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Chapter 4

How effective have Europe's fiscal restrictions been?

4.1 Introduction

In the last fifteen years, fiscal policy in Europe has been subject to restrictions. Far from unique in the "developed" world,[1] these rules have been very controversial. The fiscal framework is enshrined in the Maastricht Treaty (MT), which was signed by the Finance and Foreign ministers of the European Union in February of 1992. Treaty Articles 101 to 104 were designed to keep public deficits low and to ensure budgetary discipline on the part of member states. Further, to guarantee that sound fiscal policies would be continued during Stage 3 of the Economic and Monetary Union and to make the Treaty provisions more precise and operational, in June of 1997, the European Council accepted a draft resolution of the Stability and Growth Pact (SGP). In its first draft, the pact comprised two Council Regulations and a Resolution of the European Council, which together formed a package with two main branches, one aimed at the surveillance of fiscal policy and one aimed at the dissuasion of fiscal profligacy. The surveillance part entered in force on 1 July 1998, whereas the dissuasive arm effectively came into force on 1 January 1999.

So far, most of the literature assessing empirically the performance of these restrictions finds significant differences in the level of fiscal deficits between the MT-period (1992-1997) and the SGP-period (1998-2004).[2] After a strong increase in fiscal discipline in most of the nineties due to entry criteria for admission to the Euro-area, the SGP-period has witnessed a fatigue in fiscal consolidation as suggested by the rising deficits (Fatás and Mihov, 2003, and Hughes-Hallet and Lewis, 2005). The empirical conclusions regarding the fiscal responses to business cycle fluctuations, however, are still mixed. Some authors, such as Galí and Perotti (2003) do not find any change in cyclical fiscal behavior after the Maastricht Treaty was signed, whereas others like Marinheiro (2004) find that the EMU policy rules have reinforced the countercyclical behaviour of fiscal policy.

Therefore, this chapter investigates how effective the fiscal framework has been in disciplining fiscal policy in the Euro zone. In accordance with Fatás and Mihov (2003) and Fatás (2005), we concentrate on two types of biases that are the result of poor fiscal policy management and we assess how the EU fiscal framework has affected them. The first type of bias is the possibility of *excessive deficits* that arise either when governments do not internalize the cost of additional debt or when they postpone fiscal adjustment after a cyclical downturn. The second bias is the possibility of fiscal policy being *procyclical.* The argument is that in good times spending goes up in excess of the rise in tax revenues due to the misinterpretation by politicians of cyclical increases in revenues as being structural.

The analysis separates the MT-period and the SGP-period, disentangling the effects of each set of restrictions and isolating the fiscal impacts stemming from the efforts of

[1] For a survey of some of the fiscal restrictions and rules implemented recently in other developed countries, such as Australia and Canada, see Kennedy and Robbins (2001). For the particular case of Japan, see Von Hagen (2005).

[2] For a theoretical analysis of those restrictions see, for instance, Beetsma and Debrun (2007), Buiter (2005), Fatás et al. (2004), Buti et al.(2003), Beetsma and Uhlig (1999), and Chari and Kehoe (1997).

European countries to enter the Euro zone.[3,4] Specifically to the SGP, the failure of some countries to comply with the deficit target imposed by the pact have added concerns about whether the Pact is indeed an effective instrument in reducing fiscal profligacy. Clearly, any assessment can only be preliminary, as the Pact and the Euro have only been in existence for a few years now, which is less than a complete business cycle for some countries.

So, after controlling for relevant economic and political variables, we examine for the cyclically adjusted deficit (as a measure of the fiscal stance) whether (i) its average level and (ii) its response to the output gap have changed during the MT- and SGP periods, and (iii) how it reacted when the reference deficit level of the Treaty (or Pact) were exceeded. These reactions are estimated using pooling and instrumental variables techniques. They are also compared with responses of other "industrialized" OECD countries, putting the European experience with the MT and the SGP into a broader perspective.

Our main findings are that both the MT and the SGP have been effective in reducing fiscal profligacy whenever the deficit limit was exceeded, i.e. they were effective in inducing a contraction of the fiscal stance in response to *excessive deficits*. This study also indicates that only during the MT-period the average fiscal stance in the Euro-11 contracted. Nevertheless, this contraction coincided with a fiscal tightening in other "industrialized" OECD countries during the same period, suggesting a common trend in the fiscal stance of developed countries rather than an isolated effect of the MT. In addition, we find that neither the MT nor the SGP have altered the cyclical behaviour of the Euro-11 fiscal authorities. Therefore, if the enforcement of countercyclical fiscal policy in the Euro zone is seen as an objective of the Pact, the analysis implies the need for improvements in the current fiscal framework. These results survive extensive robustness testing.

The remainder of the paper is organized as follows. Section 4.2 details the empirical strategy and the methodology used in this paper. In this section we also describe the dataset and present some descriptive statistics of the main variables. Section 4.3 reports and discusses our empirical findings. In Section 4.4 these findings are subjected to further robustness testing. At last, Section 4.5 concludes the main body of the paper.

4.2 Empirical strategy and methodology

4.2.1 Research questions

In order to assess how effective the European's fiscal restrictions have been, we start by detailing our main research questions. We focus the analysis on the effects of the MT

[3]More precisely, the Treaty applies during the entire period (1992-2004) under consideration, while the Pact has been introduced to give an operational content to the Treaty provisions.

[4]Several authors argue that throughout the MT-period the fiscal targets were more binding and resulted in more fiscal discipline than during the SGP-period. The reason is that during the MT period the EU countries had to restrain their fiscal behavior in order to qualify for entry into the Eurozone. Once in, the incentive to adhere to the fiscal limits weakened.

and of the SGP on eleven member countries of the Euro zone (the "Euro-11"): Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, The Netherlands, Portugal and Spain. Luxembourg is left out of the analysis due to missing data.

To investigate the behaviour of fiscal policy in those countries, we use the cyclically adjusted primary deficit (CAPD). This variable shows how the fiscal authorities have reacted to the restrictions of the MT and SGP, as it purges the actual fiscal stance of automatic fiscal responses to business cycles developments. Hence, the first research question we address is:

Question 4.1 *Has the average cyclically adjusted primary deficit in the Euro-11 fallen during the MT-period and/or the SGP-period when compared with: (i) the level during the subperiod 1980-1991? (ii) the level of the corresponding variable for our two control groups of countries that have not joined the Euro zone over the same period?*

The motivation for addressing this issue is that the MT and the SGP should have had an impact on reducing the average level of the cyclically-adjusted fiscal deficit in the Euro zone.[5] Thus, to verify this conjecture, we compare the average level of this variable during the MT–period (1992-1997) and SGP-period (1998-2004) with its average over the period 1980-1991 for the same set of Euro-area countries. In connection with Question 4.1-ii, we compare the average level of the CAPD during the MT- and SGP-periods with that of the (a) EU-3 (Denmark, Sweden and UK) – the set of countries that have been in the EU since at least 1995 but do not participate in the Euro zone; (b) The OECD-6 (Australia, Canada, Iceland, Japan, Norway and the US) – a sample of "industrialized" OECD countries that do not participate in the European Union. This comparison is useful to check the potential presence (or not) of some common external factor driving the fiscal stances of all countries in the sample. For example, if during the SGP period the Euro-area fiscal stances and those of the other countries all contract alike, then it is likely that the observed fiscal contraction for the Euro countries can be ascribed also to this common factor, rather than only due to the SGP.

Our second research question is:

Question 4.2 *Has the cyclically adjusted primary deficit response to the business cycle in the Euro-11 become more or less countercyclical during the MT-period and/or the SGP-period when compared with: (i) its level in the previous subperiod (1980-1991)? (ii) the level of the corresponding variable for the two control groups of countries (EU-3 and OECD-6) over the same period?*

[5] In our analysis, we assume that the fiscal restrictions are exogenous. Poterba (1994) and Braun and Tommasi (2004) account for the possibility that states or countries in which voters have a preference for fiscal prudence not only tend to have low deficits but also pass balanced budget rules. However, given the heterogeneity of the EU countries in terms of fiscal discipline at the moment of initial adoption of the EU fiscal restrictions, we believe that this possibility is not relevant for our sample.

The idea behind Question 4.2 is that the loss of monetary independence should have strengthened the need for more countercyclical fiscal stabilization. Furthermore, the MT and the SGP should have given the Euro-11 fiscal authorities an incentive to become more countercyclical when compared to the average discretionary fiscal policy in EU-3 and OECD-6. At least the SGP requires countries to adopt minimal benchmarks (i.e. median-term fiscal balances) that are sufficiently prudent to allow for some leeway to the 3% deficit limit when the business cycle worsens.

Finally, it might be the case that, albeit the overall average level of discretionary primary deficit has not decreased, the sanctions of the MT and/or the SGP have been effective in leading to fiscal adjustments when the deficit ceilings imposed by these restrictions were exceeded (i.e. became binding). This is what motivates our final research question:

Question 4.3 *(i) How did the cyclically adjusted primary deficit react when the constraints of the Maastricht Treaty and/or the SGP were violated? (ii) How has this response differed between the countries belonging to the Euro-11 and the two other control groups, EU-3 and OECD-6?*

In connection with Question 4.3-ii, we again contrast the results for the Euro-11 with those for our control groups to see whether those groups acted differently when their deficit exceeded the 3% level. When the Euro-11 behaves in the same way as the control groups, then the argument that the deficit ceiling has disciplined the Euro-11 fiscal authorities is undermined.

4.2.2 The fiscal reaction function

We address empirical Questions 4.1, 4.2 and 4.3 via the estimation of a fiscal reaction function of the format:

$$pedfay_{i,t} = \alpha_i + \lambda_t + \beta * X_{i,t} + \gamma * Z_{i,t} + \varepsilon_{i,t}, \qquad (4.1)$$

where subscripts $i = 1, ..., N$ and $t = 1, ..., T$ denote the country and year of the observation, respectively. α_i represents the country-fixed effects and λ_t the time-fixed effects. $X_{i,t}$ is a vector of economic and political variables that, in accordance with the economic literature, explains deficit behavior in industrialized countries. $Z_{i,t}$ is a vector of testing variables related to our empirical questions. Finally $\varepsilon_{i,t}$ is a error term.

The dependent variable, $pdefay_{i,t}$, is the "cyclically adjusted primary deficit as a percentage of potential GDP" (CAPD). It is equal to minus the "cyclically adjusted government primary balance as percentage of potential GDP", which is provided by the OECD (2005).[6] Hence, $pdefay_{i,t}$, filters out the automatic stabilizers built into the OECD tax

[6]We use revised data for this variable as well as for all other variables employed in our estimations. An interesting extension would be to use real-time data, so that we could better evaluate the intentional stance

systems and unemployment compensation schemes and yields an approximation of discretionary fiscal policy in OECD countries.[7]

Control variables

The vector $X_{i,t}$ contains five economic and political control variables in our main estimations. Those, as well as the testing variables (vector $Z_{i,t}$), are presented in Table 4.1 and discussed in detail in Appendix 4.A. The first control variable is the lagged cyclically adjusted primary deficit, pdefay(-1). It accounts for the autocorrelation of the dependent variable and is generally included in this type of empirical analysis[8]. Its coefficient provides an estimate of the amount of inertia of fiscal policy. The second control variable, the lagged government debt (as % of actual output), ggflq(-1), deals with potential debt stabilization policies guiding the determination of CAPD. As suggested by Bohn (1998), a negative estimate for its coefficient indicates a fiscal policy aiming at debt sustainability.

To control for the effects of the inflation of private consumption in the conduct of fiscal policy, we have also included the variable *inf*. The literature identifies several reasons to control fiscal deficits for inflation. In sum, they can be grouped into two conflicting effects on discretionary fiscal policy. On the one hand, the cyclically adjusted primary deficit falls with inflation due to bracket creep in taxes (tax brackets are not fully adjusted or only adjusted with a lag to inflation), seigniorage revenues and, to the extent that it is unexpected, the effect on the real debt servicing costs when debt is nominal. On the other hand, higher inflation can also increase the CAPD because of its effect on the nominal interest rate, as Fatás and Mihov (2003), Woo (2003) and Claeys (2005) claim. In fact, the increase in the nominal interest rate can be larger than the inflation increase if the central bank applies the Taylor principle.[9] An additional argument – motivated by the Optimum Currency Area (OCA) literature – for controlling for inflation is that in a monetary union with asymmetric shocks or diverging inflation preferences, national fiscal policy makers should take over the role of monetary policy in stabilizing the country-specific component of inflation (see Beetsma and Jensen, 2005, and Claeys, 2005).

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of fiscal policy based upon all the information available to policymakers at the time of fiscal planning (see, for example, Cimadomo, 2007; Giuliodori and Beetsma, 2007; and Golinelli and Momigliano, 2006). Further information about the CAPD can be found in Appendix 4.A, OECD (2004) and Giorno et al. (1995). For more information about the dataset and the construction of the variables employed in (4.1) see the next two subsections, Table 4.1, and again Appendix 4.A. All appendices are available upon request.

[7]For a criticism of that variable as an approximation of discretionary fiscal policy, see Alberola et al. (2003), Larch and Salto (2005), and Mélitz (2005). Roughly, those authors (in particular, Mélitz, 2005) claim that CAPD does not take into account several other fiscal variables (such as payments for pensions, health, subsistence and subsidies of all sorts) that respond automatically to the cycle.

[8]See Fatás and Mihov (2003), Galí and Perotti (2003), Afonso (2005) and Claeys (2005), for instance.

[9]In addition, the empirical literature on fiscal policy often makes a distinction between anticipated inflation (which leads to a lower deficit due to seigniorage, but does not affect real debt servicing costs due to the reaction of the nominal interest rate) and unanticipated inflation (which leads to a reduction in the real value of the debt-servicing costs of nominal debt). However, since the effects of inflation on our deficit variable are not the focus of this paper, we disregard this difference and only control for the effect of the ex-post inflation rate.

Political factors can also affect fiscal deficits. Thus, we have also considered potential political budget cycles (PBC) by including the dummy *ele*. This dummy equals one in years of parliamentary elections in a country and zero otherwise. The intuition is that political circumstances can also explain fiscal policies changes during the MT- and/or SGP-period. The output gap, *gap*, is also included in the set of explanatory variables for the CAPD since fiscal authorities may react in a systematic way to changes in the output gap, in addition to besides the presence of automatic stabilizers. Other control variables that can explain CAPD, such as the real interest rate and trade openness, are relegated to Section 4.4, which tests the robustness of the results.

At last, when analyzing part (ii) of Questions 4.1, 4.2 and 4.3, some of the control variables are interacted with the country dummies *deu3* and *doecd6*, representing our control groups of countries, EU-3 and OECD-6 (see Table 4.1). This interaction is introduced because different groups of countries can present divergent responses to some of the control variables.

Testing variables

Regarding the testing variables, we use time dummies referring to the period of the Maastricht Treaty and SGP (d9297 and d9804 respectively) to address item (i), and their interaction with the country dummies *deu3* and *doecd6* to answer item (ii) of Question 4.1. Question 4.2 is addressed interacting those time and country dummies with the output gap (*gap*).

Our final test (Question 4.3) concerns the impacts of the Treaty and SGP when their deficit ceiling is binding. So, in order to capture the effects of the Treaty, we construct the following variable based on Forni and Momigliano (2004) and Giuliodori and Beetsma (2007):

$$\begin{cases} for\ t < 1992 \text{ and } t > 1997: & mas_{i,t} = 0 & \\ for\ 1992 \leq t \leq 1997: & mas_{i,t} = \frac{tdefy_{i,t-1} - 3\%}{1998 - t} & if\ \ tdefy_{i,t-1} \geq 3\% \\ for\ 1992 \leq t \leq 1997: & mas_{i,t} = 0 & if\ \ tdefy_{i,t-1} < 3\% \end{cases} . \tag{4.2}$$

This variable accounts only for cases when the total deficit (as a percentage of GDP) in the previous year, $tdefy_{i,t-1}$, exceeded the reference level of 3%. In addition, starting in 1992 (the first year in which the Maastricht Treaty applied), the bigger is the time gap between 1998 (the starting date of the Euro zone) and the year that a particular country surpassed the fiscal target, the longer was the amount of time available for the country to adjust its deficit to the ceiling imposed by the Treaty and, hence, the smaller is $mas_{i,t}$.[10]

Likewise, we create another variable capturing the cases when the deficit exceeds the

[10] Here, as a simplification, we assume that the disciplinary effect of the Maastricht Treaty is linear in the difference of the total deficit to the reference level if $pdefy_{it-1} \geq 3\%$, and linear in the time gap between the year of the violation of the rule and the deadline to enter the Eurozone - 1998.

reference level during the SGP-period. It is given by:[11]

$$\begin{cases} for\ t < 1998: & sgp_{i,t} = 0 & \\ for\ 1998 \leq t \leq 2004: & sgp_{i,t} = \frac{tdefy_{i,t-1} - 3\%}{2} & if\ \ tdefy_{i,t-1} \geq 3\% \\ for\ 1998 \leq t \leq 2004: & sgp_{i,t} = 0 & if\ \ tdefy_{i,t-1} < 3\% \end{cases} . \tag{4.3}$$

Here, when $tdefy_{i,t-1} \geq 3\%$, the variable $sgp_{i,t}$ is divided by two since the Excessive Deficit Procedure allows for a two-year period to eliminate the excess in the deficit before financial sanctions take place.[12]

4.2.3 Estimation procedure

In order to address the endogeneity of some explanatory variables, we estimate the fiscal reaction function (4.1) for the period 1980-2004 via Two-Stage Least Square (TSLS)[13] with country- and period-fixed effects. In our main estimations, we use instrumental variables for *pdefay(-1)*, *inf* and *gap*. Although predetermined, *pdefay(-1)* is instrumented given that its inclusion in equation (4.1) leads to autocorrelation, common in dynamic panel data estimations.[14,15]

The instrument variables are found by running OLS regressions of those three variables on potential proxies for all samples under consideration. The significant proxies are then included as instruments in the estimation of (4.1) by TSLS. Table 4.1 of Appendix 4.B shows the results. We see that *pdefay(-2)* is a highly significant explanatory variable for *pdefay(-1)* in all cases. Hence, we use it as instrument for *pdefay(-1)*. Further, given the results of Table 4.1, we instrument *inf* and *gap* by the first two lags of inflation, *inf(-1)* and *inf(-2)*, the first two lags of the long-term interest rate, *irlrc(-1)* and *irlrc(-2)*, and the first two lags of output gap, *gap(-1)* and *gap(-2)*.[16]

To test for the validity of the instruments, we report a Hausman-test of endogeneity for all regressions.[17] The standard errors of the coefficients of equation (4.1) are based on White's (1980) correction. This procedure corrects for autocorrelation, which typically arises in panels with a large time span. Further, since we are interested in comparing differences in fiscal behavior between different groups of countries, we perform Wald tests

[11]For simplicity, we compute this variable for Greece also from the year 1998 onwards, although that country joined the Eurozone only at the beginning of 2001.

[12]Again, by constructing this variable in this way, we assume for simplicity that the sanctions of the SGP hit the country linearly, and that the amount of adjustment in the deficit is equal in each of the two years.

[13]Similar results are obtained using Aurellano-Bond and Blundell-Bond estimators.

[14]For a discussion, see Baltagi (2005, pp. 135), or Judson and Owen (1999).

[15]For more information on econometric issues related to the explanatory variables, see Appendices 4.A and 4.G.

[16]In the EU-3 case, inf(-2) is insignificant and, therefore, not included as an instrument. In that sample, we also exclude irlrc(-2), since the explanatory power of the Hausman test for the validity of the instruments (see below) fell abruptly when that variable was included.

[17]For more information on the Hausman test see Johnston and Dinardo (1997), pp. 338-342, or Wooldridge (2002), pp. 118-122. Loosely speaking, the null hypothesis of this test is that the regressors of the estimation are exogenous and, therefore, that OLS estimation is more adequate than 2SLS where the variables are instrumented.

to see whether the corresponding regression coefficients differ across those groups. Moreover, to check the robustness of our results, we shall also include additional economic and political variables that could potentially explain our dependent variable.

Further, we assume that the coefficients in the fiscal reaction function (4.1) are equal across countries. Because our sample covers a large time span and because standard pooled estimators (such as fixed effect models) for our dynamic panel model are subject to potential bias when the parameters are heterogenous across countries and the regressors are serially correlated, it may be preferable to estimate the coefficients of some of the control variables separately for each country. Therefore, Appendix 4.F.3 reports the individual-country estimates of the coefficients of the output gap and inflation for the Euro-11 sample, while in Section 4.4 the results of this robustness test are briefly discussed. For the EU-14 and OECD-17 samples, Section 4.3 already controls for the heterogeneity of particular variables at the group level (the Euro-11 versus the EU-3 and the Euro-11 versus the OECD-6).

4.2.4 Data and descriptive statistics

Most of the data is from OECD (2005) and AMECO (2005). To limit further the potential cross-country heterogeneity discussed above, we exclude the Czech Republic, Hungary, Poland, Slovakia, Mexico, South Korea and Turkey. These countries are or were relatively less developed and joined the OECD much later than the countries in our sample. Moreover, some of them have been during a long period part of a different economic system. Luxembourg, Switzerland and New Zealand are also excluded due to missing observations. We end up with a set of 20 countries: the Euro-11 (described before), the EU-3 (U.K., Denmark and Sweden), and the OECD-6 (Australia, Canada, Iceland, Japan, Norway, and the USA). The parliamentary election dummy (*ele*), is obtained from the site of the International Institute for Democracy and Electoral Assistance (IDEA – http://www.idea.int/vt/parl.cfm) combined with the information from the site http://electionresources.org. As mentioned earlier, we restrict our sample to the period 1980-2004. The number of missing observations would become too large if we extend the sample to earlier years.

Tables 4.2 displays the unweighted averages of our dependent variable for all OECD countries during four different periods: 1980-1991, 1992-1997, 1998-2004, and the entire time span 1980-2004. While the CAPD differs across countries, there seems to be a general decline over time, with the cyclically-adjusted balance turning to surpluses (indicated by a negative sign in the table) during the MT and the SGP periods. This is the case, for instance, for Italy and Spain where the average CAPDs as percentage of potential GDP are respectively 2.86% and 1.69% during the period 1980-1991, -4.12% and -0.79% during 1992-1997, and -2.89% and -2.07% during 1998-2004. By contrast, the countries in the OECD-6 show rather mixed developments during those periods.

Further, the last four lines of Table 4.2 convey averages for each group of countries.

For all groups, the average cyclically adjusted primary deficit decreases over time going from 0.73% for the Euro-11, -0.9% for the EU-3 and 1.15% for the OECD-6 during the period 1980-1991 to, respectively, -1.86%, -2.19% and 0.32% during the SGP period.[18]

The same effect can be observed in Figures 4.1 and 4.2. Figure 4.1 shows the dynamics of the average CAPD for the three groups of countries under consideration, whereas Figure 4.2 displays the dynamics of that variable for each country individually. Both figures portray a rather synchronized behavior in "industrialized" OECD countries with respect to their cyclically adjusted fiscal policy. In particular, Figure 4.1 evinces that just after 1992 there was an abrupt fall in the averages values of the CAPD for all groups of countries. During the SGP period, however, the CAPDs have gone up, albeit they stayed at a lower level than during the period 1980-1991 (except for the OECD-6, for which the CAPDs have on average returned to a level similar to that during the first subperiod). That figure also shows that the difference between the average CAPD levels of Euro-11 and EU-3 was larger throughout 1992-1997, and has become significantly smaller in the recent period. Conversely, after 1997, the OECD-6 has run higher cyclically-adjusted levels of deficit than the other two groups.

Next, Table 4.3 and Figure 4.3 provide a simple analysis of Question 4.2 and the discretionary fiscal policy response to the business cycle in the OECD "industrialized" countries. Table 4.3 is organized in the same way as Table 4.2. It displays the unweighted averages of the output gap among OECD developed countries during the period 1980-2004 and its subperiods. There, we observe that for all three groups of countries, the MT-period was characterized by a recession with large negative average values of the output gap (-2.28% in the Euro-11, -2.4% in the EU-3 and -2.01% in the OECD-6). By contrast, the period 1998-2004 constitutes an upturn phase with a boost in GDP growth rates in the end of the nineties in those economies. As a consequence, the average output gaps for all three groups of countries were positive (0.45% in the Euro-11, 0.12% in the EU-3 and 0.07% in the OECD-6).[19]

Figure 4.3, in turn, displays scatter plots of the CAPD against the output gap. The charts are separated by group of countries and period of analysis. Each one of them presents a regression line estimated by simple OLS. The figure and the non-significance of the regression lines in the figure reveal the heterogeneous behavior of fiscal authorities with respect to the business cycle. This is specially the case for Euro-11 and OECD-6. For the first period of analysis (1980-1991), the scatter plot suggests that Euro-11 fiscal authorities provided on average a discretionary countercyclical response to the output gap. The CAPD generally went up when the output gap fell. This outcome, which

[18] Although the numbers for the CAPD look rather small during the first subperiod and the MT period, in both periods the stock of debt grew fast, especially for the Euro-11 and the EU-3. Table 4.9 of Appendix 4.A illustrates this fact by displaying large total deficit averages during those two subperiods for these groups of countries. The difference between the CAPD and total deficit is accounted for by the effect of the automatic stabilizers and interest outlays on the stock of debt.

