



Full text document (pdf)

Citation for published version

Linda Gonçalves Veiga, Voting functions in the EU-15, *Public Choice*, Volume 157, Issue 3-4, December 2013, Pages 411-428.

DOI

<https://doi.org/10.1007/s11127-013-0113-7>

Link to record in RepositóriUM

<https://repositorium.sdum.uminho.pt>

Document Version

Author's Accepted Manuscript



Universidade do Minho
Escola de Economia e Gestão

NIPE

Centre for Research
in Economics and
Management

Voting functions in the EU-15

Linda Gonçalves Veiga

Núcleo de Investigação em Políticas Económicas
Universidade do Minho
P-4710-057 Braga – Portugal
Tel.: +351-253-604568
Fax: +351-253-676375
E-mail: linda@eeg.uminho.pt

Abstract:

This paper examines whether the European integration process, by transferring policy instruments to supra-national authorities, has affected voters' evaluations of governments' economic performance at elections. The analysis is implemented on a panel of 15 EU countries, from 1970 to 2011. Results suggest that before the Maastricht Treaty, citizens held incumbents responsible for GDP growth and for the evolution of inflation, particularly when measured relative to the EU average. After the Maastricht Treaty, there was a significant reduction in the impact of economic variables, especially inflation, on electoral outcomes. During the current economic crisis the capacity to control the budget deficit appears to be the main determinant of incumbents' vote shares.

Keywords: Vote functions, EU-15, economics, deficits.

JEL codes: H6, D72, E6, F02

(August 2013)

1. Introduction

An important question in political economy is how economic events affect voting behavior. Although there is a vast literature on the topic,¹ there still is a lively debate on how, and under what circumstances, economic performance has a greater effect on electoral results. The present paper intends to contribute to this literature by investigating whether and why the European integration process has conditioned citizens' assessments of political responsibility for economic outcomes. To the best of our knowledge, this topic has never been investigated.

Using election and economic data for 13 Western European countries from 1960 to 1997, Chappell and Veiga (2000) assessed the relative performance of vote functions motivated by alternative economic paradigms, taking into account variations in the extent to which incumbent parties are held accountable for economic outcomes. Building on their work, the present paper focuses on the institutional changes that occurred in European countries in order to create the monetary union. It investigates the economic indicators that have had the most influence on election outcomes using an enlarged and updated sample comprising the first 15 countries joining the European Union, and covering the period from 1970 to 2011. Did the European integration process change the way voters hold the government responsible for the behavior of different economic variables? Do voters' evaluations take into account deviations from the average performance of the EU? Is the budget deficit more relevant after the Maastricht Treaty than before? Did the current sovereign debt crisis have an impact on voters' judgments? Does the electorate of countries currently receiving international financial assistance behave differently from that of the other countries? As far as we know, these questions remain unanswered in the literature. Furthermore, the current sovereign debt crisis that several European countries are facing, and the inability of European leaders to overcome it, renders the discussion of voters' fiscal conservatism (Peltzman 1992) particularly important.

Three explanations for a possible change in voters' attitudes are discussed, and evaluated empirically: (1) the transfer of policy instruments to supranational entities that restricted the abilities of national governments to influence their own economies; (2) better knowledge of one country's performance relative to other EU nations; and finally, (3) the possibility open to governments for blaming European Institutions for policy choices, particularly concerning budgetary options. The analysis is implemented taking into consideration that the dependent variable, the proportion of votes obtained by governing parties, is bounded between zero and one. Appropriate econometric methods for dealing with the problems introduced by this type of variable are discussed and implemented.

The remainder of the paper is organized as follows. The following section presents a review of the relevant literature. Section 3 describes the sources of data and the empirical model specification. Section 4 discusses the empirical results for the baseline models. Section 5 addresses the question of whether the Maastricht Treaty changed economic voting. In section 6 we ask if the voters in countries that currently receive financial assistance under agreements with the IMF and the EU behave differently from the others. The last section concludes.

2. Literature review

Although most scholars agree that economics matters for electoral outcomes (Paldam 1991), the relative effects are not the same across countries or time (Lewis-Beck 1988), and several arguments have been presented to explain such differences. Working on a sample of 17 democracies from 1948 to 1985, Paldam and Høst (1990) rejected the hypothesis that there is an international element in the national vote. Their results indicate that electoral outcomes in different countries are not affected by international opinion swings to the right or to the left. Powell and Whitten (1993) argued that the partisan nature of the government, its electoral base,

and the clarity of its political responsibilities are fundamental to understand the effect of economic performance on voting. According to Pacek and Radcliff (1995), the size and scope of the welfare state plays a major role in the relationship between economic conditions and the vote. They found that incumbents in countries with large levels of welfare spending are more insulated from the business cycle. Chappell and Veiga (2000) contend that voters' assessments of incumbents' performance depend on what is deemed feasible by voters, as well as to what is desirable. Since macroeconomic theories have implications for feasibility constraints, voters' perceptions about the correctness of alternative theories may influence their judgments of politicians' performance.

Brender and Drazen (2008) tested whether voter behavior is different in new *versus* old democracies and in developed *versus* less developed countries. Working with a large panel of democracies, they concluded that faster growth of GDP *per capita* are associated with higher probabilities of reelection only in the less developed countries and in the new democracies. They also found that increases in the government's budget deficits do not help its reelection chances. Moreover, in developed countries with established democracies, deficits are punished at the polls. This result is in line with Alesina et al. (2012), who studied the electoral consequences of large fiscal adjustments in 19 OECD countries from 1975 to 2008. Their results indicate that governments which quickly reduce the budget deficit are not systematically voted out of office, and there is some evidence that fiscally profligate governments tend to lose elections more often than average.

For studies focusing on single countries, there is mixed evidence on the effect of fiscal policy on electoral results at the national and sub-national levels. Examples of studies reporting evidence that voters are fiscally conservative are Peltzman (1992) for the United States, Brender (2003) for Israel, and Drazen and Eslava (2010) for Columbia. However, other papers, such as Akhmedov and

Zhuravskaya (2004) for Russia, Sakurai and Menezes-Filho (2008) for Brazil, Veiga and Veiga (2007) and Aidt, Veiga and Veiga (2011) for Portugal, and Jones *et al.* (2012) for Argentina found that opportunistic fiscal policies (Rogoff and Sibert 1988; Rogoff 1990) pay off in subsequent elections.

