms	Right	March 1994 to March 1996
Christian Democracy	Centre	January 1990 to February 1994
Netherlands		
People's Party for Freedom and Democracy	Right	June 2010 to December 2013
Christian Democratic Appeal	Right	May 2002 to May 2010
Labour Party	Left	May 1994 to April 2002
Christian Democratic Appeal	Right	January 1990 to April 1994

Party	Orientation	Date
Portugal		
Social Democratic	Right	June 2011 to December 2013
Socialist	Left	February 2005 to May 2011
Social Democratic	Right	March 2002 to January 2005
Socialist	Left	October 1995 to February 2002
Social Democratic	Right	January 1990 to September 1995
Spain		
People's Party	Right	November 2011 to December 2013
Spanish Socialist Worker's Party	Left	March 2004 to October 2011
People's Party	Right	March 1996 to February 2004
Spanish Socialist Worker's Party	Left	January 1990 to February 1996
Sweden		
Centre-Right Coalition	Right	September 2010 to December 2013
Social Democratic Party	Left	September 1994 to August 2010
Centre-Right Coalition	Right	September 1991 to August 1994
Social Democratic Party	Left	January 1990 to August 1991
United Kingdom		
Conservative	Right	May 2010 to December 2013
Labour	Left	May 1997 to April 2010
Conservative	Right	January 1990 to April 1997

Table 2: First Stage – Scenario I

Quarter-to-Quarter Growth

$$\dot{g}_{it} = \lambda_{gi} + \lambda_x x_{it} + \lambda_{pol} pol_{it} + \eta_{it}$$

$\dot{y}_{it-1}$	0.0382	0.0382	0.0411	0.0407
	(0.030)	(0.030)	(0.039)	(0.039)
ori_{it}	0.101**	0.114***	0.0934**	0.105***
	(0.042)	(0.034)	(0.046)	(0.039)
$seat_{it}$	0.00505		0.00518	
	(0.006)		(0.007)	
$ori_{it} maj_{it}$	-0.00929		-0.0164	
	(0.073)		(0.090)	
$\dot{y}_{EUt}$			0.0233	0.0254
			(0.060)	(0.060)
Constant	0.122	0.265***	0.120	0.272***
	(0.179)	(0.045)	(0.217)	(0.051)
Observations	1104	1104	948	948
R^2	0.013	0.013	0.012	0.012

Notes: Country fixed effects are always included. $\dot{y}$ is the growth rate of GDP, $\dot{g}$ the growth rate of government expenditure, $\dot{y}_{EU}$ the aggregate growth rate of GDP for the EU member states, and *pol* the exogenous political variables (*ori*, *seat*, and $ori \times maj$). Growth rates are defined as the growth rate from the previous quarter. Conventional standard errors are in parentheses. * denotes a p-value less than 0.10, ** less than 0.05, and *** less than 0.01.

Table 3: Second Stage – Scenario I

Quarter-to-Quarter Growth

$$\dot{y}_{it} = \theta_{yi} + \beta \dot{g}_{it} + \omega x_{it} + \epsilon_{yit}$$
$$z_{it} = \{x_{it}, pol_{it}\}$$

	$z_{it} = \{\dot{y}_{it-1}, pol_{it}\}$	$z_{it} = \{\dot{y}_{it-1}, ori_{it}\}$	$z_{it} = \{\dot{y}_{it-1}, \dot{y}_{EUt}, pol_{it}\}$	$z_{it} = \{\dot{y}_{it-1}, \dot{y}_{EUt}, ori_{it}\}$
$\dot{g}_{it}$	0.698**	0.740**	0.172	0.253
	(0.320)	(0.337)	(0.256)	(0.269)
$\dot{y}_{it-1}$	0.231***	0.229***	-0.114***	-0.118***
	(0.037)	(0.038)	(0.030)	(0.031)
$\dot{y}_{EUt}$			1.098***	1.095***
			(0.044)	(0.045)
Constant	0.0448	0.0290	-0.0400	-0.0700
	(0.125)	(0.131)	(0.098)	(0.102)
Observations	1104	1104	948	948

Notes: Country fixed effects are always included. $\dot{y}$ is the growth rate of GDP, $\dot{g}$ the growth rate of government expenditure, $\dot{y}_{EU}$ the aggregate growth rate of GDP for the EU member states, and *pol* the exogenous political variables (*ori*, *seat*, and $ori \times maj$). Growth rates are defined as the growth rate from the previous quarter. Conventional standard errors are in parentheses. * denotes a p-value less than 0.10, ** less than 0.05, and *** less than 0.01.