[19] The positive average output gap during 1998-2004 for the Euro-11 in Table 4.3 and Figure 4.3 seems to be driven in large part by Ireland.

contradicts the findings of Gali and Perotti (2003), is reinforced by the downward (albeit non significant) slope of the regression line. For the OECD-6, however, fiscal policy is procyclical during the period 1980-1991.

Throughout the time span 1992-1997, the relationship between discretionary fiscal policy and the output gap among Euro-11 countries has become even more heterogeneous. This initial result for the Euro-11 suggests that the Maastricht Treaty did not lead the fiscal authorities in the Euro zone to respond cohesively to the business cycle. For the EU-3 and the OECD-6 fiscal policy evolves into more countercyclical and procyclical responses, respectively, conveying a clear distinction between those two groups during that period. During the SGP period, however the Euro-11 discretionary fiscal response is more consistent, presenting a clearer procyclical trend. This outcome goes against what one would expect if the provisions of the SGP are abided, in particular its aim for countries to strive for medium term balance or surplus. This procyclical tendency is also shared by the EU-3 group of countries, whereas OECD-6 shows a more disperse response after 1998. Those results suggest that procyclicality has become a European trend after 1998 and that the SGP fiscal rules have not been able to correct this undesired behavior for Euro-11.

Finally, Figure 4.4 displays the OECD measure of the total deficit (in percent of actual GDP) for our sample of countries during the period 1992 to 2004. This time span covers the MT and SGP periods, which are separated for each country in the figure by a vertical dashed line in the year 1998. Further, a horizontal dashed line also marks the 3% deficit ceiling. From the figure we see that several countries started in 1992 with total deficit higher than 3% of GDP. After 1998, the number of countries above that level dropped to just a few. Among EU-3, only the United Kingdom exceeds the 3% level and only on just two recent occasions (2003 and 2004). Among OECD-6, after 1998, the 3% deficit level was only exceeded by Japan and the U.S. in several years. During the period of implementation of the SGP, six countries have at some point in time exceeded the 3% deficit level : Germany, France, Greece, Italy, Netherlands and Portugal. These figures already point out that, while during the MT period there was a trend towards tighter fiscal discipline in “industrialized” countries, during the SGP period, the trend reversed in the direction of a relaxation of fiscal policy in those countries. This seems to be the case in particular for the Euro zone countries, which again casts doubts about the efficacy of the SGP in disciplining the fiscal authorities of those countries.

In sum, Figures 4.1, 4.2, 4.3 and 4.4 do not convey a positive message about the effectiveness of the SGP. This judgment is motivated by the increase in the average level of the cyclically adjusted primary deficit as well as the total deficit of the Euro-11 during the SGP period. Moreover, the negligible difference of those average levels for the Euro-11 with the EU-3 average and some countries of the OECD-6 indicates that other “industrialized” countries obtained the same fiscal records in the absence of supranational fiscal restrictions.

4.3 Estimation results

4.3.1 Effects of the MT and the SGP on the Euro-11

We start by estimating equation (4.1) using only the Euro-11 sample of countries. Table 4.4 displays the results. There, each column reports the results of a different specification of (4.1), using various combinations of testing variables. In all of them, we report the average fixed-effect for the regression, α, as well as the vector $X_{i,t}$ of control variables. Thus, column (1) reports the results of the regression in which only the control variables are included. Column (2), in addition, includes the time dummies for the MT-period and the SGP-period. These time dummies account for differences in the average value of the cyclically adjusted primary deficit for the Euro-11 during the two periods, 1992-1997 and 1998-2004, when compared to the previous period of 1980-1991. Column (3) accounts for differences in the responses of our discretionary deficit variable to the output gap during the periods of the fiscal rules. This is done by interacting our time dummies with the output gap variable. Column (4) incorporates the two aforementioned sets of variables together. Column (5) estimates equation (4.1) including as additional variables the (adjusted) excessiveness of the deficits when the deficit ceiling is binding during the MT- and SGP-periods. Columns (6) and (7) combine this set of testing variables with each of the previous testing sets, namely the dummies for the MT- and SGP-periods and their interactions with the output gap, respectively. Finally, in Column (8) the three sets of testing variables are all jointly included.

Regarding the estimation results for the control variables, we observe that in all columns the average fixed effect α for Euro-11 is positive and between 1 and 2 percent of potential GDP. The lagged cyclically adjusted primary deficit, *pdefay(-1)*, is highly significant with a positive sign and a value of at least 0.75 in all cases. This outcome demonstrates the strong persistence in the primary deficit in the Euro-11 countries. The coefficient of *ggflq(-1)* is negative in all cases and also highly significant. Its value is roughly 0.02 in all columns. Therefore, an increase of one percentage point in the lagged government debt/GDP ratio causes a decrease in CAPD by 0.02%.[20]

Private consumption inflation is insignificant in all of the cases, even though its coefficient is always estimated to be negative. This result might be related to the expected conflicting effects of inflation in discretionary fiscal policy explained previously, and therefore, the heterogeneity of the fiscal responses to inflation among the Euro-11 countries. Further, the highly significant coefficient for *ele* in all columns indicates the existence of political budget cycles in the Euro-11. In electoral years the average CAPD rises by around 0.63 percentage points in those countries. Finally, the response of our deficit variable to the output gap is not statistically significant for the Euro-11 in any of the columns of Table 4.4. As Figure 4.3 suggests, this outcome might be attributable to the large heterogeneity in the discretionary fiscal responses to the output gap in those countries.

[20] Annett (2006) obtains similar estimates.

Did the MT and the SGP affect the average level of the cyclically-adjusted primary deficit in the Euro-11?

This subsection addresses the effects of the MT and the SGP on the level of the cyclically adjusted primary deficit in the Euro-11 (item (i) of Question 4.1). As mentioned before, this is done by including the time dummies *d9297* and *d9804* in our regression equation.

Thus, in Table 4.4, we observe two different results. When those time dummies are estimated without the presence of the variables related to the binding cases of the MT and SGP (columns (2) and (4)), *d9297* is statistically significant and negative. However, if we insert *mas*, the dummy loses significance (columns (6) and (8)). This finding, confirmed by the results of robustness tests later on in Section 4.4, leads us to the conclusion that the decrease in the CAPD during the MT-period in Euro-11 was caused in large part by fiscal contraction when the deficit ceiling was binding.

The dummy relating to the SGP period, *d9804*, fails to be significant in any of the cases. Hence, during the SGP-period, the CAPD was on average not significantly lower than during the period 1980-1991.

We can summarize the above outcomes as follows:

Result 4.1 *Compared to the period 1980-1991, the average level of the CAPD in the Euro-11: (i) was lower during the Maastricht Treaty period, 1992-1997 (in particular, in cases when the deficit ceiling was binding); but (ii) was not statistically different during the SGP period.*

Therefore, Result 4.1 implies that the Maastricht Treaty during the run-up to EMU had a disciplinary impact on the Euro-11, while the SGP has generally not been effective in reducing the CAPD.

Did the MT and the SGP affect the fiscal responses to the business cycle in the Euro-11?

This issue is explored by estimating the coefficients on the variables *gap*, *d9297*gap*, *d9804*gap* in our regression framework – see columns (3), (4), (7) and (8) of Table 4.4. The coefficient on *gap* represents the response of the CAPD during the period 1980-1991. The two interaction terms correspond to differences in the responses during the MT- and SGP-periods. We obtain the following result:

Result 4.2 *For the Euro-11 sample, there is on average no statistical difference in the response of the CAPD to the output gap during the two periods under consideration, 1992-1997 and 1998-2004, when compared with the period 1980-1991.*

Therefore, neither the MT, nor the SGP, seem to have significantly affected the cyclicality of the fiscal authorities' responses to the business cycle. As for the benchmark period 1980-1991, the responses are mixed, albeit after 1992 a subtle tendency towards procyclicality can be observed in the data (see Figure 4.3). This contradicts the findings of Marinheiro (2004). Thus, the fiscal restrictions have not forced countries to consistently "save in good times and spend in bad times".

Effects of the MT and the SGP when the deficit ceiling was binding

In view of the highly significant and negative coefficients of *mas* and *sgp* in columns (5) to (8) of Table 4.4, we conclude that:

Result 4.3 *Fiscal policy as measured by the primary cyclically adjusted deficit has been contractionary in instances when the deficit ceiling was binding, both during the run-up towards the Euro and after the formation of the monetary union in Europe.*

Therefore, Result 4.3 suggests that during both periods, 1992-1997 and 1998-2004, fiscal discipline increased whenever the ceilings of the MT and SGP were binding. Hence, even though the SGP has not led to a significant change in the average level of CAPD (as evinced by Result 4.1), it seems to have been effective at least to some extent in disciplining countries that violated the fiscal restrictions of the SGP.

4.3.2 Comparison of the Euro-11 with other OECD countries

We also compare fiscal policy behaviour of the Euro-11 throughout the MT and SGP periods with that of the EU-3 and OECD-6 groups of countries. The aim is to investigate whether the fiscal behaviour of the Euro-11 during these periods has been different from that of other countries with roughly similar economic and political characteristics, but that were not constrained by Europe's fiscal restrictions.

The Euro-11 versus the EU-3

First, we merge the Euro-11 and EU-3 samples into an EU-14 sample. Given that some of the coefficients of the control variables can differ between the Euro-11 and the EU-3 samples, we estimate this merged sample allowing for differences in the coefficients of each control variable between those two groups of countries[21]. For that, we interact the coefficients of those variables with the dummy *deu3*, which assumes a value of 1 for Denmark, Sweden and the UK, and 0, otherwise. The results, relegated to Table 4.3 in Appendix 4.C, show that the coefficients of *ggflq(-1)*, *inf*, and *gap* are indeed statistically different for the Euro-11 and the EU-3. Hence, when comparing the effects of the MT and SGP between Euro-11 and EU-3, we include those controls while allowing for their coefficients to differ between the two groups.

[21] We also estimate equation (4.1) for the aggregate sample EU-14 without any distinction between the coefficients of the control variables for Euro-11 and EU-3. The estimates are displayed in Table 4.2 in Appendix 4.C. Roughly, the coefficients are closer to those in Table 4.4 since Euro-11 sample contains almost four times more countries than EU-3.

To distinguish between the Euro-11 and EU-3 in terms of the effects of our testing variables, we interact these variables with dummy *deu3*. This procedure leads to Table 4.5, where, in addition, only the control variables for which the coefficients were significantly different between the Euro-11 and EU-3 (as was reported in Table 4.3) are interacted with *deu-3*. Thus the regressions in Table 4.5 involve two types of testing variables. Those that are not interacted with *deu3* measure the differences in fiscal behaviour between the Euro-11 over the relevant period (1992-1997 and/or 1998-2004) and the average for the EU-14 over the period 1980-1991. Those that are interacted with *deu3* estimate departures of the EU-3 sample from the outcomes of the Euro-11 during the period under examination. Furthermore, since the interaction terms only check for statistical differences between the EU-3 and the Euro-11, at the end of Table 4.5, we also sum the coefficients of a particular variable with and without the interaction term and then test via a Wald coefficient test if this sum is statistically different from zero. This analysis checks whether the coefficient of the particular variable is statistically different from zero for the EU-3. This is done, for instance, for the variable *inf* by summing the coefficients of *inf* and *inf*deu3* and testing via a Wald coefficient test whether this sum is equal to zero. The results in Table 4.5 show indeed that the CAPD reacts negatively to inflation in the EU-3 countries for most of the estimations. The same analysis is also performed for the output gap. The Wald test shows that if we consider the entire period sample (1980-2004), the EU-3 has followed countercyclical fiscal policy (*gap + gap*deu3* is statistically different from zero).[22] Other than this, we arrange Table 4.5 in the same way as Table 4.4.

In discussing the outcomes of Table 4.5 for our testing variables, we start by addressing item (ii) of Question 4.1 concerning the differences between Euro-11 and EU-3 of the effects of the MT and the SGP on the average fiscal stance. Thus, the focus here is on the estimates of the coefficients of the time dummies *d9297* and *d9804*, and the interaction terms *d9297*deu3* and *d9804*deu3*. We have the following result:

Result 4.4 *(i) During the MT-period, the average fiscal stance of the Euro-11 was tighter than that for the EU-14 over the period 1980-1991 (especially in cases when the deficit ceiling was binding), but in none of the specifications it was statistically different from that for the EU-3 over the same period. (ii) During the SGP period, only when the deficit ceiling was binding the average fiscal stance of the Euro-11 was significantly tighter than that for the EU-14 over the period 1980-1991, otherwise no statistical difference is observed between those two average fiscal stances. In turn, the EU-3 average fiscal stance seems slightly tighter than that for Euro-11 over the SGP-period (albeit this result does not hold when the deficit ceiling was binding).*

From the significance of *d9297* in Columns (1) and (3), we infer the difference in the fiscal stance between the Euro-11 during the MT-period and the EU-14 over the period

[22]We do not explicitly test whether the coefficient of *ggflq(-1)* is different from zero in Table 4.5, since the coefficient for the EU-3 is statistically different and more negative than the one for the Euro-11.

1980-1991. We observe that, when the variable *mas* is included from Columns (4) to (7), *d9297* loses significance, indicating that the extra tightening of the fiscal stance is concentrated among cases in which the Maastricht deficit ceiling was exceeded. Moreover, the marginal significance and negative sign of *d9804*deu3* in Columns (3) and (7) of Table 4.5 suggests that, during the SGP-period, the EU-3 might have had a slightly tighter average fiscal policy than the Euro-11 over the same period.[23] Wald tests are also used to check whether during the SGP period, the EU-3 average fiscal stance (the sum of the variables *d9804* and *d9804*deu3*) was different from zero. The results show that only in two regressions (columns 3 and 8) this test is significant, which suggests that the average fiscal stance of the EU-3 has not contracted significantly after the start of the implementation of the SGP.

Therefore, Result 4.4 suggests that in neither of the two periods, 1992-1997 and 1998-2004, the Euro-11 tightened its fiscal stance on average more than the EU-3.

Comparison of the fiscal responses to the business cycle in the full EU sample
Next, we investigate how the Euro-11 and EU-3 differ in the response of their fiscal stances to the output gap during the MT and SGP periods. To this end, we incorporate into the regressions the interaction terms *d9297*gap*, *d9804*gap*, *d9297*deu3*gap*, and *d9804*deu3*gap*. With these terms, we examine the respective differences in the fiscal responses to the output gap for the Euro-11 and EU-3 during the MT- and SGP-periods.

When the coefficients of *gap* and *gap*deu3* are estimated in the absence of the other interaction terms, they provide us with the cyclically-adjusted fiscal responses to the output gap for Euro-11 and EU-3 over the entire sample period (1980-2004). The coefficient estimates of *gap*deu3* in Columns (1), (4) and (5) of Table 4.5 are statistically significant, indicating a significant difference between the Euro-11 and EU-3 in their responses. In particular, Denmark, Sweden and the UK seem to have followed a more countercyclical fiscal response on average than the Euro zone countries. It seems that this difference can be attributed to the more countercyclical response of the EU-3 countries during the MT period, as the highly significant coefficient of *d9297*gap*deu3* in Columns (2) and (6) of Table 4.5 suggests.[24] The coefficient of *d9297*gap* indicates that on average the fiscal response of the Euro-11 during the MT period was not different from that in the period before 1991. Further, for both groups of countries, the fiscal responses to the output gap during the SGP period do not seem to have differed from that during the period 1980-1991, nor from each other.[25]. This similar cyclical fiscal behaviour during the SGP-period is confirmed by a Wald test of the equality of the coefficients of *d9804*gap* and *d9804*deu3*gap*. So, we can conclude that:

[23] Nevertheless this result is not robust over all columns, and therefore, no strong conclusions can be drawn about this difference in the fiscal behaviour between the EU-3 and the Euro-11.

[24] However, when we control for the difference in the average CAPD levels during the MT- and the SGP-periods (columns (3) and (7) of Table 4.5) this effect vanishes.

[25] Only in one regression (Column (3)) the coefficient on *d9804*gap*deu3* is significant.

Result 4.5 *(i) During the MT-period, the fiscal response to the output gap has on average been more countercyclical for the EU-3 than for the Euro-11. (ii) During the SGP-period, responses to the output gaps were similar for the two groups and for both groups they were similar to those during the period 1980-1991.*

Hence, the SGP has not led to significant differences in fiscal responses between the two groups of countries. Beyond that, during this recent period, countries seem to have shifted to a slightly more procyclical fiscal behavior. Wald coefficient tests also confirm that the EU-3 fiscal policy was significantly countercyclical during the MT period and pro-cyclical during the SGP-period.

Comparison of fiscal behaviour when the deficit ceiling was binding By including the interaction terms *mas*deu3* and *sgp*deu3* into the regression specification of Table 4.5, we aim to address item (ii) of Question 4.3, and capture the difference of the effect of the MT or the SGP for the EU-3 when compared to the Euro-11. Of course, one can argue that the computation of those variables for the EU-3 group is meaningless. However, since our objective here is to compare the response of our "treated" group, Euro-11, with a control group, EU-3, differences in the coefficient estimates of those variables become a relevant testable hypothesis. However, this comparison is not very meaningful for the SGP period, given that on only one occasion during this period an EU-3 country exceeded the 3% deficit level. The negative and highly significant coefficient of mas and, in addition, the non-significant coefficient of mas*deu3 imply that:

Result 4.6 *During the MT-period, the fiscal stance of both the EU-3 and the Euro-11, was similarly tightened whenever the deficit ceiling was violated.*

A possible explanation for the similarity in behaviour could be that countries did not know in advance if they would try to join the Euro area at some point. In particular, Denmark and Sweden held referenda regarding potential participation in the Euro zone.[26] Hence, fiscal policy in those countries might have been influenced at least to some extent by the provisions of the Maastricht Treaty.

Regarding the variable *sgp* in Table 4.5, it is again significant and negative for the Euro-11 sample, corroborating Result 4.3 of the previous subsection. In turn, for the EU-3 sample, the coefficient of *sgp*deu3* is insignificant and displays very large positive values most likely caused by a small sample bias. In fact, as Figure 4.4 reveals, only on one occasion during the period 1998-2004 an EU-3 country exceeded the 3% total deficit level (this was the UK in 2003). Hence, no clear interpretations and conclusions can be drawn from that variable.

[26] In a referendum on September 28, 2000, the Danish rejected with a narrow margin the proposal to join the Euro. The same happened in Sweden on September 14, 2003.

The Euro-11 versus the OECD-6

At last, we perform the same analysis as we did in the comparison between the EU-3 and the Euro-11, but now substituting the OECD-6 for the EU-3. The idea is that while the EU-3 countries are members of the European Union and, therefore, bound by the Treaty, the OECD-6 countries are not subject to the Treaty, but exhibit roughly similar economic and political structures as the Euro-11 countries and are at a roughly similar stage of development as the Euro-11.

Thus, we estimate the same model used in Table 4.4 for OECD-6. This investigation is also done by merging the samples Euro-11 and OECD-6 (sample OECD-17), and estimating once more the model of Table 4.4 to test for statistically significant differences in each one of the control variables between the two groups of countries. The distinction between them is carried out via the interaction of each one of the control variables with the dummy *doecd6*. This dummy assumes the value 1 throughout the entire sample period for the countries Australia, Canada, Iceland, Japan, Norway and the US, and 0 otherwise (see Table 4.1). The results of both procedures are presented in Appendices 4.D and 4.E – see Tables 4.5 and 4.6, respectively.[27] The coefficients of the control variables that present relevant statistical differences between Euro-11 and OECD-6 in those tables are then estimated separately when we analyze item (ii) of our empirical Questions 4.1, 4.2 and 4.3.

The results are presented in Table 4.6. There, we observe that only the dummy for political budget cycles, *ele*, and the output gap, *gap*, exert a significantly different effect for the two groups of countries. The political budget cycle is significantly different and weaker for the OECD-6 than for the Euro-11. This is also confirmed by a Wald test that shows that the coefficient of the election variable for the OECD-6 is not significantly different from zero, and therefore, does not help to explain the CAPD in that sample of countries.

As regards to the comparison of the average fiscal stances, Table 4.6 shows that (similar to Result 4.4 for the comparison with the EU-3), the average CAPD levels of the Euro-11 and the OECD-6 are not statistically different during the MT-period. However, when we examine CAPD average levels discrepancies during the SGP-period, we obtain the following result:

Result 4.7 *During the SGP-period, the Euro-11 displayed on average a tighter fiscal stance than the OECD-6 (especially in those cases when the total deficit ratio to GDP exceeded the level of 3%).*

This result, which shows up as the positive and significant coefficient of *d9804*doecd6* in Table 4.6 (when *sgp* and *sgp*doecd6* are not simultaneously included) and which is corroborated by Figure 4.1, indicates that the fiscal restrictions of the SGP have slowed

[27] Appendix 4.E presents estimations similar to those underlying Table 4.4 for the OECD-17 with homogenous coefficients on the control variables, i.e. without allowing for differences between the Euro-11 and the OECD-6 as regards to their control variables. Table 4.7 shows the results.

increases in the average CAPD in Euro-11 after 1998, whereas this did not occur in Japan and US. As Figure 4.4 shows, these countries pushed OECD-6 average CAPD up.

Measured over the entire sample period 1980-2004, the response of the CAPD to the output gap is on average more countercyclical for the OECD-6 than for the Euro-11. This is corroborated by the Wald test at the end of Table 4.6. The difference is particularly pronounced when we control for level differences in the CAPD during the MT- and SGP-periods as Columns (1), (3), (5) and (7) of Table 4.6 shows. For the MT- and SGP-periods, however, the responses of the two groups of countries do not differ between each other. That conclusion (analogous to the one contrasting the Euro-11 with the EU-3 - Result 4.5) evinces that the fiscal constraints did not induce the Euro-11 to react differently to the output gap than the other "industrialized" countries.

Moreover, comparing the fiscal behaviour of the two country groups in cases when the total deficit ratio was higher than 3%, we obtain the following result:

Result 4.8 *During both the MT- and the SGP-period, the average Euro-11 fiscal stance became significantly tighter than that of the OECD-6, whenever the total deficit exceeded the level of 3% of actual GDP.*

Result 4.8 reinforces our findings for the Euro-11 and EU-14 of strong fiscal contractions in the case of excessive deficits (recall Results 4.3 and 4.6, respectively). The results indicate that the Euro-11 was more disciplined than other "industrialized" countries (in particular, the US and Japan, as Figure 4.4 shows) in instances when the deficit ceiling was binding. In addition, Wald tests show that, as expected, the variable *mas* is not significantly different from zero for the OECD-6 group of countries, and the variable *sgp* is only marginally significant, although with the wrong (positive) sign. This last result is again related to the profligate fiscal behaviour of Japan and US.

Therefore, comparing the fiscal behaviour of the Euro-11 with that of other OECD countries, we obtain mixed results. The EU-3, even though not subject to the sanctions of the SGP, has shown more fiscal discipline than the Euro-11 countries during the SGP period. Conversely, compared to other "industrialized" OECD countries outside the European Union (in particular, the US and Japan), the Euro-11 seemed to be slightly more disciplined. Nevertheless, discretionary fiscal responses to the business cycle in the Euro-11 have not changed after the Treaty was signed and, if anything, they have been more procyclical than in other "industrialized" countries.

4.4 Robustness tests

To explore the robustness of Results 4.1 to 4.8, we include in the estimation of (4.1) five economic and six political additional variables potentially relevant in explaining fiscal policy. Table 4.7 defines these variables, while Appendix 4.F details their construction and intuition.[28]

The economic variables are the ex-post real long-term interest rate based on the private consumption deflator (*irlrc*), the share of non-working population (*nwp*), trade openness (*open*), the relative economic country size defined as the ratio of real GDP to the sum of the real GDPs of the countries in the relevant sample (*size*), and economic volatility defined as the standard deviation of real economic growth over the preceding 10 years (*vol*). The literature identifies two opposite reasons to control for real long-term interest rate. On the one hand, as Roubini and Sachs (1989) explain, the budget deficit may be a positive function of *irlrc*, because an increase in this variable reflects higher debt servicing costs, which, if transitory, should be accommodated by a temporary increase in the budget deficit. On the other hand, Fatás and Mihov (2003) point out that, besides its direct effect on interest payments, interest rates may also affect the budget negatively via their effects on public infrastructure investments. The higher is the real interest rate, the smaller is the net present value of the investment and thus the weaker is the incentive to invest.