The reason to suppose that fiscal consolidations are penalized by voters is that they imply future tax increases or spending cuts that, according to Keynesian theory, will generate a temporary downturn in the economy. However, in economies where governments are large, and especially in countries with persistent deficits and burdensome public debts, citizens may perceive fiscal consolidations as necessary, in order to avoid inefficiencies in the public sector and the onset of debt crises. If loose fiscal policy is considered harmful, the electorate will punish, rather than reward, such budgetary outcomes at the polls. Voters perceive limits to the common-pool resource and that, if outlays beyond that are demanded, the associated costs will not be transferred to other tax payers, but rather paid by them.

In the Western European context, there is an additional reason for governments not to be punished by restrictive fiscal policies. The signing of the Maastricht Treaty in 1992, which established the convergence criteria that countries needed to fulfill in order to join the monetary union, and the Stability and Growth Pact, gave governments an excuse for being fiscally conservative: the need to comply with supranational agreements that imposed limits on budgetary deficits and debt. The main purpose of the current paper is to investigate if the European integration process has changed citizens' assessment of governments' economic performance at the ballot box, and to discuss the reasons that may justify this change in evaluation. Instead of estimating the probability of government terminations, as in Brender and Drazen (2008) or Alesina *et al.* (2012), we prefer to estimate vote functions. They are more sensitive to changes in popular support for incumbents, since governments can lose votes from one election to another but still be reelected.

3. Empirical model specification and data

Although it is common practice to apply the Ordinary Least Squares method to voting functions, the procedure is subject to several criticisms because the dependent variable is bounded between 0 and 1.² First, since the proportion of votes is not defined over \mathbb{R} it cannot be normally distributed. Second, the effect of the explanatory variables is non-linear³ and the variance is a function of the mean. To surmount some of these problems, a logistic transformation of the dependent variable (V) has been used.⁴ The regression model takes the following form:

$$\log(V/1-V) = X'\beta + \varepsilon, \quad (1)$$

where X represents a vector of explanatory variables, β a vector of parameters to be estimated, and ε is the error term. This approach avoids the possibility of producing predicted values outside the unit interval. However, the use of the logistic transformation is also subject to criticism because it assumes that the linear model is related to the response variable via a logit function, and that the logit transformation stabilizes the conditional variance.

Several authors⁵ argue that a better approach is to implement a beta maximum likelihood estimation for which the dependent variable (V) is distributed as follows

$$f(V|p, q) = \frac{1}{B(p, q)} V^{p-1} (1 - V)^{q-1}, \quad (2)$$

where $B(p, q)$ denotes the beta function, $p > 0$ and $q > 0$. The mean and variance of v are, respectively,

$$E(V) = \mu = p/(p+q) \quad (3)$$

and

$$\text{var}(V) = pq/[(p+q)^2(1+p+q)] = \mu(1-\mu)/(1+\phi) \quad (4)$$

Note that the mean is bounded between zero and one but does not include the extremes, and that the variance is a function of the mean and a precision parameter (ϕ).⁶ The model is obtained by assuming that the mean of $V(\mu)$ is a logit function of the explanatory variables (X).

$$u = \frac{\exp^{X'\beta}}{1+\exp^{X'\beta}} \quad (5)$$

Finally, Papke and Wooldridge (2008) proposed the fractional probit model, as an alternative estimation procedure for limited dependent variables, which can handle proportions of exactly 0 and 1. The fractional probit can be obtained by the pooled Bernoulli quasi-Maximum Likelihood Estimation or the Generalized Estimating Equation. The first method assumes that unobserved heterogeneity is exogenous, while the second allows for correlated random effects.

The empirical analysis is performed on a panel covering the first 15 countries joining the EU, from 1970 to 2011. We report the estimated results for the logistic transformation of the dependent variable, the beta maximum likelihood estimation and the fractional logit.⁷ As far as we know, this is the first paper on voting functions that compares results for three different statistical methods recognizing the bounded nature of the dependent variable.

The dependent variable is the proportion of votes obtained by the parties in government before the election, in country i and election t (V_{it}). Since several governments in the sample are coalitions of multiple parties, in alternative specifications we also use as the dependent variable the proportion of votes obtained by the main incumbent party. Vectors of political variables (Pol_{it}) and economic variables (Eco_{it}) are entered as explanatory variables.

The vector of political variables takes into account the incumbent's popular support in the previous election (VPE_{it}), whether it is a coalition or not ($Coal_{it}$), if it is backed by a majority of parliamentary deputies or not (Maj_{it}), and the number of quarters in power. Three alternative measures of tenure were employed: main party in office ($Quarters_{it}$), prime-minister in office ($Prime_{it}$) and the number of quarters since the last change in the party composition of government

(*GovChange_{it}*). Governments with broader bases of support are likely to obtain higher percentages of votes in the next election. A negative coefficient is expected for the dummy associated with coalitions because of conflicts among the government-forming parties. Time in office is likely to reduce the incumbent's popularity, as promises presented before elections are not fulfilled, and scandals and decisions that hurt groups of the population accumulate. Paldam (1986) assumes that a party's popularity has a stationary and a temporary component that, on average, is zero. Successful parties are more likely to rule, and to lose support in the following election, as their popularity returns to its stationary level. According to Paldam and Skott (1995), the cost of ruling may reflect a rational demand for change by voters who want to see new faces in office. Another explanation for the cost of ruling is based on the idea that poor economic performance has greater influence on votes for the incumbent government than good performance (the grievance asymmetry theory - Nannestad and Paldam, 1997, 2002).

The economic performances of countries are captured by unemployment rates (*Unemp_{it-1}*), changes in annual inflation rates (*Change_Inf_{it}*), and annual real GDP growth rates (*GDP_g_{it-1}*). The fiscal regressor is the government's net lending as a percentage of GDP⁸ (*Surplus_{it-1}*). All variables, except changes in inflation rates, were lagged one quarter because data are released with a lag by statistical bureaus, and may not be immediately perceived by citizens. Changes in inflation were not lagged because the contemporaneous variable turned out to be more statistically significant in regression analysis. Unemployment, inflation, and slower GDP growth rates are expected to decrease votes for the incumbent. As for the budget balance, we have no a priori expectations regarding to the sign of the estimated coefficient in the first years of the sample: a negative sign would suggest that citizens reward loose fiscal policies (deficits), while a positive sign indicates that voters are fiscally conservative. However, for the post-Maastricht Treaty period we expect this variable to be positively signed, owing to the fiscal surveillance

mechanisms created by European countries in order to achieve the economic and monetary union and, later on, to facilitate and maintain its stability. To test whether voters take into account the performance of other EU countries when evaluating their national government, the national economic variables were also measured as differences from the EU-15 average.