Table 4: First Stage – Scenario I

Four-Quarter Growth

$$\dot{g}_{it} = \lambda_{gi} + \lambda_x x_{it} + \lambda_{pol} pol_{it} + \eta_{it}$$

$\dot{y}_{it-1}$	0.257***	0.254***	0.538***	0.536***
	(0.026)	(0.026)	(0.045)	(0.045)
ori_{it}	0.239**	0.370***	0.227**	0.340***
	(0.099)	(0.081)	(0.104)	(0.090)
$seat_{it}$	0.0325**		0.0478***	
	(0.014)		(0.018)	
$ori_{it} maj_{it}$	0.0864		-0.0994	
	(0.173)		(0.214)	
$\dot{y}_{EUt}$			-0.414***	-0.412***
			(0.055)	(0.056)
Constant	0.00211	0.888***	-0.217	1.148***
	(0.400)	(0.103)	(0.524)	(0.114)
Observations	1008	1008	840	840
R^2	0.124	0.117	0.189	0.181

Notes: Country fixed effects are always included. $\dot{y}$ is the growth rate of GDP, $\dot{g}$ the growth rate of government expenditure, $\dot{y}_{EU}$ the aggregate growth rate of GDP for the EU member states, and *pol* the exogenous political variables (*ori*, *seat*, and $ori \times maj$). Growth rates are defined as the growth rate from the same quarter in the previous year. Conventional standard errors are in parentheses. * denotes a p-value less than 0.10, ** less than 0.05, and *** less than 0.01.

Table 5: Second Stage – Scenario I

Four-Quarter Growth

$$\dot{y}_{it} = \theta_{yi} + \beta \dot{g}_{it} + \omega x_{it} + \epsilon_{yit}$$
$$z_{it} = \{x_{it}, pol_{it}\}$$

	$z_{it} = \{\dot{y}_{it-1}, pol_{it}\}$	$z_{it} = \{\dot{y}_{it-1}, ori_{it}\}$	$z_{it} = \{\dot{y}_{it-1}, \dot{y}_{EUt}, pol_{it}\}$	$z_{it} = \{\dot{y}_{it-1}, \dot{y}_{EUt}, ori_{it}\}$
$\dot{g}_{it}$	-0.00403	0.0575	-0.106	-0.0323
	(0.109)	(0.128)	(0.114)	(0.136)
$\dot{y}_{it-1}$	0.871***	0.854***	0.592***	0.552***
	(0.034)	(0.038)	(0.067)	(0.078)
$\dot{y}_{EUt}$			0.497***	0.527***
			(0.055)	(0.062)
Constant	0.200	0.126	0.0244	-0.0805
	(0.139)	(0.161)	(0.169)	(0.198)
Observations	1008	1008	840	840

Notes: Country fixed effects are always included. $\dot{y}$ is the growth rate of GDP, $\dot{g}$ the growth rate of government expenditure, $\dot{y}_{EU}$ the aggregate growth rate of GDP for the EU member states, and *pol* the exogenous political variables (*ori*, *seat*, and $ori \times maj$). Growth rates are defined as the growth rate from the same quarter in the previous year. Conventional standard errors are in parentheses. * denotes a p-value less than 0.10, ** less than 0.05, and *** less than 0.01.

Table 6: First Stage - Scenario II

Quarter-to-Quarter Growth

$$\dot{g}_{it} = \gamma_{gi} + \gamma_x x_{it} + \gamma_{pol} pol_{it} x_{it} + \mu_{it}$$

$\dot{y}_{it-1}$	0.0350	0.0358	0.0313	0.0308
	(0.042)	(0.042)	(0.060)	(0.060)
$\dot{y}_{it-1} ori_{it}$	0.0175	0.0141	0.000908	0.00738
	(0.034)	(0.031)	(0.051)	(0.049)
$\dot{y}_{it-1} ori_{it} maj_{it}$	-0.0172		0.0374	
	(0.061)		(0.115)	
$\dot{y}_{EUt}$			0.0654	0.0664
			(0.095)	(0.094)
$\dot{y}_{EUt} ori_{it}$			0.0139	-0.00712
			(0.073)	(0.067)
$\dot{y}_{EUt} ori_{it} maj_{it}$			-0.0855	
			(0.129)	
Constant	0.374***	0.374***	0.361***	0.363***
	(0.031)	(0.031)	(0.038)	(0.037)
Observations	1104	1104	939	939
R^2	0.003	0.003	0.005	0.005

Notes: Country fixed effects are always included. $\dot{y}$ is the growth rate of GDP, $\dot{g}$ the growth rate of government expenditure, $\dot{y}_{EU}$ the aggregate growth rate of GDP for the EU member states, and *pol* the exogenous political variables (*ori*, *seat*, and $ori \times maj$). Growth rates are defined as the growth rate from the previous quarter. Conventional standard errors are in parentheses. * denotes a p-value less than 0.10, ** less than 0.05, and *** less than 0.01.