The share of the non-working population (i.e. the sum of those younger than 14 and older than 64 divided by the total population) captures potential implications of "baby booms" and ageing for the budget, because these demographic variables affect spending on education, health care and pension benefits.[29] Trade openness is included in the analysis, because there are reasons to believe that this variable interacts with fiscal policy. For instance, Rodrik (1998) argues that open economies are particularly vulnerable to risk. Hence, it may be important for the government to facilitate consumption smoothing by operating a counter-cyclical fiscal policy.

Two arguments support the use of the relative economic country size as a control variable. As Annett (2006) explains, from the political side, small countries are simply more accustomed to external influences over policy. They also tend to have less bargaining power so that the loss of reputation from violating the fiscal rule is greater. Second, smaller countries could also fear tangible pecuniary losses such as reductions in structural funds. Large countries may view the cost of profligate fiscal policy to be low, given that they suffer little diminution in reputation. Further, the economic costs of fiscal consolidation tend to be higher in large countries, given their larger fiscal multipliers.

Finally, we also control for macroeconomic volatility. Talvi and Vegh (2000) predict that fiscal procyclicality is positively correlated with the degree of output volatility. Their argument is based on the political infeasibility of running large surpluses during booms. For a high-volatility country, the appropriate (from the viewpoint of smoothing government consumption and other expenditures) surplus during a boom may be quite large as a share of GDP. However a large surplus may also unleash intense political pressure

[28]Analogous to Tables 4.4, 4.5 and 4.6, this appendix also provides the estimation results when the additional variables are included (see Tables 4.9 to 4.41).

[29]Because large peaks in the number of children are absent in our sample, it would be more interesting to control only for the effects of the ageing process. However, this variable is not available on a regular basis for all the countries of our sample. Therefore, we have used *nwp* instead. See Appendix 4.F for more details.

to increase public spending. In contrast, the required surplus in a low-volatility country may be quite small and may not attract the same degree of political opposition. The net result is that fiscal procyclicality is more likely for countries or periods in which the amplitude of the business cycle is large. Another argument to control for macroeconomic volatility comes from Anett (2006), who claims that the SGP may act as an external anchor for countries prone to macroeconomic volatility. In this sense, the pact can garner credibility for more volatile countries and take over the role once played by exchange rate coordination mechanisms such as the Bretton Woods system.

The six political variables, extracted from Armingeon et al. (2005) and available until 2003, are the cabinet composition, *gpart*; the new party composition of the cabinet, *gnew*; the ideological gap between the old and new cabinet, *ggap*; the annual number of changes in government, *gchan*, the type of government, *gtype*;[30] and the index of fractionalization of the party system, *rae*. The first three variables capture the political ideology (left or right) of the cabinet in power, and changes in this ideology due to new cabinet formations. These variables might affect fiscal policy because different ideological views about the government's role affect the amount of public spending. So, given the demands of their electorate, we would expect countries with a predominance of left governments (or recent changes into this ideological direction) to be associated with higher public spending. The frequency of changes in the government is often used to explain budget deficits.[31] As Roubini and Sachs (1989) argue, the shorter is the expected tenure of the government, the more difficult it may be to achieve cooperation among the coalition partners. Thus, a higher frequency changes in government exposes the fragility of the political governance in a country, increasing the effective rate at which politicians discount the future.[32]. In the same way, the type of government and the index of fractionalization of the party system capture the fragility of the government and the political structure of the country, thereby affecting the determination of fiscal deficits.[33] This argument is in line once more with Roubini and Sachs (1989) who find that the size and persistence of the budget deficits in the industrial countries in the seventies were greater when the government was divided (for example, in the case of multiparty fragmented coalitions rather than one-party governments or governments with fewer and stronger parties).

To isolate the impact of the various additional variables, each time we have included only one of these additional variables in the estimations. Further, the comparison of the results for the Euro-11 with the EU-3 and the OECD-6 followed the same methodology

[30]The classification of this variable takes into account whether the government has a majority in the parliament as well as the number of parties that forms the coalition. The intuition is that if a government has a majority and the lower is the number of parties forming it, the greater is its governability. For details, see Appendix 4.F.

[31]Woo (2003), for example, expects that public deficits should be larger in countries with more frequent changes in the governing party.

[32]This variable is also strongly correlated with the frequency of elections in countries with a parliamentary system, which forms the majority of the countries in our sample. So, whenever *gchan* was included, the dummy for parliamentary elections *ele* was removed from the regressions.

[33]The index of fractionalization of the party system is computed using the formula in Rae (1968).

as before. Thus, when adding a new variable in the estimations, we tested whether the coefficients were different for the different groups of countries. Whenever this was the case, we interacted the extra variable with the dummies *deu3* and *doecd6* and estimated the specific coefficients for each group of countries.

The main conclusions of these robustness tests are summarized by Table 4.8. It reports for each of the samples under consideration (the Euro-11, EU-14 and OECD-17), the additional variables that are included, their significance and, whenever they are significant, the sign of their coefficients. Further, it also reports whether the original empirical results are robust or not. So, the term "Robust" in the line "robustness" of the table indicates that the inclusion of the additional variable did not qualitatively affect the results for the case under consideration. However, whenever any of the empirical results is altered by the inclusion of a variable, the change (for instance, a coefficient becoming (in)significant when it was not before or a change in its sign) is indicated in Table 4.8.

Table 4.8 shows that *nwp*, *open*, *size*, and *gchan* enter with significant coefficients in the Euro-11 estimations. The share of the non-working population has a positive and marginally significant coefficient. However, when we compare the results for the Euro-11 with those for the EU-3 and the OECD-6, the coefficients of *nwp* for the latter two samples differ significantly from the corresponding coefficient for the Euro-11. This indicates that only in the Euro area, the additional expenditures on children and in particular on the elderly people impact positively on the CAPD. Obviously, this poses additional concerns about the fiscal effects of the ageing process that this group of countries will face in the near future. Further, the number of changes in the government per year is also positive and significant for the Euro-11 as well as for the EU-14 sample. This corroborates the hypothesis that political volatility reduces the effective discount factor of politicians and leads to a deficit bias. For the OECD-6, however, the response of the CAPD to this variable is significantly different and more negative than the response of the Euro-11. This suggests that for the other OECD countries the frequency of changes in the government do not have a strong effect on the CAPD.

In turn, the coefficient of trade openness is negative and highly significant not only for the Euro-11, but for also for the EU-3 and the OECD-6. This outcome suggests a negative relationship between trade openness and the CAPD among "industrialized" countries. One possible explanation, shared by Annett (2006), is that the economic vulnerability associated with more openness forces the fiscal authorities to be more disciplined, to obtain more flexibility in dealing with negative trade shocks. The relative economic size of the country is also negative and highly significant for the Euro-11 and EU-14. However for both samples, this variable becomes significantly less negative after 1998 as the coefficient of the variable *size*d9804* indicates. Those results bear out the fiscal discipline of the large countries specially during the eighties and their looser behaviour after the implementation of the SGP. Moreover, the coefficient of *size* for the other OECD countries is significantly different and positive when compared to Euro-11. This indicates the lack of fiscal discipline of the non-European larger countries (US and Japan), especially when compared with the European countries.

The variables *ggap*, *gtype* and *rae* are not significant for the Euro-11 and the OECD-17 samples, but show differences for the Euro-11 and the EU-3 in the estimations for the EU-14. The response of the CAPD to *ggap* and *gtype* for the EU-3 sample is significantly more negative, while the response to *rae* is significantly more positive. As a consequence, the ideological gap between the old and the new government affects the fiscal policy of the EU-3 countries more than the fiscal policy of the Euro-11. The same is the case for the fragmentation of the party-system that induces a significant increase in the CAPD for EU-3 and is not relevant for Euro-11. Finally, the fact that the type of government induces a significantly more negative response of the CAPD for the EU-3 than for Euro-11 indicates that minority coalitions in the EU-3 are less prone to a fiscal deficit on average than in the Euro-11.

Table 4.8 shows that item (i) of Result 4.1 is weakened when the political variables *gtype* and *gchan* are included in the regressions. This suggests that the reduction in the average level of the CAPD during the MT might have been caused by more powerful coalitions in (more governable) governments or less party fragmentation in parliaments. For the Euro-11, when *size* is included, the level effect of the SGP becomes statistically more negative. This contradicts Result 4.1-ii and shows that after controlling for the size, the fiscal stance of Euro-11 tightens after the introduction of the SGP. In turn, Result 4.4-i is weakened by the inclusion of *nwp*, *open*, *size*, *vol*, *ggap*, *gtype*, and *rae*, which indicates that, in fact, during the MT-period the average fiscal stance of the Euro-11 was not firmly tighter than that of the EU-14 over the period 1980-1991. Again, for the EU-14, the fiscal stance tightens post-SGP when we control for the economic size for the country. Result 4.7 is also invalidated by inserting *irlrc*, *nwp*, *open*, *gchan* and *rae*. Thus, the robustness tests undermine the conclusion that, during the SGP, the Euro-11 had on average a tighter fiscal stance than the OECD-6.

Finally, we also estimate (4.1) for the Euro-11 sample allowing for individual-country coefficients for the output gap and inflation. However, the outcomes, reported in Tables 4.42 and 4.43 of Appendix 4.F.3, do not display relevant differences from our previous results.

Summarizing, we can conclude that our earlier findings on the effects of the MT and SGP on the average fiscal stance of the Euro-11 are not so strong under the various robustness tests. Nevertheless, the finding that excessive deficits are met by significant fiscal contractions remains present and unaffected.

4.5 Conclusion

The Maastricht Treaty has now been in existence for fifteen years. Its creation marked a new era for European fiscal policy with the introduction of strict fiscal rules and restrictions that were later reinforced with the introduction of the Stability and Growth Pact. This chapter investigates the economic effects of those fiscal rules and restrictions on discretionary fiscal policy in Europe.

Based on our empirical results, we reach the following conclusions:

a. On average, the level of the CAPD in the Euro-11 slightly decreased during the MT-period. This small reduction, however, also occurred in other groups of developed countries (EU-3 and OECD-6), suggesting a common trend of deficit reduction among "industrialized" countries rather than an unique impact of the MT in the Euro-11. Moreover, during the SGP-period, no reduction in the average CAPD is observed for the Euro-11 group of countries, even though it has decreased for the EU-3. This indicates that the sanctions of the SGP have not been effective in keeping Euro-11's fiscal stance in tandem with those of other OECD countries (with the exception of Japan and US that have shown an increase in fiscal profligacy throughout the SGP-period).

b. The MT and the SGP have also not succeeded in making Euro zone fiscal policy countercyclical. In addition, during the MT-period fiscal policy in the EU-3 became more countercyclical than that of the Euro-11 and the average fiscal response to the business cycle of the OECD-6 did not differ from that of the Euro-11. During the SGP-period the fiscal responses of both groups (EU-3 and OECD-6) were also not statistically different from that of the Euro-11.

c. Favorably, our results demonstrate that the MT and the SGP were on average effective in reducing the CAPD when the actual deficit ceiling was exceeded in the Euro-11. This fiscal behaviour contrasts with that of the other "industrialized" OECD countries when their deficit ratio exceeded the 3% level (especially, Japan and the US) and so, evinces the singular reaction of Euro-11 fiscal authorities in confronting excessive deficits. During the MT period, EU-3 also shared this disciplined behaviour in cases that the 3% deficit limit was exceeded.

This chapter demonstrates, therefore, that both the MT and the SGP were effective in inducing a fiscal tightening in response to *excessive deficits*. However, if the reduction of total average deficits and/or the change of fiscal policy to countercyclical are also considered as measures of effectiveness of the EU fiscal framework, then our verdict is less positive. In addition, the MT during the period preceding EMU seems to have been more stringent than the SGP, although this fiscal stance contraction was also observed in other "industrialized" countries (even those not subject to fiscal constraints). This common trend among OECD countries in reducing deficits during the MT-period is also highlighted by Kennedy and Robbins (2001).

Furthermore, our conclusions imply the need for improvements of the SGP, especially if the enforcement of countercyclical fiscal policies in the Euro zone is seen as an objective of the SGP. An amended pact should include incentives to produce lower deficits (or higher surpluses) during boom phases of the business cycle and more flexibility in the application of sanctions during recessions. This is in line with the recent revision of the Pact in 2005 (see European Commission, 2005b, and Buti and Sapir, 2006). However, as these latter authors assess, the successful implementation of the new Pact will depend on the political will and the trade off between the perceived negative externalities of fiscal misbehavior against the political costs of attempting to limit the partner countries' room for manoeuvre.

The analysis also leaves some empirical questions open to further examination. For example, a comparison of the Euro-11 only with other countries that have also adopted strict fiscal rules (Australia, Canada and the UK, for instance) would help us to understand differences in their outcomes. Second, it would be important to investigate which tools (increase in taxation or cut in expenditures) fiscal authorities have used to reduce the CAPD in cases of excessive deficits.

4.6 Tables and figures

Table 4.1: List of variables

pdefay	Cyclically adjusted primary deficit.
α	Average fixed-effect or constant in the estimation.
pdefay(-1)	Lagged cyclically adjusted primary deficit.
ggflq(-1)	Lagged government debt (as % of actual output).
inf	Inflation of private consumption.
ele	Dummy for years of parliamentary elections: equals one in years of parliamentary elections in a country and zero otherwise.
gap	Output gap.
d9297	Time dummy for the period 1992 to 1997 (First Phase of EMU or Maastricht Treaty): equals one during the years 1992 to 1997 for all countries and zero otherwise.
d9804	Time dummy for the period 1998 to 2004 (Stability and Growth Pact): equals one during the years 1998 to 2004 for all countries and zero otherwise.
*d9297*gap*	Interaction term between Maastricht Treaty and *gap*: equals the output gap for any sample of countries during the period 1992-1997.
*d9804*gap*	Interaction term between SGP and *gap*: equals the output gap for any sample of countries during the period 1998-2004.
mas	Constructed variable that accounts for the effects of the Maastricht Treaty in cases when the deficit exceeded the 3% limit. See equation (4.2).
sgp	Constructed variable that accounts for the effects of the Stability and Growth Pact in cases when the deficit exceeded the 3% limit. See equation (4.3).
deu3	Country dummy for three EU member countries that do not belong to the Eurozone: equals one for Denmark, Sweden and UK in all years, and zero otherwise.
doecd6	Country dummy for six OECD countries that does not belong to the Eurozone: equals one for Australia, Canada, Iceland, Japan, Norway and the US in all years and zero otherwise.
*d9297*deu3*	Interaction term: equals 1 for EU-3 during the years 1992 to 1997 and zero otherwise.
*d9297*doecd6*	Interaction term: equals 1 for OECD-6 countries during the years 1992 to 1997 and zero otherwise.
*d9804*deu3*	Interaction term: equals 1 for EU-3 during the years 1998 to 2004 and zero otherwise.
*d9804*doecd6*	Interaction term: equals 1 for OECD-6 countries during the years 1998 to 2004 and zero otherwise.
*d9297*gap*deu3*	Interaction term between Maastricht Treaty, *gap* and *deu3*: equals the output gap for EU-3 sample of countries during the period 1992-1997 and zero otherwise.
*d9804*gap*deu3*	Interaction term between SGP, *gap* and *deu3*: equals the output gap for EU-3 sample of countries during the period 1998-2004, and zero otherwise.
*d9297*gap*doecd6*	Interaction term between Maastricht Treaty, *gap* and *doecd6*: equals the output gap for OECD-6 sample of countries during the period 1992-1997 and and zero otherwise.
*d9804*gap*doed6*	Interaction term between SGP, *gap* and *doecd6*: equals the output gap for OECD-6 sample of countries during the period 1998-2004 and zero otherwise.
*mas*deu3*	Interaction term between the variable *mas* and *deu3*: equals the variable *mas* for EU-3 sample of countries, and zero otherwise.
*mas*doecd6*	Interaction term between the variable *mas* and *doecd6*: equals the variable *mas* for OECD-6 sample of countries, and zero otherwise.
*sgp*deu3*	Interaction term between the variable *sgp* and *deu3*: equals the variable *sgp* for EU-3 sample of countries, and zero otherwise.
*sgp*doecd6*	Interaction term between the variable *sgp* and *doecd6*: equals the variable *sgp* for OECD-6 sample of countries, and zero otherwise.

Table 4.2: Unweighted average - cyclically-adjusted primary deficit (as % of pot. GDP) in OECD countries

Country	1980-1991	1992-1997	1998-2004	1980-2004
AUT	0.64	0.51	-0.96	0.16
BEL	-0.30	-5.06	-6.16	-3.08
DEU	0.06	-0.50	-0.07	-0.11
ESP	1.69	-0.79	-2.07	0.04
FIN	-2.08	-0.32	-4.24	-2.26
FRA	-0.26	0.94	-0.26	0.03
GRC	4.22	-2.81	-1.38	0.96
IRE	1.43	-4.20	-1.39	-0.71
ITA	2.86	-4.12	-2.89	-0.43
NLD	0.27	-1.56	-1.34	-0.62
PRT	-0.51	-1.32	0.28	-0.48
DNK	-1.61	-1.27	-2.60	-1.81
GBR	-1.62	1.93	-1.38	-0.70
SWE	0.54	2.93	-2.60	0.23
AUS	-0.74	-0.81	-2.35	-1.21
CAN	2.60	-1.04	-3.79	-0.06
ISL	1.59	-0.30	-1.47	0.28
JPN	-1.18	2.19	4.78	1.30
NOR	3.69	6.22	5.67	4.85
USA	0.95	-0.50	-0.92	0.08
Euro-11	0.73	-1.75	-1.86	-0.59
EU-3	-0.90	1.20	-2.19	-0.76
OECD-6	1.15	0.96	0.32	0.87
OECD-20	0.61	-0.49	-1.26	-0.18

Source: OECD (2005) and own calculations

Table 4.3: Unweighted average - output gap (in %) in OECD countries

Country	1980-1991	1992-1997	1998-2004	1980-2004
AUT	-0.70	-0.23	0.80	-0.17
BEL	-0.92	-1.64	-0.20	-0.89
DEU	-0.29	-0.72	0.04	-0.30
ESP	-1.72	-3.16	-0.26	-1.66
FIN	1.13	-7.83	0.13	-1.30
FRA	-1.05	-1.47	-0.43	-0.98
GRC	-0.48	-3.02	0.51	-0.81
IRE	-2.18	-3.91	2.40	-1.31
ITA	-1.06	-1.97	0.32	-0.89
NLD	-0.52	0.04	1.03	0.05
PRT	-2.63	-1.21	0.67	-1.36
DNK	-0.65	-0.83	0.12	-0.48
GBR	-1.25	-1.73	0.23	-0.95
SWE	-0.97	-4.65	0.01	-1.58
AUS	-1.69	-2.54	1.03	-1.13
CAN	-1.08	-2.51	0.43	-1.00
ISL	1.52	-4.61	-0.55	-0.53
JPN	-0.07	0.83	-1.81	-0.34
NOR	-0.59	-1.85	1.76	-0.24
USA	-1.28	-1.38	-0.46	-1.07
Euro-11	-0.95	-2.28	0.45	-0.87
EU-3	-0.96	-2.40	0.12	-1.00
OECD-6	-0.53	-2.01	0.07	-0.72
OECD-20	-0.82	-2.22	0.29	-0.85

Source: OECD (2005) and own calculations

Table 4.4: Effects of the MT and the SGP on the CAPD - Euro-11 (1980 - 2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
α	1.53**	2.00*	1.20*	1.74	1.44**	1.83*	1.05	1.64
	(0.68)	(1.05)	(0.68)	(1.09)	(0.68)	(1.02)	(0.68)	(1.04)
pdefay(-1)	0.77***	0.77***	0.78***	0.78***	0.75***	0.75***	0.76***	0.76***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
ggflq(-1)	-0.03***	-0.02***	-0.02***	-0.02**	-0.02***	-0.02**	-0.02**	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	-0.05	-0.03	-0.03	-0.02	-0.07	-0.06	-0.05	-0.05
	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)
ele	0.65***	0.61***	0.64***	0.61***	0.66***	0.63***	0.65***	0.63***
	(0.17)	(0.15)	(0.17)	(0.16)	(0.15)	(0.14)	(0.16)	(0.15)
gap	-0.03	-0.01	-0.03	-0.02	-0.03	-0.01	-0.02	-0.02
	(0.06)	(0.07)	(0.11)	(0.11)	(0.06)	(0.07)	(0.11)	(0.12)
d9297		-0.90**		-1.01**		-0.57		-0.72
		(0.44)		(0.44)		(0.49)		(0.49)
d9804		-0.44		-0.48		-0.54		-0.62
		(0.43)		(0.47)		(0.46)		(0.49)
*d9297*gap*			-0.01	-0.04			-0.03	-0.06
			(0.12)	(0.13)			(0.13)	(0.12)
*d9804*gap*			0.10	0.18			0.20	0.20
			(0.18)	(0.14)			(0.20)	(0.15)
mas					-0.58***	-0.57***	-0.63***	-0.61***
					(0.21)	(0.17)	(0.20)	(0.15)
sgp					-0.78**	-0.88***	-0.94**	-0.88**
					(0.31)	(0.31)	(0.47)	(0.37)
Adjusted R^2	0.80	0.80	0.80	0.80	0.81	0.81	0.81	0.81
Hausman Statistic[a]	41.19***	44.00***	19.50***	20.76***	43.15***	45.67***	21.21***	22.49***
Cross-Section	11	11	11	11	11	11	11	11
Observations	263	263	263	263	263	263	263	263

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.5: Comparison - effects of the MT and the SGP on the CAPD - EU-14 (1980 - 2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	2.82***	2.16***	2.84***	2.34***	2.69***	2.14***	2.80***
	(0.96)	(0.55)	(0.71)	(0.62)	(0.90)	(0.51)	(0.63)
pdefay(-1)	0.71***	0.74***	0.74***	0.73***	0.73***	0.74***	0.76***
	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)	(0.04)	(0.04)
ggflq(-1)	-0.02***	-0.02***	-0.02**	-0.02***	-0.02**	-0.01**	-0.01*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
*ggflq(-1)*deu3*	-0.09***	-0.09***	-0.11***	-0.08***	-0.09***	-0.09***	-0.11***
	(0.02)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.02)
inf (A)	-0.02	-0.02	-0.01	-0.05	-0.05	-0.06	-0.05
	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)
*inf*deu3 (B)*	-0.03	-0.09*	-0.18**	-0.08	-0.07	-0.10**	-0.21**
	(0.21)	(0.05)	(0.07)	(0.07)	(0.17)	(0.05)	(0.08)
ele	0.60***	0.59***	0.60***	0.62***	0.64***	0.61***	0.65***
	(0.12)	(0.14)	(0.14)	(0.13)	(0.12)	(0.13)	(0.14)
gap (C)	0.01	0.02	0.04	0.01	0.01	0.01	0.02
	(0.08)	(0.10)	(0.10)	(0.07)	(0.07)	(0.09)	(0.09)
*gap*deu3 (D)*	-0.20**	-0.19	-0.25	-0.28*	-0.21**	-0.16	-0.22
	(0.09)	(0.14)	(0.16)	(0.16)	(0.11)	(0.16)	(0.18)
d9297	-0.69*		-0.81**		-0.35		-0.52
	(0.41)		(0.40)		(0.43)		(0.42)
*d9297*deu3*	1.47		0.89		1.54		0.82
	(1.24)		(0.89)		(1.03)		(0.50)
d9804 (E)	-0.33		-0.27		-0.39		-0.41
	(0.38)		(0.38)		(0.40)		(0.39)
*d9804*deu3 (F)*	-0.16		-0.88*		-0.38		-1.06**
	(1.18)		(0.45)		(0.99)		(0.47)
*d9297*gap (G)*		-0.02	-0.11			-0.03	-0.10
		(0.13)	(0.11)			(0.12)	(0.10)
*d9297*gap*deu3 (H)*		-0.33***	0.04			-0.55***	-0.10
		(0.07)	(0.29)			(0.10)	(0.24)
*d9804*gap (I)*		0.11	0.13			0.21	0.18
		(0.16)	(0.12)			(0.19)	(0.13)
*d9804*gap*deu3 (J)*		0.13	0.41**			0.22	0.36
		(0.29)	(0.19)			(0.27)	(0.22)
mas				-0.68***	-0.59***	-0.75***	-0.63***
				(0.25)	(0.18)	(0.22)	(0.16)
*mas*deu3*				0.27	-0.37	-0.47	-0.53*
				(0.37)	(0.27)	(0.54)	(0.29)
sgp				-0.65*	-0.82**	-1.00**	-0.92***
				(0.38)	(0.35)	(0.48)	(0.35)
*sgp*deu3*				4.78	4.59	1.05	1.73
				(3.36)	(2.92)	(1.93)	(2.09)
inf EU-3 (A+B)[a]	-0.05	-0.12**	-0.19**	-0.13**	-0.11	-0.16***	-0.26***
gap EU-3 (C+D)[a]	-0.19***	-0.17	-0.22*	-0.27*	-0.21***	-0.15	-0.21
d9804 EU-3 (E+F)[a]	-0.49		-1.16*		-0.77		-1.47***
*d9297*gap EU-3 (G+H)*[a]		-0.35**	-0.07			-0.58***	-0.20
*d9804*gap EU-3 (I+J)*[a]		0.25	0.54***			0.43	0.53***
Adjusted R^2	0.79	0.79	0.79	0.79	0.80	0.80	0.80
Hausman Statistic[b]	34.98***	13.89***	14.98***	34.25***	36.28***	14.84***	15.31***
Cross-Section	14	14	14	14	14	14	14
Observations	337	337	337	337	337	337	337