Data for the political variables were extracted from the World Bank's Database of Political Institutions – DPI (see Beck et al. 2001). Unemployment rates, inflation rates, real GDP, and government net lending as percentage of GDP were obtained from the OECD's statistics. All variables are quarterly, except for government net lending, which has an annual frequency and was linearly interpolated to generate quarterly data. The use of quarterly data allows for a more precise test of electoral effects of economic conditions. It avoids the arbitrary decision of classifying elections that occurred in the first part of year t as falling in the calendar of year $t-1$, as in Alesina *et al.* (2012). Information on election dates and the first quarter of data for the main economic variables is provided in Appendix Table A-1.

Descriptive statistics for the variables used in the empirical analysis are presented in Table 1. The government with the lowest vote share in the sample was a single-party government that ruled after the 1973 Danish election, with only 12.3% of the votes.⁹ Most governments in the sample are coalitions (63%) and have a majority of deputies in Parliament (75%). The average number of quarters since the last change in the party composition of the government is 19.91 quarters (roughly 5 years), equal to the average time in office of the prime-minister. When time in office is measured by the number of quarters the main party stayed in office, the average increases to 41.81 quarters (over 10 years). Regarding the economic variables, on average government net lending is a negative 2.9% of GDP, with the maximum deficit (-26%) registered in Ireland in 2011 and the maximum surplus (6.14% of GDP) occurred in Sweden in 1976. There has

been a progressive reduction in inflation during the period considered, and the average annual growth rate of real GDP (from the same quarter of the previous year) was 2.48%.

[Table 1]

4. Empirical results for the baseline models

The empirical model was estimated firstly using the logistic transformation of the dependent variable and including country fixed effects (LTFE), in order to take into account country differences that remain stable over time, namely political institutions.¹⁰ Considering the results of several authors indicating that the beta maximum likelihood estimation (BMLE) outperforms the logistic transformation model, the BMLE was implemented using the cluster option for the residuals, which assumes that the observations are independent across countries but not necessarily within countries. Finally, the fractional probit estimator (FP), proposed by Papke and Wooldridge (2008), was implemented through Bernoulli quasi-maximum likelihood estimation (QMLE).¹¹

Results for the different methods are reported in the first three columns of Table 2. Regardless of the statistical method used, all estimated coefficients show the expected signs. Both their statistical significance and their marginal effects¹² on the dependent variable are very similar across specifications. Regardless of the estimation procedure chosen, there is consistent evidence that voters reward GDP growth and positive budget balances,¹³ and dislike increases in inflation. An increase of one percentage point in the GDP growth rate enhances government support between 0.36 and 0.45 percentage points, while for the budget balance the effect varies from 0.46

to 0.52. An increase of one percentage point in the change in the inflation rate leads to a reduction in vote shares between 0.41 and 0.50 percentage points.¹⁴

[Table 2]

Regarding political variables, governments with broader support bases (percentage of votes in the previous election) tend to perform better in the subsequent elections. There is some evidence that coalition and majority governments receive larger percentages of votes than single party/minority governments. A possible explanation for a coalition government to behave better in subsequent elections is a transfer of votes from one member of the coalition to another, canceling out the aggregate effect. Three alternative variables were used to measure tenure: main party in office (*Quarters_{it}*), prime-minister in office (*Prime_{it}*) and the number of quarters since the last change in the party composition of the government (*GovChange_{it}*). Only the results for the last variable are reported in the table, because this is the one that more frequently turned out to be statistically significant. There is strong evidence of an erosion of support as time in office accumulates, although the effect is relatively small. All other things constant, a one percentage drop in GDP causes a loss of governmental support equivalent to 4 quarters in office.¹⁵

Given the similarity of results obtained by the three different methods, in subsequent regressions only the results for BMLE are shown. This is also justified by the facts that: (1) the LTFE assumes that the residuals follow a normal distribution, but the Shapiro-Wilk test rejects the null hypothesis at the 1% significance level; (2) in our sample, the proportion of votes obtained by the incumbent government varies from 0.06 to 0.72, which implies that the BMLE procedure for proportions observed inside the open interval (0,1) is appropriate.

Since the number of voters varies considerably among the countries included in the sample, the model was also estimated by Weighted Least Squares (WLS). Previous specifications attributed the same weight to all observations, but 49 million citizens voted in the German election of 1998, while in Luxemburg's 1984 balloting, the electorate was only 174,000 (these are the two extremes in the dataset). Although the voter's decision to support or not the incumbent is discrete, what is observed is the percentage of times this choice is made, which is continuous. Following McFadden (1981), this information can be interpreted as if it was produced by a representative voter repeatedly making this choice. Therefore, the estimation procedure requires special treatment for the aggregate time-series cross-sectional nature of the data. The percentage of votes for the parties in government in a large country is an estimator of the population mean with lower variance than the percentage of votes for the incumbent parties in a smaller country. The variance of the error term (ε_{it}) is not constant; it decreases with the number of voters in country i and election t (N_{it}).¹⁶ Thus, to obtain a vote function of the representative voter in Europe, the model was estimated by WLS.

When using the WLS estimation procedure, there is evidence (column 4) of persistency of votes from one election to another and of an erosion of government popularity as time in office lengthens. The marginal impact of GDP growth on votes increases considerably when compared with the results for the non-weighted regression, while the effects of changes in inflation and of government net lending decrease. This suggests that the importance attributed to economic variables by voters living in larger countries differs from that of those living in smaller nations.

The next step was to substitute the national economic variables with their differences from EU averages. The results shown in the last two columns of Table 2 reveal that voters dislike changes in inflation above the EU average and reward public budget balances above the EU average (only in the non-weighted regression). The result for inflation is in line with Chappell and

Veiga (2000), who also found European voters to be particularly sensitive to changes in inflation, especially when measured relative to the European average

Because many governments in our sample (63%) are coalitions of parties, and the main party in office typically plays a key role in policy decisions, it is likely that voters regard it as more responsible for the evolution of the economy. Furthermore, on some occasions there were changes between elections in the party composition of coalition governments. To take these facts into account, estimates also were computed using the proportion of votes obtained by the main party in office as the dependent variable. Because the results are very similar to those presented in Table 2, they are not reported in the paper, but they are available from the author upon request.

5. The Maastricht Treaty's impact on economic voting

This section investigates whether changes in European institutions over time, particularly those associated with the Maastricht Treaty, altered the way voters judge incumbent governments. The Treaty was signed on 7 February 1992 by the members of the European Community in Maastricht, Netherlands, and came into force on 1 November 1993. It defined the five convergence criteria with which countries had to comply in order to move on to the third phase of European Monetary Union (EMU), and adopt the euro in 1999. The conditions that are closer to the economic variables used in our empirical analysis are the price stability criterion and the two criteria for public finance stability. The inflation criterion established that the country's inflation rate should be no more than 1.5 percentage points higher than the average inflation rate of the three best performing EU states. The budgetary criteria set limits on public deficits and debt relative to GDP of, respectively, 3% and 60%.