Table 7: First Stage - Scenario II

Four-Quarter Growth

$$\dot{g}_{it} = \gamma_{gi} + \gamma_x x_{it} + \gamma_{pol} pol_{it} x_{it} + \mu_{it}$$

$\dot{y}_{it-1}$	0.265***	0.264***	0.423***	0.421***
	(0.035)	(0.035)	(0.044)	(0.044)
$\dot{y}_{it-1} ori_{it}$	0.00939	0.0147	0.0290	0.0562
	(0.025)	(0.028)	(0.053)	(0.046)
$\dot{y}_{it-1} ori_{it} maj_{it}$		-0.0203	0.0793	
		(0.045)	(0.093)	
$\dot{y}_{EUt}$			-0.710***	-0.700***
			(0.156)	(0.155)
$\dot{y}_{EUt} ori_{it}$			-0.0482	-0.0936*
			(0.060)	(0.049)
$\dot{y}_{EUt} ori_{it} maj_{it}$			-0.131	
			(0.100)	
Constant	1.198***	1.197***	1.317***	1.325***
	(0.079)	(0.079)	(0.088)	(0.088)
Observations	1008	1008	832	832
R^2	0.099	0.099	0.153	0.151

Notes: Country fixed effects are always included. $\dot{y}$ is the growth rate of GDP, $\dot{g}$ the growth rate of government expenditure, $\dot{y}_{EU}$ the aggregate growth rate of GDP for the EU member states, and *pol* the exogenous political variables (*ori*, *seat*, and $ori \times maj$). Growth rates are defined as the growth rate from the same quarter in the previous year. Conventional standard errors are in parentheses. * denotes a p-value less than 0.10, ** less than 0.05, and *** less than 0.01.

Table 8: Fiscal Multipliers and the State of the Economy

Quarter-to-Quarter Growth

$$\dot{y}_{it} = \theta_{yij} + \beta_j \dot{g}_{it} + \omega_j x_{it} + \epsilon_{yit}$$
$$z_{it} = \{x_{it}, pol_{it}\}$$

	$\dot{y}_{it-1}$ above time series mean		$\dot{y}_{it-1}$ below time series mean	
	$z_{it} = \{\dot{y}_{it-1}, pol_{it}\}$	$z_{it} = \{\dot{y}_{it-1}, ori_{it}\}$	$z_{it} = \{\dot{y}_{it-1}, pol_{it}\}$	$z_{it} = \{\dot{y}_{it-1}, ori_{it}\}$
$\dot{g}_{it}$	0.693	1.649	0.606**	0.622**
	(0.794)	(1.760)	(0.303)	(0.305)
$\dot{y}_{it-1}$	-0.0858	-0.0562	0.553***	0.552***
	(0.076)	(0.137)	(0.067)	(0.067)
Constant	0.398	-0.0532	0.134	0.128
	(0.383)	(0.842)	(0.118)	(0.119)
Observations	597	597	507	507

Notes: Country fixed effects are always included. $\dot{y}$ is the growth rate of GDP, $\dot{g}$ the growth rate of government expenditure, and *pol* the exogenous political variables (*ori*, *seat*, and $ori \times maj$). Growth rates are defined as the growth rate from the previous quarter. The data is sorted by the country's specific average of lagged output growth. Conventional standard errors are in parentheses. * denotes a p-value less than 0.10, ** less than 0.05, and *** less than 0.01.

Table 9: Fiscal Multipliers and the State of the Economy

Quarter-to-Quarter Growth

$$\dot{y}_{it} = \theta_{yij} + \beta_j \dot{g}_{it} + \omega_j x_{it} + \epsilon_{yit}$$
$$z_{it} = \{x_{it}, pol_{it}\}$$

	$\dot{y}_{it-1}$ above cross-sectional mean		$\dot{y}_{it-1}$ below cross-sectional mean	
	$z_{it} = \{\dot{y}_{it-1}, pol_{it}\}$	$z_{it} = \{\dot{y}_{it-1}, ori_{it}\}$	$z_{it} = \{\dot{y}_{it-1}, pol_{it}\}$	$z_{it} = \{\dot{y}_{it-1}, ori_{it}\}$
$\dot{g}_{it}$	0.559	0.719	0.534**	0.467*
	(0.773)	(0.928)	(0.251)	(0.261)
$\dot{y}_{it-1}$	0.414***	0.414***	0.571***	0.574***
	(0.051)	(0.055)	(0.053)	(0.051)
Constant	-0.232	-0.306	0.278***	0.300***
	(0.363)	(0.434)	(0.091)	(0.094)
Observations	542	542	562	562

Notes: Country fixed effects are always included. $\dot{y}$ is the growth rate of GDP, $\dot{g}$ the growth rate of government expenditure, and *pol* the exogenous political variables (*ori*, *seat*, and $ori \times maj$). Growth rates are defined as the growth rate from the previous quarter. The data is sorted by the cross-sectional average of lagged output growth. Conventional standard errors are in parentheses. * denotes a p-value less than 0.10, ** less than 0.05, and *** less than 0.01.