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Wald test of coefficient restrictions whose null hypothesis is that the estimated coefficient is equal to zero. [b] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.6: Comparison - effects of the MT and the SGP on the CAPD - OECD-17 (1980 - 2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	1.58**	1.01**	1.49**	1.46**	1.83**	1.19**	1.60**
	(0.67)	(0.42)	(0.63)	(0.63)	(0.84)	(0.51)	(0.76)
pdefay(-1)	0.79***	0.82***	0.80***	0.77***	0.76***	0.78***	0.78***
	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.05)	(0.05)
ggflq(-1)	-0.02***	-0.02***	-0.02**	-0.02***	-0.02***	-0.02***	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	0.00	0.00	0.01	-0.05	-0.03	-0.04	-0.02
	(0.04)	(0.04)	(0.04)	(0.05)	(0.06)	(0.05)	(0.05)
ele (A)	0.63***	0.66***	0.63***	0.65***	0.64***	0.66***	0.65***
	(0.15)	(0.17)	(0.16)	(0.16)	(0.15)	(0.16)	(0.16)
*ele*doecd6 (B)*	-0.55**	-0.57*	-0.53*	-0.58**	-0.56**	-0.55*	-0.54**
	(0.25)	(0.30)	(0.28)	(0.27)	(0.25)	(0.28)	(0.27)
gap (C)	0.00	0.00	0.01	-0.04	-0.01	-0.01	0.01
	(0.05)	(0.06)	(0.07)	(0.04)	(0.05)	(0.07)	(0.07)
*gap*doecd6 (D)*	-0.26***	-0.17*	-0.25***	-0.12	-0.23***	-0.18*	-0.24**
	(0.07)	(0.09)	(0.09)	(0.08)	(0.08)	(0.10)	(0.09)
d9297	-0.87***		-1.02***		-0.59		-0.75*
	(0.33)		(0.35)		(0.37)		(0.39)
*d9297*doecd6*	0.28		0.50		-0.13		0.10
	(0.64)		(0.82)		(0.68)		(0.92)
d9804	-0.39		-0.40		-0.49		-0.52
	(0.33)		(0.36)		(0.34)		(0.37)
*d9804*doecd6*	0.88*		0.89**		0.67		0.78
	(0.47)		(0.44)		(0.48)		(0.50)
*d9297*gap*		-0.03	-0.09			-0.07	-0.10
		(0.10)	(0.09)			(0.10)	(0.08)
*d9297*gap*doecd6*		0.09	0.13			0.17*	0.13
		(0.10)	(0.20)			(0.09)	(0.22)
*d9804*gap*		0.01	0.12			0.07	0.15
		(0.13)	(0.11)			(0.16)	(0.12)
*d9804*gap*doecd6*		-0.21	-0.27			-0.07	-0.25
		(0.25)	(0.22)			(0.22)	(0.25)
mas (E)				-0.40**	-0.50***	-0.44***	-0.52***
				(0.18)	(0.18)	(0.17)	(0.16)
*mas*doecd6 (F)*				0.47	0.67*	0.57*	0.64*
				(0.46)	(0.38)	(0.34)	(0.37)
sgp (G)				-0.79**	-0.64*	-0.83**	-0.62*
				(0.34)	(0.35)	(0.40)	(0.35)
*sgp*doecd6 (H)*				1.62***	1.17**	1.54***	0.92*
				(0.55)	(0.52)	(0.59)	(0.52)
ele OECD-6 (A+B)[a]	0.08	0.09	0.10	0.07	0.09	0.11	0.11
gap OECD-6 (C+D)[a]	-0.26***	-0.18***	-0.24***	-0.16***	-0.23***	-0.18***	-0.23***
mas OECD-6 (E+F)[a]				0.06	0.17	0.12	0.12
sgp OECD-6 (G+H)[a]				0.83**	0.53*	0.71**	0.30
Adjusted R^2	0.84	0.85	0.84	0.85	0.85	0.85	0.85
Hausman Statistic[b]	64.63***	22.81***	25.51***	53.24***	58.54***	21.90***	23.69***
Cross-Section	17	17	17	17	17	17	17
Observations	390	390	390	390	390	390	390

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Wald test of coefficient restrictions whose null hypothesis is that the estimated coefficient is equal to zero. [b] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.7: List of variables of the robustness tests

Economic	*irlrc*	Ex-post real long-term interest rate, based on Private Consumption Deflator, in %
	nwp	Share of the non-working population.
	open	Trade Openness.
	size	Relative country size in terms of GDP
	vol	GDP volatility in the previous ten years.
Political	*gpart*	Cabinet Composition: index representing the political color (right or left) of the Cabinet in power.
	gnew	New party composition of cabinet.
	ggap	"Ideological gap" between new cabinet and old one.
	gchan	Number of changes in government per year.
	gtype	Type of Government Coalition.
	rae	Index of fractionalization of the party-system according to Rae (1968).

Table 4.8: Results summary of the robustness tests

Variables	Tests	Euro-11 results	Euro-14 results	OECD-17 results
irlrc	coefficient	Non-significant.	Non-significant.	Non-significant.
	robustness	Robust.	Robust.	_d9804*doecd6_ less significant, Result 4.7 weakened.
nwp	coefficient	Positive and marginally significant (10%)	Euro-11 differ from EU-3. More negative for EU-3.	Euro-11 differ from OECD-6. More negative for OECD-6.
	robustness	Robust.	_d9297_ less significant. _d9297*deu3_: signif. positive. Result 4.4-i weakened.	_d9804*doecd6_ less significant. Result 4.7 weakened.
open	coefficient	Negative and highly significant.	Negative and highly significant for EU-14.	Negative and highly significant for OECD-17.
	robustness	Robust.	_d9297_ less significant. Result 4.4-i weakened.	_d9804*doecd6_ less significant. Result 4.7 weakened. _d9804*doecd6*gap_ significant. and negative. OECD more countercyclical during SGP.
size	coefficient	Negative and highly significant. After 1998, _size*d9804_, the coefficient becomes significantly less negative.	Negative and highly significant. After 1998, _size*d9804_, the coefficient becomes significantly less negative.	Euro-11 differ from OECD-6. Positive and highly significant for OECD-6.
	robustness	_d9804_ negative and highly significant. Result 4.1-ii weakened.	_d9297_ less significant. _d9804_ negative and highly significant. Result 4.4 weakened.	Robust.
vol	coefficient	Non-significant.	Non-significant.	Non-significant.
	robustness	Robust.	_d9297_ less significant. _d9804*deu3_ less significant. Result 4.4 weakened.	Robust.
gpart	coefficient	Non-significant.	Non-significant.	Non-significant.
	robustness	Robust.	Robust.	Robust.
gnew	coefficient	Non-significant.	Non-significant.	Non-significant.
	robustness	Robust.	Robust.	Robust.
ggap	coefficient	Non-significant.	Euro-11 differ from EU-3. More negative for EU-3.	Non-significant.
	robustness	Robust.	_d9297_ less significant. Result 4.4-i weakened.	Robust.
gchan	coefficient	Positive and highly significant.	Positive and highly significant for EU-14.	Euro-11 differ from OECD-6. More negative for OECD-6.
	robustness	Robust.	Robust.	_d9804*doecd6_ less significant. Result 4.7 weakened.
gtype	coefficient	Non-significant.	Euro-11 differ from EU-3. More negative for EU-3.	Non-significant.
	robustness	_d9297_ less significant. Result 4.1-i weakened.	_d9297_ less significant. Result 4.4-i weakened.	Robust.
rae	coefficient	Non-significant.	Euro-11 differ from EU-3. More positive for EU-3.	Non-significant.
	robustness	_d9297_ less significant. Result 4.1-i weakened.	_d9297_ less significant. Result 4.4-i weakened.	_d9804*doecd6_ less significant. Result 4.7 weakened.

Figure 4.1: Cyclically-adjusted primary deficit (as % of potential GDP) - OECD regions

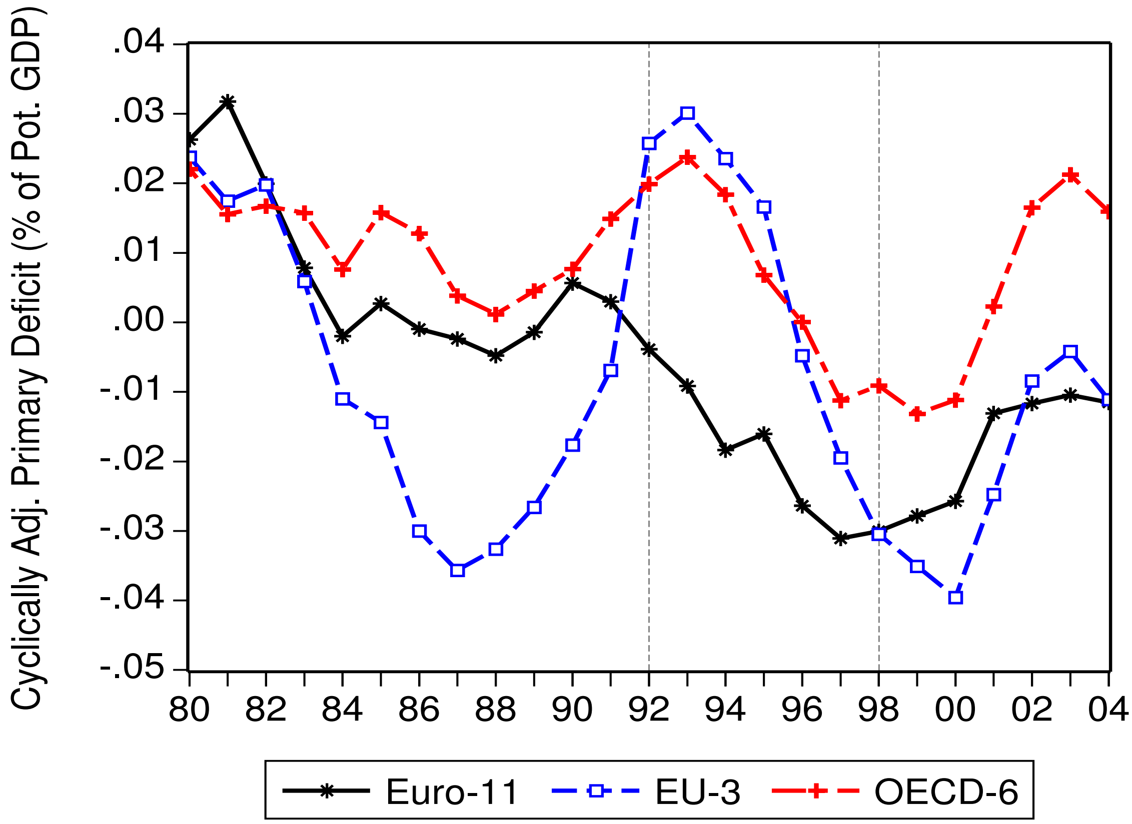


Figure 4.2: Cyclically-adjusted primary deficit (as % of potential GDP) - OECD countries

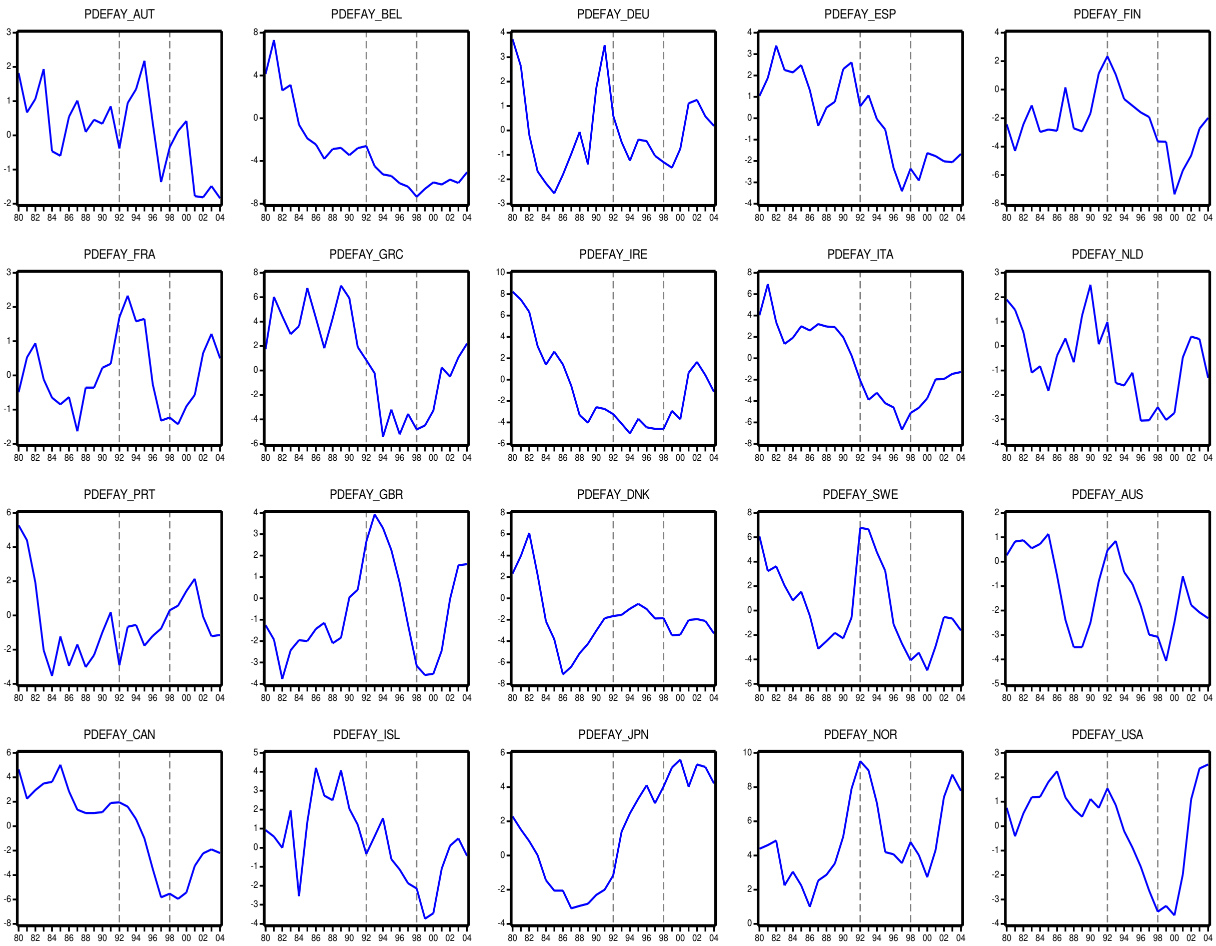


Figure 4.3: Scatter plots - cyclically-adjusted primary deficit x output gap

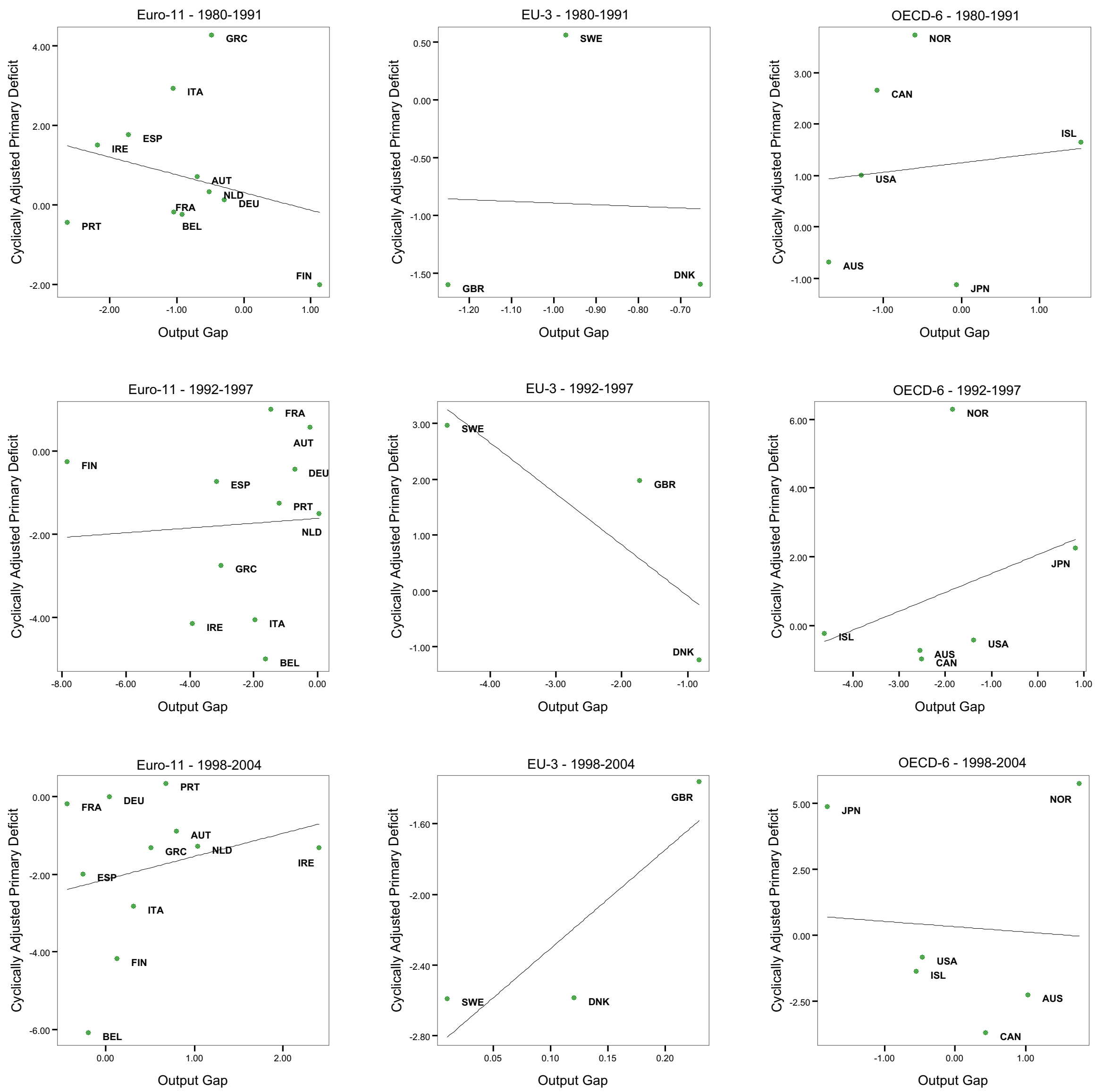
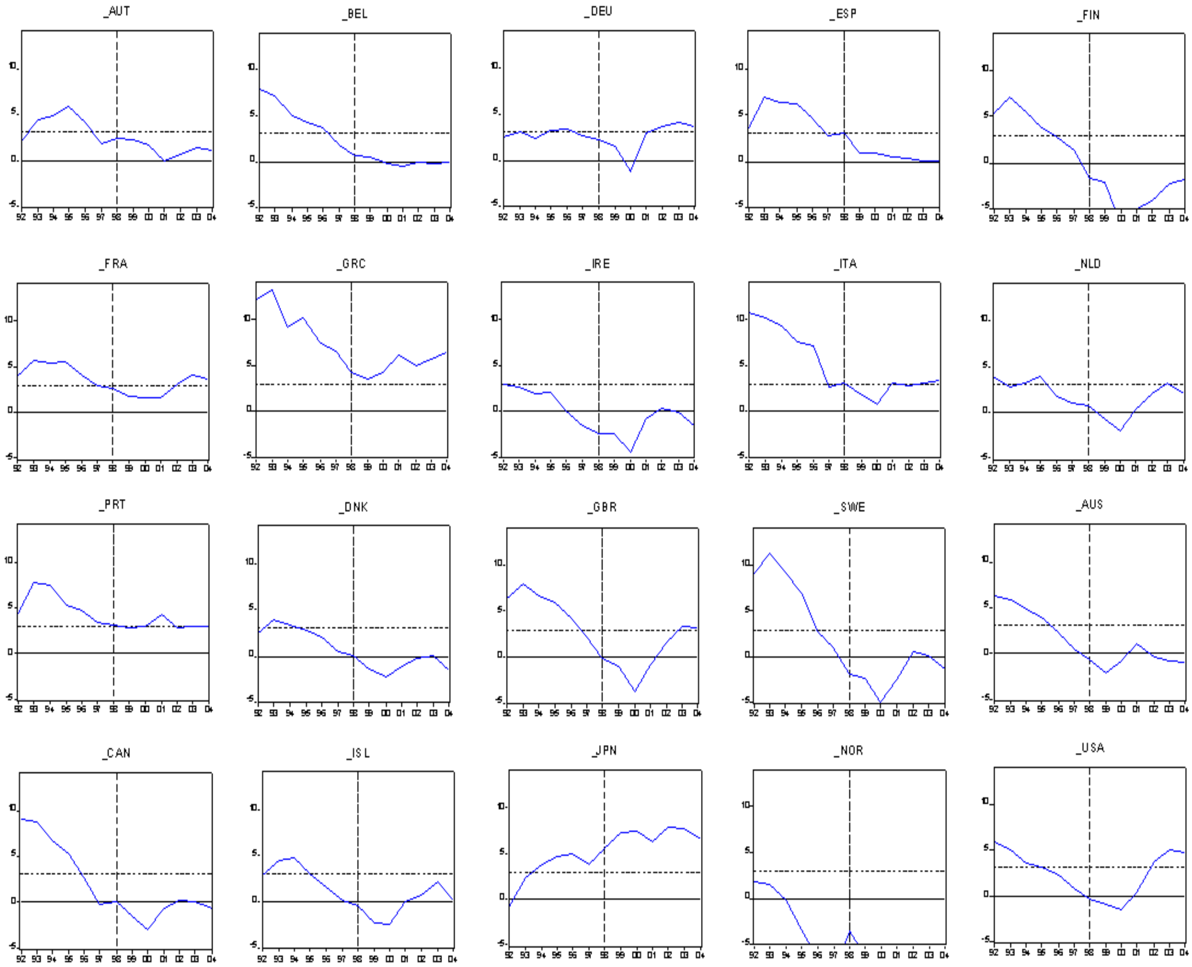


Figure 4.4: Total deficit (as % of actual GDP) - OECD countries



Appendices to Chapter 4

4.A Dataset

The variables explained below are mainly extracted from the OECD Economic Outlook (2005) and AMECO (2005). The parliamentary election variable is constructed with the dataset of the website of the International Institute for Democracy and Electoral Assistance (IDEA – http://www.idea.int/vt/parl.cfm) combined with the information from the website (http://electionresources.org) for.

4.A.1 List of variables

In this subsection, we describe the dependent, control and other support variables used in the estimation of (4.1), their source and construction, the intuition for using them and, finally, the sign with which we expect them to show up in the regressions.

Dependent variable

Variable: *Cyclically Adjusted Primary Deficit (as % of potential output)*: $PDEFAY_{it}$.
Source: OECD Economic Outlook (2005)

Construction: Minus the Primary Government Balance, Cyclically Adjusted, as % of potential GDP: $-NLGXQA_{i,t}$.