The main reasons why the Maastricht agreement may have affected the nature of the vote function can be summarized as follows:

(A) The integration process restricted national governments' policies to European goals and, with the creation of the single currency, monetary policy decision making was transferred to the European Central Bank. As a consequence, voters may hold governments less accountable for economic variables they control less, particularly inflation, with the introduction of the Euro.

(B) After the treaty's signing, more information became available for voters regarding the economic situation of their country and, particularly, on the performances of EMU candidates. It is, therefore, plausible that yardstick comparisons became more salient after the coming into effect of the treaty.

(C) With the agreement, it is likely that voters became more aware of the fiscal variables and turned more fiscally conservative, since the adoption of policies to consolidate the budget would be regarded as necessary to guarantee the country's qualification for the third stage of the European Monetary Union. The coming into force of the Stability and Growth Pact in 1999 reinforced the fiscal monitoring of EU members by European Institutions. It is plausible that voters' awareness of the fiscal performance of their countries continued beyond that point.

To test if the Maastricht Treaty changed the way voters evaluate politicians' economic performance, two dummy variables for the periods before (*Before_MT_{it}*) and after (*After_MT_{it}*) the Treaty (1994 onwards) were created.¹⁷ These two dummies were interacted with each economic variable included in the empirical work. According to hypothesis (A), presented above, the impact on voting of changes in inflation, and also GDP growth, should be smaller after the implementation of the Treaty. Hypothesis (B) suggests that variables measured relative to the EU15 average should become more salient after the Maastricht Treaty. Finally, mechanism (C)

predicts a change in voters' reactions to government net lending, with stronger support for larger positive balances after the agreement.

The estimates of the marginal effects of economic variables on the proportion of votes cast for the government, using the Beta Maximum Likelihood estimation procedure, are presented in Table 3.¹⁸ There is evidence of a change in voters' attitudes owing to the Maastricht Treaty. It is clear that before the Treaty citizens rewarded increases in the GDP growth rate, reductions in inflation, and downside deviations of this variable from the EU average. After the Treaty, only government net lending enters as statistically significant. This goes in favor of hypothesis A: the transfer of policy instruments to supranational entities, particularly the European Central Bank (ECB), may justify the loss of statistical significance of the variables associated with inflation and GDP growth. With monetary policy being conducted by the ECB, national governments have very limited power to influence prices. Another aspect worth emphasizing is that, in our sample, average inflation before the Maastricht Treaty was 8.4%, while after it was substantially lower (2.2%). It is also likely that voters assigned greater importance to changes in inflation before the Maastricht Treaty because its level was substantially higher than afterwards.

Comparisons of the results for variables measured as differences from EU averages, columns 4 and 5, reinforce hypothesis A, since deviations of changes in inflation lost their statistical significance after the treaty, but do not confirm hypothesis B. Yardstick comparisons between countries' economic performances did not become more salient after the agreement. The only exception is the variable measuring the deviations of budget surpluses from the EU average.

In general, after the Treaty, fiscal variables became more important: among the economic variables, only the budget surplus and its deviations from the EU average are statistically significant. These results support hypothesis C, and reinforce hypothesis A. The idea of voters

becoming more fiscally conservative is in line with the results obtained by Brender and Drazen (2008) for developed countries with established democracies, and by Alesina *et al.* (2012) for OECD countries. The commitment to fulfill the Maastricht convergence criteria by incumbent parties and also by the opposition, led to a consensus on fiscal consolidation measures. Apparently, the electorate understood the advantages of adopting the euro and the need for fiscal consolidation. This is in accordance with Ferejohn (1986), who suggested that governments may justify the need to implement unpopular policies with external negative economic conditions or constraints outside their control. Therefore, even after the creation of the monetary union, national governments could blame European institutions and rules, namely the Stability and Growth Pact, for restrictive fiscal policies, and thus avoid being punished at the ballot box.

[Table 3]

The period analyzed (1970-2011) covers the most recent global financial crisis, which led to a substantial increase in budget deficits¹⁹ and to sovereign debt crises in several EU countries. It is likely that the crisis had an impact on voters' evaluations, increasing their concerns about public deficits. In order to test this hypothesis, a dummy variable for the 2008-2011 period was created, and interacted with the economic variables. The dummy for the post-Maastricht Treaty was redefined to end in 2007. The estimation results are shown in columns 3 and 6 of Table 3. For the pre-Maastricht Treaty period, the results are very similar to those of previous specifications: voters held incumbents accountable for changes in inflation, particularly when measured relative to the EU average, and for GDP growth. There is marginal evidence that they rewarded positive net lending. However, for the post-Maastricht Treaty period, it is now clear that the fiscal variable becomes relevant only during the 2008-2011 period. These results confirm hypothesis A, rule out

hypothesis B, and reduce the support for hypothesis C. More than the Maastricht Treaty, the current crisis which created difficulties in securing external funding for several European governments and increased the interest rates on sovereign debt, and the fear of the consequences of insolvency for several EU members, led citizens to pay special attention to the public finances, and to punish incumbents for loose fiscal policy.

To test the robustness of the previous conclusions, the sample was split into three subsamples: one for the period before the Maastricht Treaty, another one for the period after the Treaty, and a third one for the period after the agreement but not including the crisis years (2008-2011). As can be seen in Table 4, the empirical results are consistent with those reported in the previous table. Although the reduction in the number of observations reduces the statistical significance of some of the variables, there is evidence that voters held incumbents accountable for inflation only before the Maastricht Treaty (hypothesis A); that the agreement did not increase yardstick comparisons of the economic performances of the countries (hypothesis B); and finally, that after the Treaty voters became more fiscally conservative only during the current economic crisis (hypothesis C).

[Table 4]

6. Are Greece, Ireland, Portugal, and Spain different?

This section investigates the hypothesis that the electorates of countries currently benefiting from financial assistance programs²⁰ react differently to economic outcomes and fiscal policy. The results presented in Table 5 are similar to those of Table 4. Before the Maastricht Treaty, voters punished incumbents for increases in inflation and for inflation above the EU average, and they rewarded GDP growth and positive budget balances, but not those above the EU average; after

the Treaty, they focused their attention on fiscal policy, and showed dislike for deficits. Hypothesis A is supported by the results.