Table 10: Fiscal Multipliers and Financial Fragility

Quarter-to-Quarter Growth

$$\dot{y}_{it} = \theta_{yij} + \beta_j \dot{g}_{it} + \omega_j x_{it} + \epsilon_{yit}$$
$$z_{it} = \{x_{it}, pol_{it}\}$$

	$debt_{it}$ below cross-sectional mean		$debt_{it}$ above cross-sectional mean	
	$z_{it} = \{\dot{y}_{it-1}, pol_{it}\}$	$z_{it} = \{\dot{y}_{it-1}, ori_{it}\}$	$z_{it} = \{\dot{y}_{it-1}, pol_{it}\}$	$z_{it} = \{\dot{y}_{it-1}, ori_{it}\}$
$\dot{g}_{it}$	0.584*	0.708*	0.365	0.559
	(0.331)	(0.378)	(0.304)	(0.748)
$\dot{y}_{it-1}$	0.232***	0.229***	0.287***	0.286***
	(0.039)	(0.041)	(0.058)	(0.063)
Constant	0.0906	0.0325	0.122	0.0794
	(0.160)	(0.182)	(0.082)	(0.172)
Observations	726	726	357	357

Notes: Country fixed effects are always included. $\dot{y}$ is the growth rate of GDP, $\dot{g}$ the growth rate of government expenditure, *pol* the exogenous political variables (*ori*, *seat*, and $ori \times maj$), and *debt* the ratio of debt to GDP. Growth rates are defined as the growth rate from the previous quarter. The data is sorted by the cross-sectional average of the debt-to-GDP ratio. Conventional standard errors are in parentheses. * denotes a p-value less than 0.10, ** less than 0.05, and *** less than 0.01.

Table 11: Controlling for Monetary Policy

Quarter-to-Quarter Growth

$$\dot{y}_{it} = \theta_{yi} + \beta \dot{g}_{it} + \omega x_{it} + \epsilon_{yit}$$
$$z_{it} = \{x_{it}, pol_{it}\}$$

	$z_{it} = \{\dot{y}_{it-1}, int_{it-1}, pol_{it}\}$	$z_{it} = \{\dot{y}_{it-1}, int_{it-1}, ori_{it}\}$
$\dot{g}_{it}$	0.664*	1.110*
	(0.402)	(0.633)
$\dot{y}_{it-1}$	0.255***	0.245***
	(0.037)	(0.047)
int_{it-1}	-0.0410	-0.0770
	(0.037)	(0.055)
Constant	0.187**	0.125
	(0.082)	(0.115)
Observations	991	991

Notes: Country fixed effects are always included. $\dot{y}$ is the growth rate of GDP, $\dot{g}$ the growth rate of government expenditure, *int* the policy interest rate, and *pol* the exogenous political variables (*ori*, *seat*, and $ori \times maj$). Growth rates are defined as the growth rate from the previous quarter. Conventional standard errors are in parentheses. * denotes a p-value less than 0.10, ** less than 0.05, and *** less than 0.01.

Table 12: Controlling for Monetary Policy Changes

Quarter-to-Quarter Growth

$$\dot{y}_{it} = \theta_{yi} + \beta \dot{g}_{it} + \omega x_{it} + \epsilon_{yit}$$
$$z_{it} = \{x_{it}, pol_{it}\}$$

	$z_{it} = \{\dot{y}_{it-1}, \Delta int_{it-1}, pol_{it}\}$	$z_{it} = \{\dot{y}_{it-1}, \Delta int_{it-1}, ori_{it}\}$
$\dot{g}_{it}$	0.729**	0.779**
	(0.361)	(0.390)
$\dot{y}_{it-1}$	0.175***	0.173***
	(0.041)	(0.043)
Δint_{it-1}	0.319***	0.316***
	(0.083)	(0.086)
Constant	0.0989	0.0798
	(0.143)	(0.154)
Observations	983	983

Notes: Country fixed effects are always included. $\dot{y}$ is the growth rate of GDP, $\dot{g}$ the growth rate of government expenditure, Δint the change in the policy interest rate, and *pol* the exogenous political variables (*ori*, *seat*, and $ori \times maj$). Growth rates are defined as the growth rate from the previous quarter. Conventional standard errors are in parentheses. * denotes a p-value less than 0.10, ** less than 0.05, and *** less than 0.01.