It uses a reference value of GDP (Y^*) whose method is explained in Giorgio *et al.* (1995) or OECD 2004, and estimated values for the output elasticity of tax revenues and spending α and β as:

$$\frac{T^*_{j,t}}{T_{j,t}} = \left(\frac{Y^*_t}{Y_t}\right)^{\alpha_j}; \quad \frac{G^*_t}{G_t} = \left(\frac{Y^*_t}{Y_t}\right)^{\beta},$$

where t is the year of observation, j corresponds to four different tax categories[34], T_j is the actual tax revenues for the jth tax category; G is actual government expenditures (excluding capital spending), Y is the level of actual output, Y^* is the level of potential output, α_j is the elasticity of the jth tax category with respect to output and β is the elasticity of current government expenditures with respect to output. The OECD measure of the cyclically adjusted primary deficit is then given by (see also Giorgio *et al.* (1995))

$$PDEFA = G_t\left(\frac{Y^*_t}{Y_t}\right)^{\beta} + capital\ spending - \sum_{j=1}^{4} T_{j,t}\left(\frac{Y^*_t}{Y_t}\right)^{\alpha_j}, \qquad \alpha_j > 0 \text{ and } \beta < 0.$$

Finally, the equation above is divided by the potential output Y^*_t and multiplied by 100 to obtain the Cyclically Adjusted Primary Deficit as % of potential output.

[34] For a detailed explanation of each tax category see Giorgio *et al.* (1995).

Control variables

Variable: *Lagged Cyclically Adjusted Primary Deficit (as % of potential output)*: $PDEFAY_{i,t-1} = -NLGXQA_{i,t-1}$. **Source:** OECD Economic Outlook (2005).

Variable: *Lagged Debt (as % of potential output).* **Source:** OECD Economic Outlook (2005).

Construction: OECD Lagged Value of General Government gross financial liabilities (Gross Government Debt) divided by the lagged value of Potential Output of Total Economy at current prices multiplied by 100: $GGFL_{i,t-1}/GDPTR_{i,t-1}$.

Potential output is used as a deflator of all variables, instead of actual output, to reduce endogeneity problems and to minimize the influence of current GDP on the evolution of the fiscal ratios.

Variable *Inflation of private consumption:* $INF_{i,t}$. **Source:** OECD Economic Outlook (2005).

Construction: Uses OECD deflator for private consumption as follows: $INF_{i,t} = (PCP_{i,t}/PCP_{i,t-1} - 1) * 100$.

Variable: *Elections.* **Source:** Website of the International Institute for Democracy and Electoral Assistance- IDEA (http://www.idea.int/vt/parl.cfm) combined with the most recent information of the website (http://electionresources.org).

Construction: A dummy variable ($ELE_{i,t}$) that takes on value 1 if in country i there were elections for the parliament in t and zero otherwise. Since the United States has a clear presidential regime, this dummy assumes value 1 only in the years of presidential elections. For France, following Afonso (2005), we use the dates of the parliamentary elections instead of the presidential ones, since the latter followed in the past a longer political cycle resulting in a smaller number of observations.

Variable: *Output Gap:* $GAP_{i,t}$. **Source**: OECD Economic Outlook (2005).

Construction: The OECD computes its measure of the output gap using as potential output a production function-based method. In its simplest form, a two-factor Cobb Douglas production function for the business sector is estimated for each country, for given average labour shares over the sample (see Giorno et al., 1995). The estimated residuals from these equations are then smoothed to give measures of trend total factor productivity. This measure of trend factor productivity is then combined with the actual capital stock and estimates of "'potential"' employment, using the same estimated production function to calculate the potential output for the business sector. The chosen measure of "'potential"' employment is defined as the level of labour resources that might be used without resulting in additional inflation. This amounts to adjusting the actual labour input used in estimated production function for the gap between actual unemployment and the estimated NAWRU level.

Additional support variables for the estimation of (4.1)

Variable: *Indicator of participation in the European Union, but not in the Eurozone:* $DEU3_i$. **Source:** Constructed by the authors.

Construction: This variable takes on the value of 1 over the entire sample period if country i currently participates in the European Union but *not* in its monetary union and zero, otherwise. Therefore, this variable assumes a value of 1 from 1980 to 2004 for Denmark, Sweden and United Kingdom.

Variable: *Indicator of "industrialized" OECD countries that are not members of the Euro zone:* $DOECD6_i$. **Source:** Constructed by the authors.

Construction: This variable assumes the value of 1 from 1980 to 2004 for Australia, Canada, Iceland, Japan, Norway and the USA.

Variable: *First Phase of European Monetary Union or Dummy Maastricht Treaty:* $D9297_t$. **Source:** Constructed by the authors.

Construction: This is a time dummy variable that takes on a value of 1 for all countries during the years 1992 until 1997 and zero otherwise. As the name indicates, it refers to the period after the Maastricht Treaty until the implementation of the SGP.

Variable: *Time dummy for the period of existence of the Stability and Growth Pact*: $D9804_t$. **Source:** Constructed by the authors.

Construction: This variable takes on a value of 1 for all countries during the years 1998 until 2004 (the final year of our dataset) and zero otherwise.

Variable: *Total Deficit (as % of actual output)*: $TDEFY_{it}$. **Source**: OECD Economic Outlook (2005)

Construction: Minus the OECD variable *government net lending, as % of actual GDP*, or $-NLGQ_{i,t}$. It is used to construct the testing variables $mas_{i,t}$ and $sgp_{i,t}$ via equations (4.2) and (4.3). Table 4.9 below displays respectively the unweighted averages of this variable for all OECD countries during four different periods: 1980-1991, 1992-1997, 1998-2004, and the entire time span 1980-2004. In addition, its last four lines also convey averages for each of the three group of countries analyzed.

Table 4.9: Unweighted average - total deficit (as % of actual GDP) in OECD countries

Country	1980-1991	1992-1997	1998-2004	1980-2004
AUT	3.20	3.80	1.34	2.83
BEL	9.81	4.99	0.00	5.91
DEU	2.19	2.82	2.36	2.39
ESP	4.37	5.15	0.83	3.56
FIN	-3.52	4.38	-3.50	-1.62
FRA	2.03	4.60	2.63	2.82
GRC	9.78	9.84	5.04	8.47
IRE	8.40	1.38	-1.59	3.92
ITA	11.14	7.94	2.60	7.98
NLD	4.51	2.81	0.78	3.06
PRT	6.48	5.52	3.12	5.31
DNK	2.72	2.48	-0.97	1.63
GBR	2.34	5.57	0.37	2.56
SWE	1.36	6.74	-1.81	1.77
AUS	3.43	3.92	-0.68	2.40
CAN	6.21	5.41	-0.84	4.04
ISL	1.23	2.77	-0.37	1.15
JPN	0.58	3.15	6.92	2.97
NOR	-4.52	-2.43	-9.60	-5.44
USA	4.21	3.40	1.56	3.27
Euro-11	5.31	4.84	1.24	4.06
EU-3	2.14	4.93	-0.80	1.99
OECD-6	1.86	2.70	-0.50	1.40
OECD-20	3.80	4.21	0.41	2.95

Source: OECD Economic Outlook n^{o}78 and own calculations

4.B Instrumental variables

Table 4.1: Instrumental variables estimations

	Euro-11			*EU-3*			*EU-14*			*OECD-17*		
	pdefay(-1)	*inf*	*gap*	*pdefay(-1)*	*inf*	*gap*	*pdefay(-1)*	*inf*	*gap*	*pdefay(-1)*	*inf*	*gap*
a	-0.22**	0.38	0.54**	-0.23	0.22	-0.15	-0.21**	0.36	0.39**	-0.09	0.31	0.60***
	(0.09)	(0.28)	(0.21)	(0.22)	(0.58)	(0.39)	(0.09)	(0.25)	(0.19)	(0.07)	(0.22)	(0.19)
pdefay(-2)	0.88***			0.96***			0.91***			0.97**		
	(0.06)			(0.11)			(0.05)			(0.05)		
pdefay(-3)	-0.05			-0.25**			-0.11**			-0.10*		
	(0.06)			(0.11)			(0.05)			(0.05)		
gap(-1)		0.29***	1.26***		0.40***	1.11***		0.33***	1.25***		0.32***	1.17***
		(0.06)	(0.05)		(0.14)	(0.09)		(0.06)	(0.04)		(0.05)	(0.04)
gap(-2)		-0.17***	-0.58***		-0.09	-0.48***		-0.17***	-0.57***		-0.18***	-0.52***
		(0.06)	(0.05)		(0.14)	(0.09)		(0.06)	(0.04)		(0.05)	(0.04)
inf(-1)		1.04***	-0.23***		0.90***	-0.34***		0.99***	-0.24***		1.05***	-0.23***
		(0.08)	(0.06)		(0.17)	(0.12)		(0.07)	(0.05)		(0.06)	(0.06)
inf(-2)		-0.13	0.15**		0.01	0.23*		-0.09	0.17***		-0.14**	0.15***
		(0.08)	(0.06)		(0.18)	(0.12)		(0.08)	(0.06)		(0.07)	(0.06)
irlrc(-1)		0.09	-0.27***		0.37**	-0.34***		0.16**	-0.29***		0.14**	-0.26***
		(0.09)	(0.06)		(0.18)	(0.12)		(0.08)	(0.06)		(0.07)	(0.06)
irlrc(-2)		-0.12	0.14**		-0.33**	0.38***		-0.18**	0.20***		-0.15**	0.13**
		(0.08)	(0.06)		(0.16)	(0.11)		(0.07)	(0.05)		(0.06)	(0.05)
Adj. R-squared	0.74	0.91	0.81	0.61	0.78	0.79	0.71	0.90	0.80	0.78	0.91	0.77
Cross-Section	11	11	11	3	3	3	14	14	14	17	17	17
Observations	264	268	268	75	75	75	339	343	343	412	404	404

Notes: Regressions estimated by Ordinary Least Squares (OLS). ***,**,* Level of significance at 1%, 5% and 10% respectively. Estimated standard errors in parenthesis.

4.C Estimations for EU-14

Table 4.2: Effects of the Maastricht Treaty and the SGP on the CAPD for the EU-14 (1980 - 2004) - homogeneous control variable coefficients

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
α	2.05***	2.69***	1.90***	2.74***	2.01***	2.55***	1.83***	2.65***
	(0.70)	(0.95)	(0.62)	(0.89)	(0.71)	(0.92)	(0.66)	(0.87)
pdefay(-1)	0.73***	0.71***	0.76***	0.75***	0.73***	0.71***	0.75***	0.75***
	(0.04)	(0.05)	(0.04)	(0.04)	(0.05)	(0.05)	(0.04)	(0.04)
ggflq(-1)	-0.03***	-0.04***	-0.03***	-0.03**	-0.03***	-0.03***	-0.03***	-0.03***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	-0.07	-0.04	-0.07	-0.06	-0.08	-0.06	-0.10*	-0.09*
	(0.05)	(0.05)	(0.04)	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)
ele	0.58***	0.57***	0.59***	0.59***	0.60***	0.60***	0.60***	0.63***
	(0.14)	(0.12)	(0.14)	(0.13)	(0.13)	(0.12)	(0.13)	(0.13)
gap	-0.10**	-0.08	-0.11	-0.12	-0.10**	-0.08	-0.11	-0.11
	(0.04)	(0.05)	(0.08)	(0.08)	(0.05)	(0.05)	(0.09)	(0.08)
d9297		-0.81**		-0.93***		-0.42		-0.61
		(0.32)		(0.31)		(0.39)		(0.37)
d9804		-0.57*		-0.70**		-0.67**		-0.84**
		(0.32)		(0.34)		(0.34)		(0.34)
*d9297*gap*			0.02	0.02			-0.02	-0.03
			(0.12)	(0.11)			(0.12)	(0.11)
*d9804*gap*			0.17	0.27**			0.24	0.29**
			(0.18)	(0.13)			(0.19)	(0.13)
mas					-0.56***	-0.64***	-0.63***	-0.71***
					(0.19)	(0.16)	(0.16)	(0.14)
sgp					-0.46	-0.45	-0.79*	-0.70*
					(0.40)	(0.45)	(0.43)	(0.37)
Adjusted R^2	0.77	0.76	0.77	0.76	0.77	0.77	0.78	0.78
Hausman Statistic[a]	59.50***	68.23***	27.90***	32.73***	61.38***	69.45***	30.25***	34.01***
Cross-Section	14	14	14	14	14	14	14	14
Observations	337	337	337	337	337	337	337	337

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.3: Effects of the MT and the SGP on the CAPD for the EU-14 (1980 - 2004) - heterogeneous control variable coefficients

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
α	2.33***	2.52***	2.07***	2.40***	2.35***	2.51***	2.09***	2.49***
	(0.63)	(0.90)	(0.52)	(0.73)	(0.64)	(0.88)	(0.55)	(0.72)
pdefay(-1)	0.76***	0.76***	0.77***	0.77***	0.74***	0.74***	0.74***	0.74***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
*pdefay(-1)*deu3*	-0.05	-0.09	-0.06	-0.07	0.00	0.00	0.03	0.05
	(0.11)	(0.12)	(0.11)	(0.11)	(0.12)	(0.11)	(0.11)	(0.09)
ggflq(-1)	-0.02***	-0.02**	-0.02**	-0.02**	-0.02**	-0.02**	-0.01*	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
*ggflq(-1)*deu3*	-0.08**	-0.08**	-0.09**	-0.09**	-0.08***	-0.08***	-0.09***	-0.10***
	(0.03)	(0.03)	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)
inf	-0.04	-0.02	-0.02	-0.01	-0.05	-0.04	-0.04	-0.04
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)	(0.06)
*inf*deu3*	-0.08	-0.07	-0.11	-0.12*	-0.10	-0.10	-0.16***	-0.18***
	(0.09)	(0.09)	(0.07)	(0.07)	(0.08)	(0.08)	(0.05)	(0.05)
ele	0.65***	0.64***	0.66***	0.65***	0.67***	0.66***	0.67***	0.67***
	(0.18)	(0.16)	(0.18)	(0.17)	(0.17)	(0.15)	(0.17)	(0.17)
*ele*deu3*	-0.28	-0.20	-0.29	-0.19	-0.22	-0.12	-0.20	-0.09
	(0.23)	(0.23)	(0.22)	(0.22)	(0.21)	(0.21)	(0.21)	(0.21)
gap	0.02	0.04	0.07	0.08	0.02	0.03	0.07	0.07
	(0.07)	(0.07)	(0.12)	(0.12)	(0.07)	(0.07)	(0.12)	(0.11)
*gap*deu3*	-0.32*	-0.35*	-0.35*	-0.36*	-0.30	-0.31	-0.33	-0.31*
	(0.19)	(0.19)	(0.20)	(0.19)	(0.20)	(0.19)	(0.21)	(0.18)
d9297		-0.31		-0.56		-0.01		-0.32
		(0.55)		(0.46)		(0.53)		(0.45)
d9804		-0.26		-0.35		-0.43		-0.62
		(0.45)		(0.46)		(0.46)		(0.46)
*d9297*gap*			-0.10	-0.13			-0.15	-0.16
			(0.15)	(0.14)			(0.14)	(0.12)
*d9804*gap*			0.06	0.15			0.16	0.20
			(0.18)	(0.13)			(0.20)	(0.13)
mas					-0.63***	-0.66***	-0.75***	-0.77***
					(0.23)	(0.19)	(0.22)	(0.18)
sgp					-0.60	-0.68*	-0.80*	-0.77**
					(0.37)	(0.36)	(0.48)	(0.37)
Adjusted R^2	0.78	0.78	0.78	0.78	0.79	0.79	0.79	0.79
Hausman Statistic[a]	26.90***	29.42***	15.02***	17.31***	28.44***	30.78***	16.21***	17.71***
Cross-Section	14	14	14	14	14	14	14	14
Observations	337	337	337	337	337	337	337	337

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.4: Comparison - Effects of the MT and the SGP on the CAPD for the EU-14 (1980 - 2004) - homogeneous control variable coefficients

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	2.76**	1.80***	2.78***	1.99***	2.60**	1.76***	2.61***
	(1.07)	(0.67)	(1.01)	(0.72)	(1.00)	(0.67)	(0.92)
pdefay(-1)	0.69***	0.72***	0.72***	0.71***	0.70***	0.74***	0.75***
	(0.06)	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)
ggflq(-1)	-0.04***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	-0.04	-0.06	-0.06	-0.08	-0.06	-0.09*	-0.09*
	(0.06)	(0.05)	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)
ele	0.57***	0.58***	0.58***	0.60***	0.61***	0.61***	0.63***
	(0.12)	(0.14)	(0.13)	(0.13)	(0.12)	(0.13)	(0.13)
gap	-0.08	-0.10	-0.11	-0.10**	-0.09	-0.11	-0.11
	(0.06)	(0.09)	(0.09)	(0.05)	(0.06)	(0.09)	(0.09)
d9297	-1.05***		-1.09***		-0.75**		-0.81**
	(0.31)		(0.35)		(0.38)		(0.40)
*d9297*deu3*	1.07***		0.30		1.49**		0.62
	(0.35)		(0.67)		(0.65)		(0.44)
d9804	-0.52		-0.65*		-0.59*		-0.75**
	(0.32)		(0.33)		(0.32)		(0.31)
*d9804*deu3*	-0.43		-0.37		-0.45		-0.37
	(0.42)		(0.41)		(0.36)		(0.36)
*d9297*gap*		0.06	0.03			0.07	0.02
		(0.12)	(0.10)			(0.11)	(0.10)
*d9297*gap*deu3*		-0.37***	-0.27			-0.68***	-0.41**
		(0.10)	(0.16)			(0.12)	(0.16)
*d9804*gap*		0.18	0.24*			0.24	0.27**
		(0.18)	(0.13)			(0.19)	(0.13)
*d9804*gap*deu3*		-0.29	-0.01			-0.21	-0.02
		(0.27)	(0.11)			(0.23)	(0.09)
mas				-0.61***	-0.52***	-0.59***	-0.56***
				(0.23)	(0.19)	(0.21)	(0.15)
*mas*deu3*				0.27	-0.60	-1.04*	-0.99*
				(0.31)	(0.43)	(0.62)	(0.51)
sgp				-0.49	-0.53	-0.77*	-0.77**
				(0.41)	(0.41)	(0.45)	(0.33)
*sgp*deu3*				6.41***	6.51***	4.74**	4.60***
				(2.01)	(1.81)	(2.29)	(1.24)
Adjusted R^2	0.77	0.77	0.77	0.77	0.77	0.79	0.78
Hausman Statistic[a]	38.00***	19.20***	19.31***	58.81***	65.06***	28.36***	22.01***
Cross-Section	14	14	14	14	14	14	14
Observations	337	337	337	337	337	337	337

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

4.D Estimations for OECD-6

Table 4.5: Effects of the Maastricht Treaty and the SGP on the CAPD - OECD-6 (1980 - 2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
α	0.26	-0.03	0.20	0.52	0.68	0.19	0.36	0.64
	(0.64)	(0.78)	(0.85)	(0.40)	(1.23)	(1.55)	(1.29)	(1.22)
pdefay(-1)	0.88***	0.86***	0.91***	0.89***	0.86***	0.86***	0.90***	0.88***
	(0.07)	(0.07)	(0.06)	(0.07)	(0.09)	(0.09)	(0.10)	(0.10)
ggflq(-1)	-0.02**	-0.02***	-0.01	-0.03***	-0.02***	-0.03*	-0.01	-0.03**
	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	0.22	0.39**	0.16	0.32***	0.20	0.38**	0.15	0.32**
	(0.24)	(0.16)	(0.18)	(0.11)	(0.25)	(0.17)	(0.21)	(0.13)
ele	0.12	-0.01	0.13	0.00	0.11	-0.02	0.13	0.00
	(0.25)	(0.26)	(0.25)	(0.26)	(0.25)	(0.27)	(0.25)	(0.27)
gap	-0.21***	-0.30***	-0.22***	-0.24***	-0.20**	-0.29***	-0.22***	-0.24***
	(0.07)	(0.06)	(0.02)	(0.03)	(0.08)	(0.07)	(0.01)	(0.03)
d9297		0.21		-0.02		0.25		0.01
		(0.71)		(0.68)		(0.81)		(0.82)
d9804		1.44**		1.18**		1.39**		1.14*
		(0.59)		(0.49)		(0.68)		(0.64)
*d9297*gap*			0.23*	-0.01			0.23**	-0.01
			(0.12)	(0.11)			(0.11)	(0.11)
*d9804*gap*			0.09	-0.10			0.12	-0.08**
			(0.25)	(0.16)			(0.26)	(0.15)
mas					0.04	-0.03	-0.10	-0.04
					(0.45)	(0.45)	(0.38)	(0.43)
sgp					0.35	0.19	0.19	0.14
					(0.57)	(0.66)	(0.69)	(0.66)
Adjusted R^2	0.90	0.89	0.90	0.89	0.90	0.88	0.90	0.89
Hausman Statistic[a]	29.98***	35.79***	14.01***	15.98***	25.73***	27.67***	12.33***	13.26***
Cross-Section	6	6	6	6	6	6	6	6
Observations	127	127	127	127	127	127	127	127

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

4.E Estimation for the OECD-17

Table 4.6: Effects of the MT and the SGP on the CAPD for the OECD-17 (1980 - 2004) - heterogeneous control variable coefficients

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
α	1.14**	1.57**	1.04**	1.33*	1.13*	1.58*	1.02*	1.33*
	(0.54)	(0.79)	(0.46)	(0.70)	(0.62)	(0.85)	(0.59)	(0.77)
pdefay(-1)	0.78***	0.79***	0.79***	0.81***	0.77***	0.77***	0.78***	0.79***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
*pdefay(-1)*doecd6*	0.06	0.03	0.05	0.03	0.07	0.03	0.06	0.03
	(0.07)	(0.07)	(0.06)	(0.07)	(0.07)	(0.08)	(0.07)	(0.08)
ggflq(-1)	-0.03***	-0.02**	-0.02***	-0.02**	-0.02***	-0.02**	-0.02***	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
*ggflq(-1)*doecd6*	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
inf	-0.03	0.00	-0.01	0.02	-0.03	0.00	-0.01	0.01
	(0.05)	(0.05)	(0.04)	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)
*inf*doecd6*	0.02	0.05	0.00	0.05	0.02	0.04	0.01	0.05
	(0.07)	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)	(0.09)	(0.09)
ele	0.65***	0.62***	0.65***	0.63***	0.66***	0.63***	0.66***	0.64***
	(0.17)	(0.15)	(0.17)	(0.16)	(0.17)	(0.15)	(0.17)	(0.16)
*ele*doecd6*	-0.56*	-0.56**	-0.56*	-0.57**	-0.58**	-0.59**	-0.58**	-0.60**
	(0.30)	(0.27)	(0.30)	(0.27)	(0.29)	(0.26)	(0.29)	(0.27)
gap	-0.04	-0.02	-0.03	-0.01	-0.05	-0.02	-0.03	-0.01
	(0.04)	(0.05)	(0.07)	(0.07)	(0.04)	(0.05)	(0.07)	(0.07)
*gap*doecd6*	-0.13*	-0.17**	-0.15*	-0.18**	-0.12	-0.16*	-0.14*	-0.17**
	(0.08)	(0.08)	(0.07)	(0.07)	(0.08)	(0.08)	(0.07)	(0.08)
d9297		-0.82**		-0.89**		-0.63*		-0.72*
		(0.32)		(0.37)		(0.36)		(0.40)
d9804		-0.15		-0.11		-0.22		-0.19
		(0.34)		(0.35)		(0.33)		(0.35)
*d9297*gap*			-0.01	-0.05			-0.03	-0.07
			(0.10)	(0.09)			(0.10)	(0.10)
*d9804*gap*			-0.02	0.08			-0.01	0.09
			(0.14)	(0.11)			(0.15)	(0.11)
mas					-0.29*	-0.32*	-0.29	-0.34**
					(0.18)	(0.17)	(0.18)	(0.16)
sgp					0.01	0.15	0.03	0.12
					(0.48)	(0.51)	(0.50)	(0.53)
Adjusted R^2	0.85	0.84	0.85	0.84	0.85	0.84	0.85	0.84
Hausman Statistic[a]	37.21***	43.29***	24.54***	26.61***	35.72***	40.28***	23.75***	25.07***
Cross-Section	17	17	17	17	17	17	17	17
Observations	390	390	390	390	390	390	390	390

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.7: Effects of the MT and the SGP on the CAPD for the OECD-17 (1980 - 2004) - homogeneous control variable coefficients