However, two differences deserve to be highlighted. First, the magnitude of the estimated coefficients for the statistically significant variables is substantially larger than in similar regressions for the full sample. This is not surprising if we take into account that average inflation rates and budget deficits in these countries were almost twice the sample averages (see appendix B). Second, in these four countries, voters held incumbents responsible for government net lending even before the Maastricht Treaty, favoring politicians who delivered smaller deficits. These results may be justified by the fact that the average budget deficit before the Treaty in Greece, Ireland, Portugal, and Spain was 5.38% of GDP, much higher than for the full overall sample (2.93%). Thus, larger deficits were a more salient economic problem in these four countries than in the other 11. Hypothesis C is not confirmed.

[Table 5]

Conclusions

The coming into force of the Maastricht Treaty, in which European countries established their commitment to create a monetary union, changed voters' evaluations of national governments' economic performances. The need to comply with the convergence criteria to join the EMU, and later on the transfer of monetary policy to the European Central Bank, insulated governments from the business cycle. While, before the Treaty, changes in inflation, deviations of national inflation from the EU-15 average, and GDP growth determined electoral results; after it, economic variables lost their statistical significance. It is also possible that voters assign more importance to the economic variable that they perceive as being the nation's main problem. While

for the period of 1970 to 1993, average inflation was 8.4%, for the subsequent period it has been much lower (2.2%). More recently, the substantial rises in budget deficits and the current sovereign debt crisis that several European countries are facing heightened the importance to voters of fiscal policymaking. From 2008 to 2011, there is evidence that voters became more determinedly fiscally conservative.

Empirical results for the subsample of countries currently under an international assistance program reveal that these countries' voters reacted more strongly to economic variables, and that the budget deficit was a relevant variable in their electoral choices even before the Maastricht Treaty. These results reinforce our argument that citizens hold incumbents more responsible for the economic variables that they perceive as being problematic and which, therefore, may have more salient impacts on their well-being. For these countries, there is also evidence of a change in voters' attitude caused by the European integration process.

Acknowledgements

The author thanks Francisco Veiga, Miguel Portela, Luis Aguiar-Conraria, participants at the Martin Paldam Workshop and two anonymous referees for valuable comments. The financial support provided by the Portuguese Foundation for Science and Technology (FCT), under research grant PTDC/EGE-ECO/118501/2010 (partially funded by FEDER) is gratefully acknowledged. The article also benefited from the efficient research assistance of Helder Alves.

¹ For surveys of economic voting see Nannestad and Paldam (1994), Paldam (2004), Brug *et al.* (2007), and Duch and Stevenson (2008).

² Note that the dependent variable is bounded between 0 and 1 but not censored. According to Maddala and Lahiri (2009), it would be inappropriate to apply the censored normal model, or Tobit model, to data having those two properties.

³ Otherwise, with unbounded independent variables the estimated model may predict a proportion of votes that lies outside of the [0, 1] boundaries.

⁴ See, among others, Dubin and Kalsow (1996), Aguiar-Conraria and Magalhães (2010), and Martins and Veiga (2011).

⁵ See, among others, Paolino (2001), Ferrari and Cribari-Neto (2004), Kieschnick and McCullough (2003) and Smithson and Verkuilen (2006).

⁶ For fixed μ , the larger is the value of ϕ , the smaller is the variance of y .

⁷ Estimations were obtained using Stata software, version 12.0. The code for the fractional logit was adapted from Woldridge and Papke (2008), available at Papke's web page: <http://econ.msu.edu/faculty/papke/index.php>.

⁸ Although the cyclically adjusted primary budget balance would be more adequate for monitoring the fiscal stance of the country, the budget balance is more easily followed by the general public.

⁹ In the Danish election of 1973, the vote shares of the four main parties fell by more than 30 percentage points and the number of parties represented in parliament doubled, from 5 to 10. After the election, the third most voted party (Venstre) formed a small minority government, supported by five other parties.

¹⁰ An F-test rejects the hypothesis of the country dummies being jointly insignificant. The result of a Hausman test reveals that the fixed effects model is preferable to the random effects model. The Arellano-Bond tests for first- and second-order autocorrelation do not allow the rejection of the null hypothesis of no auto-correlation (p-values of 0.48 and 0.19 respectively).

¹¹ The results for the generalized estimating equation are very similar. To facilitate comparison with the previous methods, we report the results for the Bernoulli quasi-MLE procedure only.

¹² The marginal effects of each explanatory variable were calculated while holding the other variables at their mean values. The marginal effect is the change in the predicted dependent variable for a unit change in the explanatory variable, assuming that the effect does not change over that interval.

¹³ Changes in the budget surplus were also tested but turned out not to be statistically significant.

¹⁴ Unemployment rates, changes in unemployment and differences from EU averages were also tried in the regressions, but rarely turned out as statistically significant. Furthermore, the number of observations on the unemployment rate is substantially smaller than those for the other explanatory variables (see appendix A), thus reducing the number of degrees of freedom of the estimations.

¹⁵ The ratio of the estimated marginal effects of a one-percentage drop in GDP and time in office is $(0.01 * 0.4) / 0.001 = 4$.

¹⁶ In our model, both the Breusch-Pagan test and a modified Wald statistic for heteroscedasticity in the residuals reject the null hypothesis of homoscedasticity.

¹⁷ For Austria, Finland and Sweden, the dummy for the post-Maastricht period starts assuming the value of one only in 1995, when these countries joined the European Union.

¹⁸ The results for the proportion of votes cast for the main party are very similar. They are available from the author upon request.

¹⁹ In the sample (see Appendix B), the average for the deficit as percentage of GDP during the period 2008-2011 was 5.98%, much higher than the average for the overall sample (2.91%).

²⁰ Financial assistance to Spain currently involves the banking system only. While this paper was being revised, a financial assistance program was also approved for Cyprus (on March 2013).

References

- Aguiar-Conraria, L. & Magalhães, P. (2010). Referendum design, quorum rules and turnout. *Public Choice* 144: 63-81.
- Aidt, T., Veiga, F. & Veiga, L. (2011). Election results and opportunistic policies: A new test of the rational political business cycle model. *Public Choice* 148: 21-44.
- Akhmedov, A. & Zhuravskaya, E. (2004). Opportunistic political cycles: Test in a young democracy setting. *Quarterly Journal of Economics* 119: 1301-1338.
- Alesina, A., Carloni, D. & Lecce, G. (2012). The electoral consequences of large fiscal adjustments. *NBER Working Paper* 17655.
- Beck, T., Clarke, G., Groff, A., Keefer, P. & Walsh, P. (2001). New tools in comparative political economy: The Database of Political Institutions. *World Bank Economic Review* 15(1): 165-176.
- Brender, A. (2003). The effect of fiscal performance on local government election results in Israel: 1989-1998. *Journal of Public Economics* 87: 2187-2205.
- Brender, A. & Drazen A. (2008). How do budget deficits and economic growth affect reelection prospects? Evidence from a large panel of countries. *American Economic Review* 98(5): 2203–2220.
- Brug, W., Eijk, C. & Franklin, M. (2007). *The Economy and the Vote: Economic Conditions and Elections in Fifteen Countries*. Cambridge University Press: Cambridge.
- Chappell, W. & Veiga, L. (2000). Economics and elections in Western Europe: 1960-1997. *Electoral Studies* 19: 183-197.
- Drazen, A. & Eslava, M. (2010). Electoral manipulation via voter-friendly spending: Theory and evidence. *Journal of Development Economics* 92(1): 39-52.

- Dubin, J. & Kalsow, G.A. (1996). Comparing absentee and precinct voters: A view over time. *Political Behavior* 18(4): 369-392.
- Ferejohn, J. (1986). Incumbent performance and electoral control. *Public Choice* 50: 5-25.
- Ferrari, S.L.P. & Cribari-Neto, F. (2004). Beta regression for modelling rates and proportions. *Journal of Applied Statistics* 31(7): 799-815.
- Jones, M.P., Meloni, O. & Tommasi, M. (2012). Voters as fiscal liberals: Incentives and accountability in federal systems. *Economics & Politics* 24(2): 135-156.
- Kieschnick, R. & McCullough, B.D. (2003). Regression analysis of variates observed on (0,1): percentages, proportions and fractions. *Statistical Modelling* 3: 193-213.
- Lewis-Beck, M. (1988). *Economics and elections: The major Western Democracies*. University of Michigan Press: Ann Arbor.
- Maddala, G. S. & Lahiri, K. (2009). *Introduction to Econometrics*, 4th ed. Wiley: New York.
- McFadden, D. (1981). Econometric models of probabilistic choice. In Manski, C.F. & McFadden, D. (eds.). *Structural Analysis of Discrete Data with Econometric Applications*. MIT Press: Cambridge, Ma.
- Martins, R. & Veiga, F. (2013). Economic voting in Portuguese municipal elections. *Public Choice* 155: 317-334.
- Nannestad, P. & Paldam, M. (1994). The VP-function: A survey of the literature on vote and popularity functions after 25 years. *Public Choice* 94(79): 213-245.
- Nannestad, P. & Paldam, M. (1997). The grievance asymmetry revisited: A micro study of economic voting in Denmark, 1986–92. *European Journal of Political Economy* 13: 81–99.

- Nannestad, P. & Paldam, M. (2002). The cost of ruling: A foundation stone for two theories. In H. Dorussen & M. Taylor (eds), *Economic voting*. London: Routledge.
- Pacek, A. & Radcliff, B. (1995). Economic voting and the welfare state: A cross-national analysis. *Journal of Politics* 57(1): 44-61.
- Paldam, M. (1986). The distribution of election results and the two explanations of the cost of ruling. *European Journal of Political Economy* 2(1): 5-24.
- Paldam, M. (1991). How robust is the vote function? A study of seventeen nations over four decades. In Norpoth, H., Lewis-Beck, M. & Lay, J. (eds) *Economics and Politics: The calculus of support*, 9-32. University of Michigan Press: Ann Arbor.
- Paldam, M. (2004). Are vote and popularity functions economically correct? In Rowley, C. K. & Schneider, F. (eds.) *The Encyclopedia of Public Choice* I: 49-59. Kluwer Academic Publishers.
- Paldam, M. & Høst, V. (1990). An international element in the vote? A comparative study of 17 OECD countries 1948-85. *European Journal of Political Research* 18(2): 221-239.
- Paldam, M. & Skott, P. (1995). A rational-voter explanation of the cost of ruling. *Public Choice* 83: 159-172.
- Paolino, P. (2001). Maximum likelihood estimation of models with beta-distributed dependent variables. *Political Analysis* 9(4): 325-346.
- Papke, L.E. & Wooldridge, J.M. (2008). Panel data methods for fractional response variables with an application to test pass rates. *Journal of Econometrics* 145: 121-133.
- Peltzman, S. (1992). Voters as fiscal conservatives. *Quarterly Journal of Economics* 107: 325-345.
- Powell, G.B. Jr. & Whitten, G.D. (1993). A cross-national analysis of economic voting: taking account of the political context. *American Journal of Political Science* 37(2): 391-414.

- Rogoff, K. (1990). Equilibrium political budget cycles. *American Economic Review* 80: 21–36.
- Rogoff, K. & Sibert, A. (1988). Elections and macroeconomic policy cycles. *Review of Economics Studies* 55: 1–16.
- Sakurai, S. & Menezes-Filho, N. (2008). Fiscal policy and reelection in Brazilian municipalities. *Public Choice* 137: 301-314.
- Smithson, M. & Verkuilen, J. (2006). A better lemon squeezer? Maximum likelihood regression with beta-distributed dependent variables. *Psychological Methods* 11(1): 54-71.
- Veiga, L. & Veiga, F. (2007). Does opportunism pay-off? *Economics Letters* 96(2): 177-182.

Table 1. Descriptive statistics

Variable	No Obs.	Mean	Stand. Dev.	Min	Max
% Votes incumbent gov. (VG_{it})	173	.4443	.0137	.0685	.7262
% Votes incumb. gov. previous election ($VGPE_{it}$)	173	.4825	.0972	.123	.8442
% Votes main party in gov. (VMP_{it})	173	.3255	.0986	.0685	.0503
% Votes main party in gov. lag (VMP_{it-1})	173	.3528	.1003	.1060	.6200
Coalition ($Coal_{it}$)	173	.63	.48	0	1
Majority of deputies in Parliament (Maj_{it})	173	.75	.44	0	1
Quarters in office - Main party ($Quarters_{it}$)	176	41.81	43.63	2	214
Quarters in office – Prime minister ($Prime_{it}$)	176	19.91	16.99	1	115
Quarters since the last change in the party composition of the government ($GovChange_{it}$)	176	19.91	14.70	2	76
<i>National values</i>					
Government Net Lending ($GovNetLend_{it}$)	158	-.0291	.0450	-.2607	.0614
Change in inflation ($Change_inf_{it}$)	178	-.0051	.0264	-.1218	.0791
Annual real GDP growth rate (GDP_g_{it})	179	2.48	.0290	-.0950	.1410
<i>Difference from EU averages</i>					
Government Net Lending	158	-.0015	.0379	-.1953	.0842
Change in inflation	178	-.0011	.0357	-.0938	.1362
Annual real GDP growth rate	178	-.0006	.0193	-.0655	.1019

Sources: DPI (World Bank) and OECD Stat.