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
α	1.16*	1.84**	1.12**	1.64*	1.38**	2.06**	1.28**	1.85**
	(0.63)	(0.88)	(0.55)	(0.84)	(0.58)	(0.85)	(0.57)	(0.83)
pdefay(-1)	0.81***	0.81***	0.83***	0.83***	0.79***	0.78***	0.80***	0.79***
	(0.05)	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)
ggflq(-1)	-0.02***	-0.02***	-0.02***	-0.02**	-0.02***	-0.02***	-0.02***	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	-0.03	0.00	-0.02	0.01	-0.03	0.00	-0.02	0.00
	(0.05)	(0.05)	(0.04)	(0.04)	(0.05)	(0.05)	(0.04)	(0.04)
ele	0.44***	0.40***	0.44***	0.40***	0.44***	0.41***	0.44***	0.41***
	(0.15)	(0.14)	(0.15)	(0.14)	(0.15)	(0.14)	(0.15)	(0.15)
gap	-0.09***	-0.07**	-0.09**	-0.08*	-0.09***	-0.07*	-0.08*	-0.08
	(0.03)	(0.04)	(0.04)	(0.05)	(0.03)	(0.04)	(0.04)	(0.05)
d9297		-1.05***		-1.09***		-0.82**		-0.90**
		(0.34)		(0.40)		(0.40)		(0.45)
d9804		-0.31		-0.31		-0.44		-0.45
		(0.38)		(0.39)		(0.34)		(0.36)
*d9297*gap*			0.02	-0.01			0.00	-0.03
			(0.09)	(0.09)			(0.09)	(0.10)
*d9804*gap*			-0.03	0.11			0.00	0.13
			(0.12)	(0.10)			(0.10)	(0.09)
mas					-0.26	-0.31*	-0.25	-0.32**
					(0.17)	(0.16)	(0.18)	(0.15)
sgp					0.45	0.54	0.42	0.54
					(0.45)	(0.44)	(0.42)	(0.44)
Adjusted R^2	0.84	0.83	0.84	0.83	0.84	0.84	0.84	0.83
Hausman Statistic[a]	79.62***	94.70***	40.09***	46.10***	71.58***	82.77***	38.16***	41.86***
Cross-Section	17	17	17	17	17	17	17	17
Observations	390	390	390	390	390	390	390	390

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.8: Comparison - effects of the MT and the SGP on the CAPD for the OECD-17 (1980 - 2004) - homogeneous control variable coefficients

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	1.93**	1.19**	1.96***	1.66***	2.41***	1.41**	2.16***
	(0.80)	(0.49)	(0.65)	(0.59)	(0.85)	(0.54)	(0.76)
pdefay(-1)	0.79***	0.82***	0.80***	0.75***	0.74***	0.77***	0.77***
	(0.04)	(0.05)	(0.04)	(0.05)	(0.04)	(0.05)	(0.04)
ggflq(-1)	-0.02***	-0.02***	-0.02***	-0.03***	-0.03***	-0.02***	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	-0.01	-0.02	-0.01	-0.06	-0.04	-0.06	-0.04
	(0.05)	(0.04)	(0.04)	(0.05)	(0.06)	(0.05)	(0.05)
ele	0.40***	0.45***	0.42***	0.44***	0.42***	0.45***	0.44***
	(0.14)	(0.16)	(0.15)	(0.15)	(0.14)	(0.15)	(0.14)
gap	-0.08**	-0.08*	-0.09*	-0.08***	-0.07*	-0.09*	-0.09*
	(0.04)	(0.04)	(0.05)	(0.03)	(0.04)	(0.05)	(0.05)
d9297	-1.23***		-1.19***		-0.89**		-0.93**
	(0.33)		(0.34)		(0.38)		(0.39)
*d9297*doecd6*	0.48		0.28		0.01		-0.11
	(0.56)		(0.83)		(0.66)		(0.94)
d9804	-0.54		-0.62*		-0.66*		-0.74**
	(0.36)		(0.35)		(0.35)		(0.35)
*d9804*doecd6*	0.58		0.71		0.26		0.51
	(0.53)		(0.47)		(0.50)		(0.50)
*d9297*gap*		0.04	0.02			0.01	0.00
		(0.08)	(0.08)			(0.09)	(0.07)
*d9297*gap*doecd6*		-0.05	-0.10			0.03	-0.07
		(0.09)	(0.20)			(0.09)	(0.21)
*d9804*gap*		0.10	0.24**			0.16	0.25**
		(0.11)	(0.10)			(0.14)	(0.10)
*d9804*gap*doecd6*		-0.39*	-0.50***			-0.18	-0.40**
		(0.24)	(0.18)			(0.19)	(0.20)
mas				-0.43**	-0.50***	-0.44***	-0.52***
				(0.17)	(0.17)	(0.16)	(0.14)
*mas*doecd6*				0.64*	0.74**	0.59*	0.71**
				(0.37)	(0.37)	(0.32)	(0.36)
sgp				-0.80**	-0.63*	-0.89**	-0.69*
				(0.35)	(0.35)	(0.43)	(0.36)
*sgp*doecd6*				1.85***	1.69***	1.80***	1.28***
				(0.51)	(0.50)	(0.60)	(0.48)
Adjusted R^2	0.84	0.84	0.84	0.85	0.84	0.85	0.85
Hausman Statistic[a]	41.00***	27.43***	29.00***	72.78***	82.64***	37.13***	28.64***
Cross-Section	17	17	17	17	17	17	17
Observations	390	390	390	390	390	390	390

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

4.F Robustness tests

In this subsection, we describe the variables used in the robustness tests, their source and the way they are constructed. The economic variables are extracted from OECD Economic Outlook (2005). The political variables, available until the year 2003, are extracted from the dataset "Comparative Political Data Set 1960-2003" (Armingeon et al., 2005).

4.F.1 Additional economic variables

Real interest rate

Variable: *Ex-post real long-term interest rate, based on private consumption deflator, in %:* $IRLRC_{i,t}$. **Source:** OECD Economic Outlook (2005).

Construction: We use $IRL_{i,t}$ (the long-term interest rate) and $PCP_{i,t}$ (the private final consumption expenditure deflator) to compute in the same way as OECD (2004):[35]

$$IRLRC_{i,t} = IRL_{i,t} - 100 * (PCP_{i,t}/PCP_{i,t-1} - 1) \, .$$

[35] Although the internet database OECDSource does not contain $IRLRC_{i,t}$, it contains the variables necessary for its construction, $IRL_{i,t}$ and $PCP_{i,t}$. So, we used those two variables to construct $IRLRC_{i,t}$.

Table 4.9: Inclusion of IRLRC - Euro-11 (1980 - 2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
α	1.43**	1.83*	1.34*	1.97*	1.08	1.47	0.82	1.48
	(0.67)	(1.02)	(0.66)	(1.07)	(0.73)	(1.04)	(0.75)	(1.11)
pdefay(-1)	0.77***	0.77***	0.77***	0.77***	0.75***	0.75***	0.75***	0.76***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.05)	(0.05)
ggflq(-1)	-0.03***	-0.03***	-0.02***	-0.02**	-0.02***	-0.02**	-0.02**	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	-0.05	-0.03	-0.04	-0.03	-0.06	-0.05	-0.04	-0.05
	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)
ele	0.62***	0.57***	0.62***	0.58***	0.63***	0.60***	0.63***	0.61***
	(0.15)	(0.14)	(0.15)	(0.15)	(0.15)	(0.13)	(0.15)	(0.15)
gap	-0.02	-0.01	-0.04	-0.04	0.00	0.00	0.00	-0.01
	(0.06)	(0.06)	(0.09)	(0.10)	(0.06)	(0.06)	(0.09)	(0.10)
irlrc	0.04	0.04	-0.04	-0.03	0.12	0.07	0.06	0.03
	(0.08)	(0.08)	(0.09)	(0.08)	(0.09)	(0.09)	(0.09)	(0.09)
d9297		-0.84*		-1.10**		-0.43		-0.67
		(0.46)		(0.47)		(0.49)		(0.50)
d9804		-0.30		-0.65		-0.25		-0.50
		(0.42)		(0.47)		(0.50)		(0.55)
*d9297*gap*			0.00	-0.03			-0.05	-0.06
			(0.11)	(0.11)			(0.11)	(0.10)
*d9804*gap*			0.12	0.19			0.18	0.19
			(0.18)	(0.13)			(0.19)	(0.13)
mas					-0.67***	-0.59***	-0.66***	-0.60***
					(0.18)	(0.16)	(0.16)	(0.14)
sgp					-0.94***	-0.92***	-0.95*	-0.83**
					(0.40)	(0.35)	(0.52)	(0.41)
Adjusted R^2	0.80	0.79	0.79	0.79	0.81	0.80	0.81	0.81
Hausman Statistic[a]	29.3***	31.5***	15.1***	16.2***	30.8***	32.8***	17.1***	18.0***
Cross-Section	11	11	11	11	11	11	11	11
Observations	262	262	262	262	262	262	262	262

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.10: Inclusion of IRLRC - EU-14 (1980 - 2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	2.76***	2.27***	2.88***	2.21***	2.49***	1.91***	2.51***
	(0.82)	(0.58)	(0.70)	(0.67)	(0.77)	(0.61)	(0.67)
pdefay(-1)	0.71***	0.73***	0.74***	0.73***	0.72***	0.73***	0.75***
	(0.05)	(0.04)	(0.05)	(0.05)	(0.04)	(0.04)	(0.04)
ggflq(-1)	-0.03***	-0.02**	-0.02**	-0.02***	-0.02**	-0.02**	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
*ggflq(-1)*deu3*	-0.09***	-0.09***	-0.11***	-0.08***	-0.10***	-0.10***	-0.11***
	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)
inf	-0.02	-0.04	-0.01	-0.05	-0.04	-0.05	-0.04
	(0.05)	(0.04)	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)
*inf*deu3*	-0.04	-0.09*	-0.18**	-0.08	-0.09	-0.09*	-0.20**
	(0.20)	(0.06)	(0.07)	(0.06)	(0.15)	(0.05)	(0.09)
ele	0.57***	0.56***	0.58***	0.59***	0.61***	0.59***	0.62***
	(0.11)	(0.13)	(0.12)	(0.11)	(0.11)	(0.12)	(0.13)
gap	0.01	0.01	0.03	0.02	0.01	0.02	0.03
	(0.07)	(0.10)	(0.09)	(0.06)	(0.06)	(0.09)	(0.08)
*gap*deu3*	-0.19**	-0.18	-0.24	-0.28*	-0.20	-0.14	-0.20
	(0.09)	(0.15)	(0.17)	(0.17)	(0.12)	(0.17)	(0.18)
irlrc	0.04	-0.03	0.00	0.06	0.07	0.08	0.07
	(0.08)	(0.07)	(0.06)	(0.10)	(0.08)	(0.07)	(0.07)
d9297	-0.67*		-0.83**		-0.28		-0.45
	(0.39)		(0.40)		(0.39)		(0.41)
*d9297*deu3*	1.43		0.89		1.49		0.88*
	(1.18)		(0.87)		(0.92)		(0.47)
d9804	-0.23		-0.29		-0.15		-0.19
	(0.32)		(0.32)		(0.36)		(0.36)
*d9804*deu3*	-0.28		-0.90*		-0.55		-1.06**
	(1.18)		(0.47)		(0.94)		(0.50)
*d9297*gap*		-0.02	-0.11			-0.03	-0.10
		(0.13)	(0.11)			(0.13)	(0.10)
*d9297*gap*deu3*		-0.34***	0.02			-0.59***	-0.12
		(0.08)	(0.30)			(0.10)	(0.25)
*d9804*gap*		0.13	0.13			0.21	0.17
		(0.16)	(0.12)			(0.19)	(0.12)
*d9804*gap*deu3*		0.12	0.39*			0.20	0.32
		(0.30)	(0.20)			(0.27)	(0.23)
mas				-0.71***	-0.61***	-0.80***	-0.64***
				(0.24)	(0.17)	(0.22)	(0.15)
*mas*deu3*				0.30	-0.36	-0.48	-0.53*
				(0.37)	(0.26)	(0.53)	(0.28)
sgp				-0.65	-0.85**	-1.02*	-0.91**
				(0.46)	(0.39)	(0.53)	(0.38)
*sgp*deu3*				4.14	4.04	0.38	1.52
				(3.80)	(2.87)	(2.19)	(1.91)
Adjusted R^2	0.79	0.78	0.78	0.79	0.80	0.80	0.80
Hausman Statistic[a]	28.69***	11.83***	13.12***	28.04***	30.00***	13.17***	13.65***
Cross-Section	14	14	14	14	14	14	14
Observations	336	336	336	336	336	336	336

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.11: Inclusion of IRLRC - OECD-17 (1980 - 2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	1.39**	1.03**	1.48**	1.26*	1.53*	1.03	1.37
	(0.68)	(0.46)	(0.70)	(0.68)	(0.87)	(0.64)	(0.87)
pdefay(-1)	0.79***	0.82***	0.80***	0.76***	0.76***	0.78***	0.77***
	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
ggflq(-1)	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	0.00	-0.01	0.01	-0.04	-0.02	-0.03	-0.01
	(0.05)	(0.03)	(0.04)	(0.05)	(0.06)	(0.05)	(0.05)
ele	0.60***	0.64***	0.60***	0.62***	0.61***	0.63***	0.62***
	(0.14)	(0.15)	(0.15)	(0.15)	(0.14)	(0.15)	(0.15)
*ele*doecd6*	-0.52**	-0.54*	-0.50*	-0.55**	-0.52**	-0.53*	-0.51*
	(0.23)	(0.29)	(0.27)	(0.26)	(0.23)	(0.27)	(0.26)
gap	0.01	-0.01	0.01	-0.03	0.00	0.00	0.01
	(0.05)	(0.06)	(0.07)	(0.04)	(0.05)	(0.06)	(0.07)
*gap*doecd6*	-0.25***	-0.16*	-0.24***	-0.12	-0.22**	-0.17*	-0.22**
	(0.07)	(0.09)	(0.09)	(0.08)	(0.08)	(0.10)	(0.10)
irlrc	0.04	0.00	0.01	0.06	0.06	0.05	0.05
	(0.07)	(0.08)	(0.08)	(0.09)	(0.08)	(0.09)	(0.09)
d9297	-0.84**		-1.02***		-0.52		-0.70*
	(0.34)		(0.37)		(0.36)		(0.39)
*d9297*doecd6*	0.29		0.49		-0.12		0.11
	(0.63)		(0.82)		(0.67)		(0.91)
d9804	-0.26		-0.38		-0.27		-0.35
	(0.35)		(0.39)		(0.39)		(0.43)
*d9804*doecd6*	0.85*		0.88*		0.60		0.73
	(0.49)		(0.45)		(0.50)		(0.52)
*d9297*gap*		-0.03	-0.09			-0.07	-0.10
		(0.10)	(0.09)			(0.10)	(0.08)
*d9297*gap*doecd6*		0.08	0.12			0.15*	0.13
		(0.10)	(0.21)			(0.09)	(0.22)
*d9804*gap*		0.02	0.13			0.07	0.14
		(0.13)	(0.11)			(0.16)	(0.11)
*d9804*gap*doecd6*		-0.22	-0.29			-0.09	-0.27
		(0.25)	(0.23)			(0.23)	(0.25)
mas				-0.43***	-0.51***	-0.46***	-0.52***
				(0.16)	(0.16)	(0.15)	(0.14)
*mas*doecd6*				0.51	0.70*	0.59*	0.66*
				(0.47)	(0.36)	(0.35)	(0.36)
sgp				-0.79**	-0.65*	-0.80*	-0.60*
				(0.36)	(0.35)	(0.42)	(0.35)
*sgp*doecd6*				1.67***	1.27**	1.53**	0.95*
				(0.57)	(0.55)	(0.60)	(0.53)
Adjusted R^2	0.84	0.84	0.84	0.85	0.85	0.85	0.85
Hausman Statistic[a]	50.36***	19.81***	22.27***	41.04***	45.23***	18.81***	20.45***
Cross-Section	17	17	17	17	17	17	17
Observations	389	389	389	389	389	389	389

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Share of non-working population

Variable: *Share of the non-working population:* $NWP_{i,t}$. **Source:** OECD Economic Outlook (2005).

Construction: $NWP_{i,t} = \left(1 - \frac{POPT_{i,t}}{POP_{i,t}}\right) * 100$, where $POPT_{i,t}$ is the working age population between 14 and 65 years and $POP_{i,t}$ is the total population. Variable also used in Woo (2003).

Table 4.12: Inclusion of NWP - Euro-11 (1980 - 2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
α	-2.54	-1.95	-2.48	-2.14	-2.14	-1.49	-2.58	-1.83
	(2.33)	(2.36)	(2.52)	(2.78)	(2.16)	(2.06)	(2.19)	(2.32)
pdefay(-1)	0.75***	0.75***	0.75***	0.76***	0.73***	0.74***	0.73***	0.74***
	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)	(0.05)	(0.06)	(0.06)
ggflq(-1)	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.02***	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	-0.10***	-0.09**	-0.08**	-0.07**	-0.12***	-0.11**	-0.11***	-0.11***
	(0.03)	(0.04)	(0.03)	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)
ele	0.58***	0.54***	0.58***	0.55***	0.60***	0.57***	0.59***	0.58***
	(0.17)	(0.15)	(0.17)	(0.17)	(0.16)	(0.15)	(0.17)	(0.17)
gap	-0.03	-0.02	-0.02	-0.02	-0.03	-0.02	-0.02	-0.02
	(0.06)	(0.06)	(0.10)	(0.11)	(0.06)	(0.06)	(0.10)	(0.11)
nwp	0.15*	0.15*	0.13*	0.14*	0.13*	0.12*	0.13*	0.13*
	(0.08)	(0.08)	(0.08)	(0.08)	(0.07)	(0.07)	(0.07)	(0.07)
d9297		-0.93**		-1.06**		-0.66		-0.80
		(0.47)		(0.50)		(0.53)		(0.55)
d9804		-0.52		-0.57		-0.60		-0.72
		(0.48)		(0.52)		(0.51)		(0.53)
*d9297*gap*			-0.02	-0.06			-0.04	-0.06
			(0.11)	(0.12)			(0.12)	(0.12)
*d9804*gap*			0.11	0.17			0.22	0.21
			(0.17)	(0.14)			(0.20)	(0.15)
mas					-0.52***	-0.52***	-0.59***	-0.57***
					(0.20)	(0.17)	(0.19)	(0.15)
sgp					-0.95***	-1.00***	-1.14***	-1.02***
					(0.24)	(0.23)	(0.36)	(0.26)
Adjusted R^2	0.81	0.81	0.81	0.81	0.82	0.82	0.82	0.82
Hausman Statistic[a]	38.3***	41.0***	19.5***	20.9***	41.3***	43.9***	21.7***	22.8***
Cross-Section	11	11	11	11	11	11	11	11
Observations	251	251	251	251	251	251	251	251

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.13: Inclusion of NWP - EU-14 (1980 - 2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	6.87***	7.57***	6.79**	5.66	5.01	4.94*	4.74
	(2.97)	(2.53)	(3.28)	(3.74)	(3.46)	(2.57)	(3.43)
pdefay(-1)	0.73***	0.75***	0.74***	0.73***	0.73***	0.74***	0.74***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.04)	(0.05)	(0.05)
ggflq(-1)	-0.03***	-0.03***	-0.03***	-0.02***	-0.02***	-0.02***	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
*ggflq(-1)*deu3*	-0.09***	-0.09***	-0.10***	-0.08***	-0.09***	-0.09***	-0.10***
	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)
inf	-0.07	-0.07***	-0.06**	-0.09**	-0.09*	-0.11***	-0.10***
	(0.04)	(0.03)	(0.03)	(0.04)	(0.05)	(0.04)	(0.03)
ele	0.58***	0.57***	0.59***	0.59***	0.61***	0.59***	0.63***
	(0.13)	(0.14)	(0.14)	(0.13)	(0.13)	(0.14)	(0.14)
gap	0.01	0.02	0.05	0.01	0.00	0.00	0.02
	(0.07)	(0.08)	(0.09)	(0.06)	(0.06)	(0.08)	(0.08)
*gap*deu3*	-0.24**	-0.18	-0.21*	-0.28*	-0.21*	-0.12	-0.15
	(0.10)	(0.12)	(0.11)	(0.15)	(0.12)	(0.13)	(0.11)
nwp	0.11	0.10	0.11	0.11*	0.09	0.10**	0.10
	(0.08)	(0.07)	(0.08)	(0.06)	(0.06)	(0.05)	(0.06)
*nwp*deu3*	-0.91***	-1.03***	-0.94***	-0.81**	-0.62*	-0.71***	-0.63*
	(0.23)	(0.18)	(0.23)	(0.35)	(0.35)	(0.24)	(0.32)
d9297	-0.64		-0.85*		-0.40		-0.63
	(0.42)		(0.45)		(0.47)		(0.49)
*d9297*deu3*	1.38***		1.31*		1.59**		1.33**
	(0.50)		(0.68)		(0.65)		(0.52)
d9804	-0.28		-0.34		-0.39		-0.55
	(0.41)		(0.42)		(0.44)		(0.42)
*d9804*deu3*	-0.25		-0.20		-0.22		-0.20**
	(0.49)		(0.46)		(0.44)		(0.40)
*d9297*gap*		-0.03	-0.13			-0.03	-0.12
		(0.11)	(0.10)			(0.11)	(0.10)
*d9297*gap*deu3*		-0.46***	-0.07			-0.63***	-0.20
		(0.11)	(0.24)			(0.15)	(0.23)
*d9804*gap*		0.10	0.12			0.22	0.17
		(0.15)	(0.12)			(0.19)	(0.13)
*d9804*gap*deu3*		0.08	0.33**			0.15	0.22
		(0.27)	(0.16)			(0.24)	(0.15)
mas				-0.62***	-0.54***	-0.71***	-0.61***
				(0.23)	(0.17)	(0.21)	(0.15)
*mas*deu3*				0.55	-0.18	-0.27	-0.29
				(0.38)	(0.33)	(0.60)	(0.40)
sgp				-0.79**	-0.96***	-1.21***	-1.07***
				(0.32)	(0.28)	(0.37)	(0.23)
*sgp*deu3*				1.95	2.16	-0.61	0.65
				(3.84)	(3.55)	(2.31)	(3.49)
Adjusted R^2	0.80	0.80	0.80	0.80	0.80	0.81	0.81
Hausman Statistic[a]	39.11***	14.36***	15.74***	40.93***	40.60***	15.78***	17.05***
Cross-Section	14	14	14	14	14	14	14
Observations	325	325	325	325	325	325	325

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.14: Inclusion of NWP - OECD-17 (1980 - 2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	4.42	4.25**	4.36**	6.77***	6.91***	6.29**	6.84***
	(2.78)	(2.12)	(2.16)	(2.09)	(2.16)	(2.05)	(1.71)
pdefay(-1)	0.80***	0.82***	0.80***	0.75***	0.75***	0.76***	0.76***
	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)	(0.06)	(0.05)
ggflq(-1)	-0.02**	-0.02**	-0.02***	-0.02***	-0.02**	-0.02***	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	-0.02	-0.02	-0.01	-0.09*	-0.06	-0.08**	-0.06
	(0.04)	(0.03)	(0.03)	(0.05)	(0.05)	(0.04)	(0.04)
ele	0.59***	0.63***	0.60***	0.62***	0.60***	0.63***	0.62***
	(0.16)	(0.18)	(0.17)	(0.17)	(0.16)	(0.18)	(0.17)
*ele*doecd6*	-0.53**	-0.56*	-0.52*	-0.57**	-0.55**	-0.55*	-0.56**
	(0.25)	(0.31)	(0.29)	(0.28)	(0.25)	(0.29)	(0.28)
gap	0.00	0.01	0.02	-0.04	-0.01	0.00	0.01
	(0.05)	(0.06)	(0.07)	(0.04)	(0.05)	(0.06)	(0.07)
*gap*doecd6*	-0.25***	-0.17**	-0.25***	-0.13	-0.21**	-0.18**	-0.21**
	(0.07)	(0.08)	(0.09)	(0.09)	(0.08)	(0.08)	(0.10)
nwp	0.04	0.05	0.05	0.07	0.06	0.08	0.07
	(0.08)	(0.08)	(0.07)	(0.07)	(0.08)	(0.07)	(0.07)
*nwp*doecd6*	-0.38**	-0.46***	-0.43***	-0.68***	-0.65***	-0.70***	-0.69***
	(0.18)	(0.09)	(0.15)	(0.13)	(0.12)	(0.13)	(0.11)
d9297	-0.89**		-1.04***		-0.61		-0.79*
	(0.36)		(0.39)		(0.40)		(0.44)
*d9297*doecd6*	0.29		0.42		-0.22		-0.12
	(0.57)		(0.76)		(0.58)		(0.83)
d9804	-0.38		-0.41		-0.51		-0.57
	(0.37)		(0.40)		(0.39)		(0.40)
*d9804*doecd6*	0.80		0.82*		0.33		0.46
	(0.49)		(0.46)		(0.48)		(0.53)
*d9297*gap*		-0.05	-0.10			-0.09	-0.11
		(0.09)	(0.08)			(0.09)	(0.08)
*d9297*gap*doecd6*		0.04	0.07			0.11*	0.05
		(0.07)	(0.18)			(0.06)	(0.19)
*d9804*gap*		-0.01	0.12			0.09	0.15
		(0.11)	(0.11)			(0.15)	(0.12)
*d9804*gap*doecd6*		-0.25	-0.31			-0.07	-0.22
		(0.22)	(0.20)			(0.15)	(0.21)
mas				-0.41**	-0.50***	-0.46***	-0.54***
				(0.16)	(0.17)	(0.16)	(0.15)
*mas*doecd6*				0.69*	0.88**	0.78*	0.89**
				(0.37)	(0.34)	(0.33)	(0.34)
sgp				-0.96***	-0.84***	-1.01***	-0.84***
				(0.32)	(0.31)	(0.37)	(0.28)
*sgp*doecd6*				2.16***	1.84***	2.15***	1.67***
				(0.53)	(0.52)	(0.53)	(0.48)
Adjusted R^2	0.85	0.85	0.85	0.86	0.85	0.86	0.86
Hausman Statistic[a]	62.27***	22.17***	24.53***	49.80***	54.21***	21.35***	22.42***
Cross-Section	17	17	17	17	17	17	17
Observations	378	378	378	378	378	378	378

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Trade openness

Variable: *Trade openness:* $OPEN_{i,t}$. **Source:** OECD Economic Outlook (2005).