Table 2. Determinants of the percentage of votes for the Government

	National values				Differences from EU-15 averages	
	LTFE	BMLE	FP-QMLE	BMLE-WLS	BMLE	BMLE-WLS
VPE _{it}	2.328*** (7.70) [.57]	2.960*** (10.91) [.73]	1.83*** (11.15) [.71]	3.001*** (6.41) [.74]	2.961*** (11.43) [.73]	2.817*** (5.81) [.69]
Maj _{it}	.020 (.36) [.01]	.083* (1.82) [.02]	.042* (1.68) [.02]	.112*** (2.81) [.03]	.071 (1.28) [.02]	.109** (2.27) [.03]
Coal _{it}	.118** (2.20) [.03]	.050 (.90) [.01]	.031 (.92) [.01]	.095 (1.08) [.02]	.027 (.45) [.01]	.078 (.85) [.02]
GovChange _{it}	-.004** (-2.62) [-.001]	-.003*** (-3.20) [-.001]	-.002*** (-3.18) [-.001]	-.003*** (-3.10) [-.001]	-.003*** (-2.77) [-.001]	-.003*** (-2.75) [-.001]
Surplus _{it-1}	1.855** (2.39) [.46]	2.109*** (3.27) [.52]	1.252*** (3.04) [.49]	1.178* (1.86) [.29]	2.236*** (2.65) [.55]	.187 (0.21) [.05]
Change_inf _{it}	-2.041*** (-3.50) [-.50]	-1.732*** (-2.99) [-.43]	-1.055*** (-3.00) [-.41]	-.362 (-.62) [-.09]	-1.457*** (-3.11) [-.36]	-1.578*** (-2.92) [-.39]
GDP_g _{it-1}	1.808*** (3.22) [.45]	1.521** (2.14) [.38]	.918** (2.12) [.36]	2.514*** (2.98) [.62]	1.335 (1.16) [.33]	2.350 (1.62) [.58]
Observations	154	154	154	154	154	154
Countries	15	15	15	15	15	15
Adj. R-squared	.577					
Log pseudolikelihood		202.81	-68.529	208.18	200.42	205.83

Notes: Logistic Transformation of the dependent variable and including country Fixed Effects (LTFE). Beta Maximum Likelihood Estimation (BMLE). Fractional Probit estimator implemented through Bernoulli Quasi-Maximum Likelihood Estimation (FP-QMLE). Weighted Least Squares (WLS).

* Significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level.

T-statistics between parentheses and marginal effects between brackets. The marginal effects of each explanatory variable were calculated while keeping the other variables at their mean values. The marginal effect is the change in the predicted dependent variable for a unit change in the explanatory variable, assuming that the effect does not change over that interval.

The coefficients for the constant and country dummies are not reported.

Table 3. Before and after the Maastricht Treaty: dummy variables

	National values			Differences from EU-15 averages		
	BMLE	BMLE-WLS	BMLE	BMLE	BMLE-WLS	BMLE
<i>Before the MT</i>						
Before_MT _{it} *Surplus _{it-1}	.319*	.245	.300*	.289	-.094	.275
	(1.91)	(1.64)	(1.75)	(1.34)	(-0.39)	(1.25)
Before_MT _{it} *Change_inf _{it}	-.258**	-.137	-.247**	-.402***	-.419***	-.394***
	(-2.40)	(-1.07)	(-2.20)	(-3.58)	(-4.06)	(-3.59)
Before_MT _{it} *GDP_g _{it-1}	.429**	.604**	.410**	.169	.286	.159
	(2.28)	(2.17)	(2.34)	(.40)	(0.62)	(.38)
<i>After the MT</i>						
After_MT _{it} * Surplus _{it-1}	.751***	.487**	.286	.893***	.277	.391
	(4.44)	(2.57)	(1.26)	(3.49)	(.81)	(1.18)
After_MT _{it} *Change_inf _{it}	-.362	.691	.894	.251	.130	-.195
	(-1.06)	(1.38)	(1.55)	(.40)	(.13)	(-.30)
After_MT _{it} *GDP_g _{it-1}	.185	.297	.202	.087	1.03	.475
	(0.79)	(.96)	(.80)	(.17)	(1.54)	(.74)
<i>Crisis 2008-2011</i>						
Crisis _{it} * Surplus _{it-1}			.889***			1.201***
			(4.69)			(5.20)
Crisis _{it} *Change_inf _{it}			-.566			1.652
			(-1.01)			(1.20)
Crisis _{it} *GDP_g _{it-1}			.088			-.517
			(.21)			(-.92)
Observations	154	154	154	154	154	154
Countries	15	15	15	15	15	15

Notes: Beta Maximum Likelihood Estimation (BMLE). Weighted Least Squares (WLS).

Marginal effects. T-statistics are between parentheses.

* Significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level.

The explanatory variables used in all specifications are the same as those reported in Table 2. For parsimony, only the marginal effects associated with the interactions between the dummies for before and after the Maastricht Treaty and the economic variables are reported.

Table 4. Before and after the Maastricht Treaty: splitting the sample

	National values		Differences from EU-15 averages	
	BMLE	BMLE-WLS	BMLE	BMLE-WLS
<i>Before the MT sample</i>				
Surplus _{it-1}	.360*	.206	.285	-.116
	(1.86)	(.85)	(1.33)	(-.44)
Change_inf _{it}	-.224**	-.036	-.336***	-.249*
	(-2.20)	(-.24)	(-2.87)	(-1.95)
GDP_g _{it-1}	.239	.359	.111	.238
	(.76)	(.91)	(.24)	(0.47)
N. observations	82	82	82	82
<i>After the MT sample</i>				
Surplus _{it-1}	.642***	.502***	.865***	.479*
	(3.24)	(2.87)	(3.42)	(1.68)
Change_inf _{it}	-.586	.013	.162	.228
	(-1.47)	(.02)	(0.23)	(.23)
GDP_g _{it-1}	.424	.401*	.199	.632
	(1.50)	(1.97)	(0.40)	(.92)
N. observations	72	72	72	72
<i>After the MT without the 2008-11 crisis</i>				
Surplus _{it-1}	-.011	-.113	.147	-.353
	(-.04)	(-.31)	(.42)	(-1.10)
Change_inf _{it}	.780	1.149	-.139	-.112
	(1.01)	(1.06)	(-.23)	(-.15)
GDP_g _{it-1}	.629	.829**	.628	1.711*
	(1.33)	(2.10)	(.95)	(1.67)
N. observations	56	56	56	56

Notes: Beta Maximum Likelihood Estimation (BMLE). Weighted Least Squares (WLS).

Marginal effects. T-statistics are between parentheses.

* Significant at the 10% level, ** significant at the 5% level, *** significant at the 1% level.

The explanatory variables used in all specifications are the same as those reported in Table 2. For parsimony, only the marginal effects associated with the economic variables are reported.

Table 5. Greece, Ireland, Portugal and Spain

	National values			Differences from EU-15 averages		
	BMLE	BMLE-WLS	BMLE	BMLE	BMLE-WLS	BMLE
<i>Before the MT</i>						
Before_MT _{it} *Surplus _{it-1}	2.102** (2.48)	2.65*** (2.88)	2.034*** (3.13)	-1.512 (-1.49)	-1.105 (-.59)	-2.171*** (-3.54)
Before_MT _{it} *Change_inf _{it}	-1.362*** (-3.49)	-2.07* (-1.90)	-1.424*** (-7.23)	-.588*** (-4.69)	-.789 (-1.14)	-.508*** (-12.42)
Before_MT _{it} *GDP_g _{it-1}	1.086*** (3.97)	.228 (0.15)	1.021*** (3.89)	-.173 (-.11)	-2.473 (-0.56)	-.079 (-.06)
<i>After the MT</i>						
After_MT _{it} * Surplus _{it-1}	.870*** (3.26)	1.259* (1.94)	.751*** (2.76)	.877** (2.51)	.908 (0.93)	-.844*** (-4.57)
After_MT _{it} *Change_inf _{it}	-.11 (-.15)	1.168 (0.65)	-1.699 (-.56)	1.288 (1.14)	1.778 (.89)	.531 (.75)
After_MT _{it} *GDP_g _{it-1}	.152 (.28)	-.122 (-.12)	.001 (0.00)	-0.004 (-0.01)	.059 (0.03)	.318 (.70)
<i>Crisis 2008-2011</i>						
Crisis _{it} * Surplus _{it-1}			1.308*** (3.49)			1.146*** (8.50)
Crisis _{it} *Change_inf _{it}			1.026 (.85)			5.693*** (3.31)
Crisis _{it} *GDP_g _{it-1}			-3.355 (-1.22)			2.878*** (6.38)
Observations	32	32	32	32	32	32
Countries	4	4	4	4	4	4

Notes: Beta Maximum Likelihood Estimation (BMLE). Weighted Least Squares (WLS). Marginal effects. T-statistics are between parentheses.

* Significant at the 10% level, ** significant at the 5% level, significant at the 1% level.

The explanatory variables used in all specifications are the same as those reported in Table 2. For parsimony, only the marginal effects associated with the interactions between the dummies for before and after the Maastricht Treaty and the economic variables are reported.

Appendix A

Table A. Elections and first quarter of economic variables

Variables	GDP	Inf	Unemp	Gov Net Lend	Elections
Austria	1960q1	1960q1	1993q1	1970	1970, 1971, 1975, 1979, 1983, 1986, 1990, 1994, 1995, 1999, 2002, 2006, 2008
Belgium	1960q1	1960q1	1970q1	1970	1971, 1974, 1977, 1978, 1981, 1985, 1987, 1991, 1995, 1999, 2003, 2007, 2010
Denmark	1960q1	1967q1	1982q1	1971	1971, 1973, 1975, 1977, 1979, 1981, 1984, 1987, 1988, 1990, 1994, 1998, 2001, 2005, 2007, 2011
Finland	1960q1	1960q1	1964q1	1970	1970, 1972, 1975, 1979, 1983, 1987, 1991, 1995, 1999, 2003, 2007, 2011
France	1960q1	1960q1	1978q1	1978	1973, 1978, 1981, 1986, 1988, 1993, 1997, 2002, 2007
Germany	1960q1	1960q1	1992q1	1970*	1972, 1976, 1980, 1983, 1987, 1990, 1994, 1998, 2002, 2005, 2009
Greece	1960q1	1960q1	1998q2	1995	1974, 1977, 1981, 1985, 1993, 1996, 2000, 2004, 2007, 2009
Ireland	1960q1	1976q1	1982q1	1990	1973, 1977, 1981, 1982, 1987, 1989, 1992, 1997, 2002, 2007, 2011
Italy	1960q1	1960q1	1979q4	1970	1972, 1976, 1979, 1983, 1987, 1992, 1994, 1996, 2001, 2006, 2008
Luxemburg	1960q1	1960q1	1982q1	1990	1974, 1979, 1984, 1989, 1994, 1999, 2004, 2009
Netherlands	1960q1	1960q1	1970q1	1970	1971, 1972, 1977, 1981, 1982, 1986, 1989, 1994, 1998, 2002, 2003, 2006, 2010
Portugal	1960q1	1960q1	1983q1	1977	1979, 1980, 1983, 1985, 1987, 1991, 1995, 1999, 2002, 2005, 2009, 2011
Spain	1960q1	1960q1	1978q1	1970	1979, 1982, 1986, 1989, 1993, 1996, 2000, 2004, 2008, 2011
Sweden	1960q1	1960q1	1970q1	1970	1970, 1973, 1976, 1979, 1982, 1985, 1988, 1991, 1994, 1998, 2002, 2006, 2010
United Kingdom	1960q1	1960q1	1971q1	1970	1970, 1974, 1974, 1979, 1983, 1987, 1992, 1997, 2001, 2005, 2010

* For West Germany from 1970 to 1990.

Appendix B. Averages for economic variables by time periods.

Table B-1. Whole sample

	Overall (1970-2011)	Before the Maastricht Treaty (1970-1993)	After the Maastricht Treaty (1994-2011)	Recent crisis (2008-2011)
Government net lending	-.029	-.029	-.029	-.059
Inflation	.058	.084	.022	.022
Changes in inflation	-.005	-.008	-.002	.006
GDP growth	.025	.025	.024	-.0001

Table B-2. Portugal, Ireland, Greece and Spain

	Overall (1970-2011)	Before the Maastricht Treaty (1970-1993)	After the Maastricht Treaty (1994-2011)	Recent crisis (2008-2011)
Government net lending	-.054	-.054	-.055	-.107
Inflation	.091	.134	.031	.023
Changes in inflation	-.015	-.025	-.001	.009
GDP growth	.026	.024	.028	-.004