Construction: Constructed with OECD variables via the formula $OPEN_{i,t} = \frac{XGSV_{i,t}+MGSV_{i,t}}{GDPVTR_{i,t}}$, where $XGSV_{i,t}$ is the volume of exports of goods and services, $MGSV_{i,t}$ is the volume of imports of goods and services, and $GDPVTR_{i,t}$ is the volume of potential output of total economy. This variable was also used in Lane (2003).

Table 4.15: Inclusion of trade openness - Euro-11 (1980 - 2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
α	4.53***	4.12***	4.48***	4.52***	4.30***	3.56**	4.43***	4.06***
	(1.42)	(1.50)	(1.47)	(1.40)	(1.49)	(1.52)	(1.51)	(1.44)
pdefay(-1)	0.72***	0.73***	0.72***	0.72***	0.71***	0.72***	0.70***	0.72***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.06)	(0.05)
ggflq(-1)	-0.04***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	-0.05	-0.03	-0.02	-0.02	-0.06	-0.06	-0.04	-0.05
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)
ele	0.60***	0.57***	0.59***	0.56***	0.62***	0.60***	0.60***	0.59***
	(0.17)	(0.15)	(0.18)	(0.16)	(0.16)	(0.14)	(0.16)	(0.16)
gap	-0.05	-0.02	-0.03	-0.03	-0.04	-0.02	-0.02	-0.03
	(0.07)	(0.07)	(0.10)	(0.11)	(0.08)	(0.07)	(0.11)	(0.11)
open	-3.06**	-2.29**	-3.50***	-3.11***	-2.92**	-1.85*	-3.60***	-2.68***
	(1.26)	(1.05)	(1.33)	(0.95)	(1.30)	(0.97)	(1.37)	(0.87)
d9297		-0.82*		-0.97**		-0.54		-0.71
		(0.46)		(0.46)		(0.50)		(0.51)
d9804		-0.06		0.01		-0.22		-0.18
		(0.46)		(0.49)		(0.44)		(0.44)
*d9297*gap*			-0.06	-0.08			-0.09	-0.08
			(0.10)	(0.11)			(0.12)	(0.11)
*d9804*gap*			0.14	0.24*			0.23	0.26*
			(0.16)	(0.13)			(0.20)	(0.15)
mas					-0.56**	-0.53***	-0.63***	-0.55***
					(0.22)	(0.17)	(0.22)	(0.15)
sgp					-0.71**	-0.88***	-0.88*	-0.87**
					(0.34)	(0.30)	(0.50)	(0.38)
Adjusted R^2	0.80	0.80	0.81	0.80	0.81	0.81	0.82	0.81
Hausman Statistic[a]	36.5***	40.6***	17.5***	19.0***	38.4***	42.7***	19.3***	20.2***
Cross-Section	11	11	11	11	11	11	11	11
Observations	263	263	263	263	263	263	263	263

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.16: Inclusion of trade openness - EU-14 (1980 - 2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	5.25***	4.81***	5.56***	4.55***	4.47***	4.37***	4.71***
	(1.06)	(0.99)	(0.88)	(1.13)	(1.07)	(1.09)	(0.97)
pdefay(-1)	0.68***	0.70***	0.70***	0.71***	0.70***	0.70***	0.73***
	(0.05)	(0.04)	(0.05)	(0.05)	(0.04)	(0.05)	(0.04)
ggflq(-1)	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.02***	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
*ggflq(-1)*deu3*	-0.08***	-0.07**	-0.10***	-0.07**	-0.09***	-0.08***	-0.11***
	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)	(0.03)	(0.02)
inf	-0.03	-0.02	0.00	-0.05	-0.05	-0.05	-0.04
	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
*inf*deu3*	-0.03	-0.06	-0.17***	-0.05	-0.07	-0.07	-0.20***
	(0.21)	(0.05)	(0.06)	(0.07)	(0.17)	(0.05)	(0.07)
ele	0.55***	0.54***	0.55***	0.58***	0.60***	0.57***	0.60***
	(0.12)	(0.15)	(0.14)	(0.13)	(0.12)	(0.13)	(0.13)
gap	0.01	0.03	0.05	0.01	0.00	0.03	0.03
	(0.09)	(0.11)	(0.10)	(0.08)	(0.07)	(0.09)	(0.09)
*gap*deu3*	-0.22**	-0.23	-0.30	-0.31*	-0.23*	-0.20	-0.25
	(0.10)	(0.17)	(0.19)	(0.17)	(0.12)	(0.17)	(0.19)
open	-2.97***	-3.18***	-3.52***	-2.55**	-2.13**	-2.68**	-2.43***
	(1.01)	(0.98)	(0.81)	(1.15)	(0.86)	(1.11)	(0.70)
d9297	-0.51		-0.68		-0.27		-0.46
	(0.46)		(0.44)		(0.47)		(0.45)
*d9297*deu3*	1.34		1.08		1.42		0.91*
	(1.14)		(0.78)		(0.98)		(0.48)
d9804	0.23		0.38		0.02		0.05
	(0.48)		(0.45)		(0.44)		(0.36)
*d9804*deu3*	-0.43		-1.05**		-0.57		-1.17***
	(1.22)		(0.42)		(1.01)		(0.40)
*d9297*gap*		-0.08	-0.17			-0.08	-0.14
		(0.14)	(0.11)			(0.13)	(0.10)
*d9297*gap*deu3*		-0.33***	0.15			-0.52***	-0.01
		(0.12)	(0.29)			(0.09)	(0.24)
*d9804*gap*		0.13	0.18			0.23	0.21
		(0.16)	(0.12)			(0.19)	(0.13)
*d9804*gap*deu3*		0.05	0.35			0.15	0.32
		(0.33)	(0.22)			(0.31)	(0.24)
mas				-0.65***	-0.54***	-0.75***	-0.57***
				(0.24)	(0.18)	(0.23)	(0.15)
*mas*deu3*				0.32	-0.30	-0.34	-0.40
				(0.40)	(0.28)	(0.59)	(0.30)
sgp				-0.63	-0.85**	-0.97*	-0.93***
				(0.41)	(0.34)	(0.49)	(0.35)
*sgp*deu3*				4.02	4.24	0.37	1.46
				(3.26)	(2.59)	(2.23)	(1.92)
Adjusted R^2	0.79	0.79	0.79	0.79	0.80	0.80	0.80
Hausman Statistic[a]	31.69***	12.23***	13.22***	30.49***	33.25***	13.34***	13.47***
Cross-Section	14	14	14	14	14	14	14
Observations	337	337	337	337	337	337	337

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.17: Inclusion of trade openness - OECD-17 (1980 - 2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	3.60***	4.02***	4.12***	4.44***	4.37***	4.70***	4.63***
	(1.04)	(0.94)	(0.85)	(1.14)	(1.22)	(1.07)	(1.06)
pdefay(-1)	0.75***	0.76***	0.74***	0.71***	0.70***	0.70***	0.70***
	(0.04)	(0.05)	(0.04)	(0.05)	(0.04)	(0.05)	(0.04)
ggflq(-1)	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***
	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
inf	0.00	0.01	0.02	-0.05	-0.03	-0.02	-0.01
	(0.04)	(0.03)	(0.03)	(0.05)	(0.05)	(0.04)	(0.04)
ele	0.58***	0.60***	0.57***	0.60***	0.58***	0.59***	0.58***
	(0.15)	(0.17)	(0.17)	(0.16)	(0.15)	(0.17)	(0.16)
*ele*doecd6*	-0.50**	-0.50	-0.46	-0.51*	-0.50**	-0.46	-0.47*
	(0.24)	(0.30)	(0.29)	(0.28)	(0.25)	(0.29)	(0.28)
gap	0.00	0.01	0.02	-0.04	-0.01	0.01	0.01
	(0.06)	(0.06)	(0.07)	(0.06)	(0.07)	(0.07)	(0.07)
*gap*doecd6*	-0.26***	-0.17**	-0.24***	-0.16*	-0.21**	-0.18**	-0.21**
	(0.07)	(0.08)	(0.09)	(0.09)	(0.08)	(0.08)	(0.09)
open	-2.87**	-3.87***	-3.73***	-3.70***	-3.29***	-4.47***	-4.03***
	(1.18)	(1.17)	(1.00)	(1.33)	(1.25)	(1.31)	(1.10)
d9297	-0.75**		-0.97***		-0.51		-0.74*
	(0.35)		(0.37)		(0.39)		(0.43)
*d9297*doecd6*	0.38		0.69		-0.04		0.27
	(0.55)		(0.73)		(0.60)		(0.81)
d9804	0.11		0.20		0.06		0.12
	(0.40)		(0.40)		(0.39)		(0.39)
*d9804*doecd6*	0.70		0.69		0.32		0.42
	(0.48)		(0.44)		(0.44)		(0.45)
*d9297*gap*		-0.08	-0.14*			-0.14	-0.16*
		(0.09)	(0.08)			(0.10)	(0.09)
*d9297*gap*doecd6*		0.00	0.14			0.12	0.15
		(0.09)	(0.19)			(0.08)	(0.20)
*d9804*gap*		0.09	0.20**			0.16	0.23*
		(0.11)	(0.10)			(0.15)	(0.12)
*d9804*gap*doecd6*		-0.42**	-0.47**			-0.29	-0.39*
		(0.20)	(0.19)			(0.19)	(0.22)
mas				-0.42**	-0.44**	-0.50***	-0.47***
				(0.18)	(0.19)	(0.18)	(0.16)
*mas*doecd6*				0.75*	0.81**	0.94***	0.82**
				(0.39)	(0.35)	(0.32)	(0.35)
sgp				-0.82**	-0.72**	-0.85*	-0.69*
				(0.39)	(0.35)	(0.46)	(0.38)
*sgp*doecd6*				1.78***	1.61***	1.67***	1.35***
				(0.53)	(0.50)	(0.59)	(0.52)
Adjusted R^2	0.85	0.85	0.85	0.86	0.85	0.86	0.86
Hausman Statistic[a]	60.85***	20.82***	23.54***	45.74***	52.69***	19.91***	21.17***
Cross-Section	17	17	17	17	17	17	17
Observations	390	390	390	390	390	390	390

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Economic country size

Variable: *Size of the country:* $SIZE_{i,t}$. **Source:** OECD Economic Outlook (2005).

Construction: Constructed as the ratio of the real GDP of country i divided by the sum of the real GDPs of all countries in the specific (sub)sample under consideration:

$$SIZE_{i,t} = \frac{GDP_{i,t}}{\sum_{i}^{N} GDP_{i,t}},$$

where $\{1, .., N\}$ is the set of countries in this (sub)sample. Hence, for the Euro-11 the denominator of this expression is the sum of the real GDPs of the Euro-11 countries. Similarly, for the EU-14 and the OECD-17.

Table 4.18: Inclusion of country size - Euro-11 (1980 - 2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
α	3.29***	3.69***	3.02***	3.68***	3.29***	3.68***	3.16***	3.84***
	(0.81)	(1.22)	(0.81)	(1.21)	(0.90)	(1.32)	(0.88)	(1.26)
pdefay(-1)	0.74***	0.75***	0.75***	0.76***	0.72***	0.73***	0.72***	0.73***
	(0.05)	(0.04)	(0.04)	(0.04)	(0.06)	(0.05)	(0.06)	(0.06)
ggflq(-1)	-0.03***	-0.03***	-0.03***	-0.03***	-0.02***	-0.02***	-0.02***	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	-0.10**	-0.07*	-0.09*	-0.08	-0.11**	-0.10*	-0.12**	-0.11**
	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.05)
ele	0.67***	0.63***	0.66***	0.63***	0.68***	0.65***	0.67***	0.66***
	(0.16)	(0.14)	(0.17)	(0.16)	(0.15)	(0.14)	(0.15)	(0.15)
gap	-0.02	0.00	-0.06	-0.05	-0.01	0.00	-0.05	-0.05
	(0.07)	(0.07)	(0.11)	(0.11)	(0.07)	(0.07)	(0.11)	(0.11)
size	-14.24***	-12.59***	-14.03***	-12.86***	-15.40***	-14.47***	-17.06***	-15.71***
	(3.26)	(3.29)	(2.77)	(2.94)	(4.16)	(4.59)	(3.85)	(3.71)
*size*d9804*	3.36***	3.36**	3.70*	3.72**	2.87**	2.80**	3.21**	3.26**
	(1.73)	(1.69)	(1.91)	(1.81)	(1.28)	(1.32)	(1.33)	(1.36)
d9297		-0.94**		-1.10***		-0.62		-0.81*
		(0.45)		(0.42)		(0.44)		(0.44)
d9804		-0.90**		-1.06***		-0.96*		-1.19**
		(0.40)		(0.40)		(0.52)		(0.52)
*d9297*gap*			0.04	0.00			0.01	-0.02
			(0.11)	(0.12)			(0.11)	(0.11)
*d9804*gap*			0.21	0.25*			0.31	0.27*
			(0.18)	(0.14)			(0.20)	(0.15)
mas					-0.57***	-0.58***	-0.65***	-0.63***
					(0.22)	(0.18)	(0.20)	(0.15)
sgp					-0.79***	-0.88***	-1.07***	-0.91***
					(0.23)	(0.24)	(0.34)	(0.24)
Adjusted R^2	0.81	0.81	0.81	0.81	0.82	0.82	0.83	0.82
Hausman Statistic[a]	41.4***	43.7***	20.8***	21.2***	43.7***	45.9***	23.7***	24.2***
Cross-Section	11	11	11	11	11	11	11	11
Observations	263	263	263	263	263	263	263	263

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.19: Inclusion of country size - EU-14 (1980 - 2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	3.57***	3.17***	3.54***	4.00***	3.84***	3.68***	3.94***
	(1.12)	(0.79)	(0.95)	(0.91)	(1.13)	(0.75)	(0.85)
pdefay(-1)	0.70***	0.73***	0.74***	0.72***	0.71***	0.73***	0.75***
	(0.05)	(0.04)	(0.04)	(0.05)	(0.05)	(0.04)	(0.04)
ggflq(-1)	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.02***	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
*ggflq(-1)*deu3*	-0.09***	-0.08**	-0.11***	-0.08***	-0.09***	-0.09***	-0.11***
	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
inf	-0.05	-0.06	-0.04	-0.07	-0.07	-0.09*	-0.07
	(0.05)	(0.05)	(0.04)	(0.05)	(0.06)	(0.05)	(0.05)
*inf*deu3*	0.00	-0.07	-0.16**	-0.06	-0.03	-0.08	-0.18**
	(0.21)	(0.06)	(0.07)	(0.07)	(0.18)	(0.06)	(0.08)
ele	0.61***	0.59***	0.61***	0.63***	0.65***	0.62***	0.65***
	(0.12)	(0.14)	(0.13)	(0.12)	(0.12)	(0.13)	(0.14)
gap	0.02	0.00	0.02	0.02	0.02	-0.01	0.00
	(0.08)	(0.10)	(0.10)	(0.07)	(0.07)	(0.09)	(0.09)
*gap*deu3*	-0.20**	-0.18	-0.24	-0.30**	-0.22**	-0.17	-0.21
	(0.09)	(0.14)	(0.16)	(0.15)	(0.10)	(0.15)	(0.17)
size	-4.63	-8.58	-3.06	-17.14***	-10.36*	-15.28***	-9.29*
	(5.91)	(6.77)	(6.30)	(5.71)	(5.87)	(5.68)	(5.37)
*size*d9804*	6.45***	6.39***	6.12***	5.83***	5.65***	5.85***	5.53***
	(1.55)	(1.77)	(1.46)	(1.52)	(1.37)	(1.44)	(1.10)
d9297	-0.65		-0.79*		-0.26		-0.44
	(0.42)		(0.41)		(0.41)		(0.40)
*d9297*deu3*	1.46		0.84		1.44		0.68
	(1.22)		(0.91)		(1.06)		(0.52)
d9804	-0.85**		-0.80**		-0.86*		-0.91**
	(0.38)		(0.36)		(0.44)		(0.41)
*d9804*deu3*	-0.09		-0.86**		-0.21		-0.93***
	(1.34)		(0.35)		(1.11)		(0.32)
*d9297*gap*		0.02	-0.08			0.02	-0.07
		(0.13)	(0.11)			(0.11)	(0.10)
*d9297*gap*deu3*		-0.32***	0.02			-0.51***	-0.12
		(0.07)	(0.27)			(0.11)	(0.23)
*d9804*gap*		0.18	0.17			0.28	0.22*
		(0.17)	(0.13)			(0.19)	(0.13)
*d9804*gap*deu3*		0.13	0.37*			0.22	0.32
		(0.30)	(0.19)			(0.27)	(0.21)
mas				-0.70***	-0.61***	-0.77***	-0.65***
				(0.25)	(0.19)	(0.22)	(0.16)
*mas*deu3*				0.15	-0.32	-0.48	-0.47
				(0.33)	(0.28)	(0.52)	(0.30)
sgp				-0.45	-0.63*	-0.85**	-0.77**
				(0.35)	(0.33)	(0.43)	(0.30)
Adjusted R^2	0.79	0.80	0.79	0.80	0.80	0.81	0.80
Hausman Statistic[a]	43.22***	15.89***	11.29***	41.72***	43.88***	17.19***	17.08***
Cross-Section	14	14	14	14	14	14	14
Observations	337	337	337	337	337	337	337

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.20: Inclusion of country size - OECD-17 (1980 - 2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	1.58*	0.73	1.42*	1.22	1.91*	0.96	1.62*
	(0.83)	(0.68)	(0.77)	(0.84)	(0.97)	(0.77)	(0.90)
pdefay(-1)	0.81***	0.83***	0.81***	0.78***	0.78***	0.79***	0.79***
	(0.04)	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
ggflq(-1)	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	0.00	0.00	0.01	-0.05	-0.02	-0.03	-0.02
	(0.04)	(0.04)	(0.04)	(0.05)	(0.06)	(0.05)	(0.05)
ele	0.65***	0.67***	0.65***	0.67***	0.67***	0.67***	0.67***
	(0.15)	(0.17)	(0.16)	(0.16)	(0.15)	(0.16)	(0.16)
*ele*doecd6*	-0.59**	-0.60**	-0.57**	-0.62**	-0.60***	-0.59**	-0.59**
	(0.23)	(0.28)	(0.26)	(0.25)	(0.23)	(0.25)	(0.25)
gap	0.01	-0.01	0.01	-0.03	0.00	-0.01	0.00
	(0.05)	(0.06)	(0.07)	(0.04)	(0.05)	(0.07)	(0.07)
*gap*doecd6*	-0.26***	-0.16*	-0.23***	-0.12	-0.22***	-0.17*	-0.21**
	(0.06)	(0.08)	(0.09)	(0.08)	(0.07)	(0.09)	(0.09)
size	-25.81*	-16.86	-21.26	-20.10	-30.49**	-20.32	-24.89
	(13.30)	(14.11)	(14.87)	(15.84)	(14.42)	(16.38)	(15.59)
*size*doecd6*	37.37**	28.49*	33.01**	32.99*	42.93***	33.23*	37.45**
	(14.57)	(0.08)	(15.83)	(17.20)	(15.78)	(18.13)	(16.71)
d9297	-0.86***		-1.01***		-0.55*		-0.72**
	(0.30)		(0.32)		(0.32)		(0.35)
*d9297*doecd6*	0.23		0.35		-0.21		-0.08
	(0.48)		(0.62)		(0.51)		(0.67)
d9804	-0.44		-0.45		-0.56*		-0.60*
	(0.29)		(0.32)		(0.31)		(0.34)
*d9804*doecd6*	0.84**		0.85**		0.62		0.71
	(0.41)		(0.40)		(0.41)		(0.44)
*d9297*gap*		-0.03	-0.07			-0.06	-0.08
		(0.08)	(0.08)			(0.08)	(0.08)
*d9297*gap*doecd6*		0.05	0.05			0.13*	0.05
		(0.10)	(0.15)			(0.09)	(0.16)
*d9804*gap*		0.02	0.12			0.09	0.14
		(0.13)	(0.11)			(0.16)	(0.13)
*d9804*gap*doecd6*		-0.19	-0.25			-0.02	-0.22
		(0.25)	(0.22)			(0.22)	(0.25)
mas				-0.42**	-0.53***	-0.47***	-0.55***
				(0.18)	(0.18)	(0.17)	(0.16)
*mas*doecd6*				0.47	0.69*	0.56*	0.67*
				(0.40)	(0.37)	(0.32)	(0.37)
sgp				-0.81**	-0.61*	-0.86**	-0.62*
				(0.33)	(0.34)	(0.41)	(0.35)
*sgp*doecd6*				1.68***	1.19**	1.68***	1.02**
				(0.53)	(0.50)	(0.61)	(0.51)
Adjusted R^2	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Hausman Statistic[a]	63.96***	22.44***	25.30***	51.71***	57.63***	21.59***	23.42***
Cross-Section	17	17	17	17	17	17	17
Observations	390	390	390	390	390	390	390

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Volatility of GDP

Variable: *GDP Volatility:* $VOL_{i,t}$. **Source:** OECD Economic Outlook (2005).

Construction: This variable is the standard deviation of real economic growth over the preceding 10 years.

Table 4.21: Inclusion of GDP volatility - Euro-11 (1980 - 2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
α	1.22*	1.77	0.85	1.58	1.09	1.60	0.66	1.48
	(0.71)	(1.10)	(0.79)	(1.20)	(0.73)	(1.10)	(0.81)	(1.18)
pdefay(-1)	0.75***	0.76***	0.76***	0.78***	0.73***	0.74***	0.74***	0.76***
	(0.05)	(0.04)	(0.05)	(0.05)	(0.06)	(0.05)	(0.06)	(0.06)
ggflq(-1)	-0.03***	-0.02***	-0.02***	-0.02**	-0.02**	-0.02**	-0.02**	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	-0.05	-0.03	-0.02	-0.02	-0.06	-0.05	-0.05	-0.05
	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)
ele	0.65***	0.61***	0.64***	0.61***	0.66***	0.63***	0.65***	0.64***
	(0.17)	(0.15)	(0.17)	(0.16)	(0.15)	(0.14)	(0.16)	(0.15)
gap	-0.01	0.00	0.00	-0.01	-0.01	0.00	0.01	-0.01
	(0.06)	(0.07)	(0.12)	(0.13)	(0.07)	(0.07)	(0.13)	(0.14)
vol	9.21	8.98	9.38	6.12	10.44**	9.12*	10.50*	5.87
	(6.56)	(5.44)	(6.75)	(6.56)	(5.10)	(5.47)	(6.00)	(7.25)
d9297		-0.91*		-1.02**		-0.59		-0.72
		(0.48)		(0.46)		(0.52)		(0.51)
d9804		-0.44		-0.46		-0.55		-0.61
		(0.46)		(0.50)		(0.49)		(0.51)
*d9297*gap*			-0.03	-0.05			-0.06	-0.06
			(0.13)	(0.14)			(0.14)	(0.14)
*d9804*gap*			0.09	0.16			0.18	0.19
			(0.20)	(0.17)			(0.22)	(0.19)
mas					-0.59***	-0.58***	-0.64***	-0.61***
					(0.20)	(0.17)	(0.19)	(0.15)
sgp					-0.78**	-0.82**	-0.93*	-0.84**
					(0.34)	(0.34)	(0.49)	(0.42)
Adjusted R^2	0.80	0.80	0.80	0.80	0.81	0.81	0.81	0.81
Hausman Statistic[a]	40.3***	43.4***	19.1***	20.1***	42.3***	44.8***	20.8***	21.5***
Cross-Section	11	11	11	11	11	11	11	11
Observations	263	263	263	263	263	263	263	263

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.22: Inclusion of GDP volatility - EU-14 (1980 - 2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	2.60**	1.96***	2.69***	2.12***	2.46**	1.94***	2.69***
	(1.02)	(0.57)	(0.79)	(0.62)	(0.99)	(0.55)	(0.74)
pdefay(-1)	0.71***	0.73***	0.74***	0.73***	0.72***	0.73***	0.76***
	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)	(0.04)	(0.05)
ggflq(-1)	-0.02***	-0.02***	-0.02**	-0.02**	-0.02**	-0.01**	-0.01**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
*ggflq(-1)*deu3*	-0.09***	-0.09**	-0.11***	-0.09***	-0.10***	-0.10***	-0.11***
	(0.03)	(0.04)	(0.03)	(0.03)	(0.02)	(0.03)	(0.02)
inf	-0.02	-0.02	-0.01	-0.05	-0.04	-0.06	-0.05
	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)
*inf*deu3*	-0.01	-0.09*	-0.17**	-0.07	-0.04	-0.10**	-0.20**
	(0.22)	(0.05)	(0.07)	(0.07)	(0.18)	(0.05)	(0.08)
ele	0.60***	0.59***	0.61***	0.62***	0.64***	0.61***	0.65***
	(0.12)	(0.14)	(0.13)	(0.12)	(0.12)	(0.13)	(0.13)
gap	0.02	0.04	0.05	0.03	0.02	0.03	0.02
	(0.08)	(0.11)	(0.11)	(0.07)	(0.07)	(0.10)	(0.11)
*gap*deu3*	-0.20**	-0.21	-0.26	-0.28*	-0.21**	-0.18	-0.22
	(0.08)	(0.14)	(0.16)	(0.16)	(0.10)	(0.16)	(0.18)
vol	8.91	7.65	6.01	8.08*	8.93	7.48	4.40
	(5.53)	(6.45)	(6.47)	(4.62)	(5.52)	(5.33)	(6.94)
d9297	-0.70		-0.82*		-0.36		-0.52
	(0.44)		(0.42)		(0.46)		(0.43)
*d9297*deu3*	1.60		1.01		1.70		0.90*
	(1.25)		(0.88)		(1.06)		(0.54)
d9804	-0.33		-0.27		-0.40		-0.41
	(0.41)		(0.40)		(0.42)		(0.41)
*d9804*deu3*	-0.01		-0.78		-0.22		-0.98*
	(1.18)		(0.52)		(1.00)		(0.52)
*d9297*gap*		-0.03	-0.12			-0.04	-0.10
		(0.14)	(0.12)			(0.13)	(0.11)
*d9297*gap*deu3*		-0.33***	0.05			-0.54***	-0.10
		(0.08)	(0.29)			(0.09)	(0.24)
*d9804*gap*		0.10	0.11			0.20	0.16
		(0.18)	(0.15)			(0.20)	(0.16)
*d9804*gap*deu3*		0.19	0.41**			0.28	0.35
		(0.28)	(0.19)			(0.26)	(0.22)
mas				-0.69***	-0.59***	-0.76***	-0.63***
				(0.24)	(0.17)	(0.22)	(0.15)
*mas*deu3*				0.31	-0.37	-0.44	-0.53*
				(0.38)	(0.27)	(0.55)	(0.30)
sgp				-0.64	-0.76*	-0.99**	-0.89**
				(0.40)	(0.38)	(0.49)	(0.39)
Adjusted R^2	0.79	0.79	0.79	0.82	0.80	0.83	0.82
Hausman Statistic[a]	34.24***	13.60***	14.78***	33.71***	35.32***	14.46***	14.93***
Cross-Section	14	14	14	14	14	14	14
Observations	337	337	337	337	337	337	337

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.23: Inclusion of GDP volatility - OECD-17 (1980 - 2004)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	1.42**	0.78*	1.36**	1.24*	1.67*	0.96*	1.48*
	(0.69)	(0.43)	(0.68)	(0.64)	(0.87)	(0.54)	(0.81)
pdefay(-1)	0.78***	0.81***	0.79***	0.75***	0.75***	0.77***	0.77***
	(0.04)	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
ggflq(-1)	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	0.00	0.00	0.01	-0.05	-0.03	-0.03	-0.02
	(0.04)	(0.03)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
ele	0.63***	0.67***	0.64***	0.65***	0.65***	0.66***	0.65***
	(0.15)	(0.17)	(0.16)	(0.16)	(0.15)	(0.16)	(0.16)
*ele*doecd6*	-0.56**	-0.58*	-0.54*	-0.59**	-0.56**	-0.56**	-0.55**
	(0.24)	(0.30)	(0.28)	(0.27)	(0.24)	(0.28)	(0.27)
gap	0.01	0.01	0.02	-0.03	0.00	0.01	0.02
	(0.05)	(0.07)	(0.07)	(0.04)	(0.05)	(0.07)	(0.08)
*gap*doecd6*	-0.26***	-0.17*	-0.25***	-0.11	-0.23***	-0.18*	-0.23**
	(0.07)	(0.09)	(0.09)	(0.08)	(0.08)	(0.10)	(0.09)
vol	6.29	7.77*	6.57	7.45	6.83	8.59*	6.27
	(4.57)	(4.16)	(4.02)	(6.52)	(5.26)	(5.12)	(4.72)
d9297	-0.88**		-1.03***		-0.60		-0.76*
	(0.35)		(0.37)		(0.39)		(0.41)
*d9297*doecd6*	0.26		0.53		-0.15		0.13
	(0.64)		(0.82)		(0.69)		(0.92)
d9804	-0.38		-0.39		-0.50		-0.52
	(0.35)		(0.38)		(0.36)		(0.38)
*d9804*doecd6*	0.92*		0.92**		0.71		0.81
	(0.48)		(0.44)		(0.48)		(0.51)
*d9297*gap*		-0.04	-0.09			-0.07	-0.10
		(0.10)	(0.09)			(0.11)	(0.09)
*d9297*gap*doecd6*		0.12	0.16			0.21*	0.16
		(0.10)	(0.21)			(0.10)	(0.23)
*d9804*gap*		0.00	0.11			0.06	0.13
		(0.14)	(0.12)			(0.17)	(0.14)
*d9804*gap*doecd6*		-0.22	-0.30			-0.07	-0.27
		(0.25)	(0.23)			(0.22)	(0.25)
mas				-0.40**	-0.50***	-0.44***	-0.52***
				(0.17)	(0.17)	(0.16)	(0.15)
*mas*doecd6*				0.45	0.67*	0.58*	0.64*
				(0.46)	(0.35)	(0.31)	(0.35)
sgp				-0.77**	-0.59	-0.80*	-0.58
				(0.35)	(0.36)	(0.41)	(0.38)
*sgp*doecd6*				1.67***	1.16**	1.57***	0.90*
				(0.56)	(0.54)	(0.60)	(0.54)
Adjusted R^2	0.84	0.85	0.85	0.85	0.85	0.85	0.85
Hausman Statistic[a]	63.08***	22.28***	25.29***	51.60***	56.85***	21.31***	23.09***
Cross-Section	17	17	17	17	17	17	17
Observations	390	390	390	390	390	390	390

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

4.F.2 Additional political variables

Cabinet composition

Variable: *Cabinet composition*: $GPART_{i,t}$. **Source:** Armingeon et al. (2005).

Construction: Variable based on the Schmidt-Index that assume growing values the more the Cabinet is composed by left, social-democratic parties. Classification: (1) hegemony of right-wing parties, (2) dominance of right-wing (and centre) parties, (3) partition between left and right, (4) dominance of social-democratic and other left parties, (5) hegemony of social-democratic and other left parties. Available until 2003.

Table 4.24: Inclusion of GPART - Euro-11 (1980 - 2003)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
α	1.67***	2.22**	1.35**	1.90*	1.56**	2.04**	1.17**	1.79*
	(0.63)	(0.98)	(0.56)	(0.97)	(0.62)	(0.94)	(0.58)	(0.94)
pdefay(-1)	0.77***	0.77***	0.78***	0.78***	0.75***	0.75***	0.75***	0.76***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)	(0.06)	(0.06)
ggflq(-1)	-0.03***	-0.03***	-0.03***	-0.03***	-0.02***	-0.02***	-0.02***	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	-0.05	-0.04	-0.03	-0.02	-0.07	-0.07	-0.06	-0.06
	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)
ele	0.65***	0.62***	0.65***	0.63***	0.66***	0.63***	0.66***	0.65***
	(0.17)	(0.15)	(0.17)	(0.16)	(0.15)	(0.14)	(0.16)	(0.15)
gap	-0.05	-0.04	-0.03	-0.03	-0.04	-0.04	-0.03	-0.04
	(0.07)	(0.06)	(0.10)	(0.11)	(0.07)	(0.06)	(0.11)	(0.11)
gpart	0.06	0.06	0.05	0.05	0.07	0.06	0.06	0.05
	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.05)	(0.04)	(0.04)
d9297		-0.92**		-0.99*		-0.64		-0.74
		(0.43)		(0.45)		(0.48)		(0.49)
d9804		-0.35		-0.40		-0.47		-0.59
		(0.46)		(0.53)		(0.50)		(0.55)
*d9297*gap*			-0.01	-0.05			-0.03	-0.06
			(0.11)	(0.12)			(0.13)	(0.13)
*d9804*gap*			0.05	0.14			0.16	0.18
			(0.19)	(0.17)			(0.22)	(0.18)
mas					-0.55**	-0.54***	-0.59**	-0.59***
					(0.23)	(0.19)	(0.23)	(0.17)
sgp					-1.07***	-1.12***	-1.12***	-1.08***
					(0.33)	(0.35)	(0.39)	(0.32)
Adjusted R^2	0.80	0.80	0.80	0.80	0.81	0.81	0.81	0.81
Hausman Statistic[a]	36.2***	38.9***	17.3***	18.3***	39.1***	41.7***	19.5***	20.6***
Cross-Section	11	11	11	11	11	11	11	11
Observations	251	251	251	251	251	251	251	251

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.25: Inclusion of GPART - EU-14 (1980 - 2003)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	3.10***	2.31***	3.01***	2.59***	3.00***	2.27***	2.97***
	(0.86)	(0.57)	(0.63)	(0.64)	(0.78)	(0.54)	(0.56)
pdefay(-1)	0.72***	0.73***	0.75***	0.74***	0.74***	0.74***	0.76***
	(0.05)	(0.04)	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)
ggflq(-1)	-0.03***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02**	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
*ggflq(-1)*deu3*	-0.09***	-0.09**	-0.11***	-0.09***	-0.10***	-0.10***	-0.12***
	(0.02)	(0.04)	(0.03)	(0.03)	(0.02)	(0.03)	(0.02)
inf	-0.03	-0.02	-0.01	-0.06	-0.05	-0.06	-0.06
	(0.05)	(0.04)	(0.04)	(0.06)	(0.06)	(0.05)	(0.05)
*inf*deu3*	-0.07	-0.11	-0.19**	-0.11	-0.12	-0.11*	-0.22**
	(0.19)	(0.07)	(0.09)	(0.08)	(0.15)	(0.07)	(0.09)
ele	0.58***	0.58***	0.60***	0.59***	0.62***	0.60***	0.64***
	(0.12)	(0.15)	(0.14)	(0.12)	(0.12)	(0.13)	(0.13)
gap	-0.01	0.02	0.03	0.01	-0.01	0.00	0.01
	(0.08)	(0.10)	(0.09)	(0.08)	(0.07)	(0.09)	(0.09)
*gap*deu3*	-0.23**	-0.21	-0.26	-0.32*	-0.24**	-0.17	-0.22
	(0.09)	(0.15)	(0.17)	(0.18)	(0.12)	(0.16)	(0.18)
gpart	0.04	0.04	0.03	0.02	0.04	0.04	0.04
	(0.08)	(0.07)	(0.06)	(0.08)	(0.07)	(0.06)	(0.06)
d9297	-0.64		-0.77*		-0.36		-0.52
	(0.41)		(0.42)		(0.43)		(0.43)
*d9297*deu3*	1.15		0.78		1.24		0.73*
	(1.15)		(0.85)		(0.94)		(0.47)
d9804	-0.21		-0.20		-0.28		-0.38
	(0.40)		(0.43)		(0.43)		(0.44)
*d9804*deu3*	-0.38		-0.92*		-0.61		-1.05**
	(1.29)		(0.52)		(1.03)		(0.50)
*d9297*gap*		-0.03	-0.12			-0.03	-0.10
		(0.13)	(0.10)			(0.12)	(0.10)
*d9297*gap*deu3*		-0.28***	0.05			-0.50***	-0.10
		(0.08)	(0.27)			(0.10)	(0.22)
*d9804*gap*		0.11	0.10			0.23	0.16
		(0.17)	(0.14)			(0.19)	(0.14)
*d9804*gap*deu3*		-0.19	0.27			-0.14	0.19
		(0.32)	(0.18)			(0.30)	(0.20)
mas				-0.63**	-0.56***	-0.72***	-0.62***
				(0.25)	(0.19)	(0.24)	(0.17)
*mas*deu3*				0.15	-0.40	-0.43	-0.50
				(0.43)	(0.32)	(0.55)	(0.33)
sgp				-0.97**	-1.07***	-1.23***	-1.12***
				(0.38)	(0.38)	(0.38)	(0.30)
Adjusted R^2	0.79	0.79	0.78	0.79	0.80	0.80	0.80
Hausman Statistic[a]	31.69***	12.44***	13.33***	31.90***	33.86***	14.07***	14.37***
Cross-Section	14	14	14	14	14	14	14
Observations	322	322	322	322	322	322	322

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.26: Inclusion of GPART - OECD-17 (1980 - 2003)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	1.68***	1.15***	1.54***	1.59**	1.98**	1.26***	1.69**
	(0.64)	(0.37)	(0.56)	(0.61)	(0.79)	(0.41)	(0.67)
pdefay(-1)	0.80***	0.82***	0.81***	0.76***	0.76***	0.78***	0.78***
	(0.04)	(0.05)	(0.04)	(0.05)	(0.05)	(0.06)	(0.05)
ggflq(-1)	-0.02***	-0.02***	-0.02***	-0.03***	-0.03***	-0.02***	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	-0.01	0.00	0.01	-0.06	-0.04	-0.04	-0.02
	(0.04)	(0.03)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
ele	0.65***	0.68***	0.66***	0.64***	0.65***	0.66***	0.67***
	(0.16)	(0.18)	(0.17)	(0.16)	(0.14)	(0.17)	(0.16)
*ele*doecd6*	-0.52*	-0.59*	-0.50	-0.56**	-0.51*	-0.54*	-0.51*
	(0.27)	(0.32)	(0.31)	(0.28)	(0.26)	(0.29)	(0.29)
gap	-0.02	0.00	0.01	-0.05	-0.03	-0.01	0.01
	(0.05)	(0.06)	(0.07)	(0.05)	(0.05)	(0.07)	(0.07)
*gap*doecd6*	-0.24***	-0.18**	-0.25***	-0.10	-0.20***	-0.18**	-0.23***
	(0.06)	(0.09)	(0.09)	(0.09)	(0.07)	(0.09)	(0.09)
gpart	0.06	0.04	0.06	0.06	0.06*	0.07*	0.06*
	(0.04)	(0.04)	(0.04)	(0.04)	(0.03)	(0.04)	(0.04)
d9297	-0.85***		-0.98***		-0.62*		-0.76*
	(0.32)		(0.35)		(0.36)		(0.39)
*d9297*doecd6*	0.23		0.48		-0.16		0.12
	(0.62)		(0.79)		(0.67)		(0.90)
d9804	-0.28		-0.28		-0.40		-0.42
	(0.36)		(0.42)		(0.37)		(0.43)
*d9804*doecd6*	0.93*		0.95**		0.69		0.81
	(0.50)		(0.47)		(0.48)		(0.53)
*d9297*gap*		-0.05	-0.10			-0.08	-0.11
		(0.09)	(0.08)			(0.10)	(0.08)
*d9297*gap*doecd6*		0.10	0.16			0.20**	0.17
		(0.10)	(0.20)			(0.10)	(0.21)
*d9804*gap*		-0.07	0.07**			0.02	0.09
		(0.14)	(0.14)			(0.17)	(0.14)
*d9804*gap*doecd6*		-0.12	-0.23			0.06	-0.17
		(0.25)	(0.25)			(0.21)	(0.28)
mas				-0.38**	-0.46**	-0.43**	-0.48***
				(0.19)	(0.19)	(0.19)	(0.17)
*mas*doecd6*				0.48*	0.68*	0.61*	0.65*
				(0.47)	(0.40)	(0.35)	(0.39)
sgp				-1.13***	-0.87**	-1.12***	-0.79**
				(0.38)	(0.39)	(0.38)	(0.33)
*sgp*doecd6*				2.08***	1.52**	2.04***	1.24**
				(0.65)	(0.61)	(0.65)	(0.56)
Adjusted R^2	0.84	0.84	0.84	0.85	0.84	0.85	0.84
Hausman Statistic[a]	59.80***	20.74***	23.29***	48.33***	54.11***	20.28***	21.95***
Cross-Section	17	17	17	17	17	17	17
Observations	372	372	372	372	372	372	372

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

New composition of cabinet

Variable: *New party composition of the cabinet*: $GNEW_{i,t}$. **Source:** Armingeon et al. (2005).

Construction: Measures yearly changes in the party composition of the Cabinet: (0) no change (1) change, if cabinet composition ($GPART_{i,t}$) changed from last to present year. Available until 2003.

Table 4.27: Inclusion of GNEW - Euro-11 (1980 - 2003)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
α	1.86***	2.37**	1.53**	2.03*	1.76**	2.19**	1.34**	1.90*
	(0.71)	(1.05)	(0.64)	(1.05)	(0.71)	(1.04)	(0.66)	(1.03)
pdefay(-1)	0.77***	0.77***	0.78***	0.78***	0.75***	0.75***	0.76***	0.76***
	(0.05)	(0.04)	(0.05)	(0.05)	(0.06)	(0.05)	(0.06)	(0.06)
ggflq(-1)	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.02***	-0.02***	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	-0.05	-0.04	-0.03	-0.02	-0.07	-0.06	-0.06	-0.06
	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)
ele	0.67***	0.63***	0.68***	0.64***	0.67***	0.63***	0.67***	0.65***
	(0.16)	(0.14)	(0.17)	(0.15)	(0.15)	(0.13)	(0.16)	(0.15)
gap	-0.06	-0.04	-0.04	-0.04	-0.05	-0.03	-0.04	-0.03
	(0.06)	(0.06)	(0.10)	(0.11)	(0.07)	(0.06)	(0.11)	(0.12)
gnew	-0.13	-0.12	-0.12	-0.11	-0.09	-0.07	-0.06	-0.04
	(0.20)	(0.19)	(0.20)	(0.17)	(0.23)	(0.22)	(0.22)	(0.21)
d9297		-0.91**		-0.99**		-0.63		-0.73
		(0.42)		(0.44)		(0.48)		(0.49)
d9804		-0.33		-0.40		-0.46		-0.60
		(0.44)		(0.52)		(0.47)		(0.54)
*d9297*gap*			-0.01	-0.04			-0.03	-0.05
			(0.11)	(0.12)			(0.13)	(0.13)
*d9804*gap*			0.06	0.15			0.17	0.20
			(0.20)	(0.17)			(0.23)	(0.18)
mas					-0.54**	-0.53***	-0.59***	-0.58***
					(0.22)	(0.19)	(0.22)	(0.17)
sgp					-1.02***	-1.08***	-1.08***	-1.04***
					(0.31)	(0.34)	(0.40)	(0.33)
Adjusted R^2	0.80	0.80	0.80	0.80	0.81	0.81	0.81	0.81
Hausman Statistic[a]	36.1***	39.2***	17.1***	18.5***	38.7***	41.6***	19.2***	20.5***
Cross-Section	11	11	11	11	11	11	11	11
Observations	252	252	252	252	252	252	252	252

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.28: Inclusion of GNEW - EU-14 (1980 - 2003)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	3.17***	2.43***	3.06***	2.64***	3.06***	2.37***	3.01***
	(0.90)	(0.50)	(0.66)	(0.59)	(0.82)	(0.48)	(0.60)
pdefay(-1)	0.72***	0.74***	0.75***	0.74***	0.74***	0.74***	0.76***
	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
ggflq(-1)	-0.03***	-0.02***	-0.02***	-0.02***	-0.02***	-0.01**	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
*ggflq(-1)*deu3*	-0.09***	-0.09***	-0.11***	-0.09***	-0.10***	-0.10***	-0.12***
	(0.02)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.02)
inf	-0.03	-0.02	-0.01	-0.06	-0.05	-0.06	-0.05
	(0.05)	(0.04)	(0.04)	(0.05)	(0.06)	(0.05)	(0.05)
*inf*deu3*	-0.07	-0.12*	-0.20**	-0.12*	-0.12	-0.13**	-0.23**
	(0.18)	(0.06)	(0.09)	(0.07)	(0.14)	(0.06)	(0.10)
ele	0.59***	0.58***	0.60***	0.58***	0.61***	0.59***	0.63***
	(0.12)	(0.14)	(0.13)	(0.12)	(0.11)	(0.12)	(0.13)
gap	-0.01	0.02	0.04	0.02	-0.01	0.01	0.02
	(0.07)	(0.10)	(0.09)	(0.07)	(0.06)	(0.09)	(0.09)
*gap*deu3*	-0.22**	-0.21	-0.27	-0.32*	-0.24*	-0.17	-0.23
	(0.09)	(0.15)	(0.17)	(0.17)	(0.12)	(0.16)	(0.18)
gnew	-0.05	0.00	0.01	0.06	0.02	0.08	0.10
	(0.17)	(0.18)	(0.17)	(0.20)	(0.20)	(0.20)	(0.20)
d9297	-0.65		-0.77*		-0.36		-0.50
	(0.40)		(0.41)		(0.43)		(0.43)
*d9297*deu3*	1.19		0.80		1.25		0.73*
	(1.09)		(0.88)		(0.84)		(0.52)
d9804	-0.20		-0.20		-0.28		-0.40
	(0.39)		(0.42)		(0.42)		(0.43)
*d9804*deu3*	-0.30		-0.87**		-0.55		-1.00**
	(1.10)		(0.43)		(0.85)		(0.46)
*d9297*gap*		-0.03	-0.12			-0.02	-0.10
		(0.13)	(0.11)			(0.13)	(0.10)
*d9297*gap*deu3*		-0.27***	0.07			-0.49***	-0.08
		(0.08)	(0.29)			(0.10)	(0.24)
*d9804*gap*		0.11	0.11			0.24	0.18
		(0.18)	(0.15)			(0.19)	(0.15)
*d9804*gap*deu3*		-0.21	0.26			-0.14	0.21
		(0.33)	(0.19)			(0.30)	(0.19)
mas				-0.65**	-0.55***	-0.74***	-0.62***
				(0.26)	(0.20)	(0.24)	(0.18)
*mas*deu3*				0.13	-0.43	-0.45	-0.51
				(0.40)	(0.30)	(0.52)	(0.31)
sgp				-0.96***	-1.05***	-1.20***	-1.10***
				(0.36)	(0.37)	(0.38)	(0.31)
Adjusted R^2	0.79	0.79	0.79	0.80	0.80	0.80	0.80
Hausman Statistic[a]	31.50***	12.13***	13.23***	31.38***	33.60***	13.81***	14.22***
Cross-Section	14	14	14	14	14	14	14
Observations	323	323	323	323	323	323	323

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.29: Inclusion of GNEW - OECD-17 (1980 - 2003)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	1.81***	1.23***	1.68***	1.70**	2.11**	1.40***	1.81**
	(0.68)	(0.44)	(0.59)	(0.66)	(0.84)	(0.50)	(0.73)
pdefay(-1)	0.80***	0.82***	0.81***	0.77***	0.77***	0.78***	0.78***
	(0.04)	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
ggflq(-1)	-0.02***	-0.02***	-0.02***	-0.03***	-0.03***	-0.02***	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	-0.01	0.00	0.01	-0.05	-0.04	-0.04	-0.02
	(0.04)	(0.04)	(0.04)	(0.05)	(0.06)	(0.05)	(0.05)
ele	0.64***	0.67***	0.65***	0.64***	0.63***	0.65***	0.65***
	(0.15)	(0.17)	(0.16)	(0.15)	(0.14)	(0.16)	(0.15)
*ele*doecd6*	-0.51*	-0.58*	-0.49	-0.54*	-0.49*	-0.53*	-0.49*
	(0.27)	(0.32)	(0.30)	(0.28)	(0.26)	(0.30)	(0.29)
gap	-0.01	0.00	0.01	-0.05	-0.02	-0.01	0.01
	(0.05)	(0.06)	(0.07)	(0.04)	(0.05)	(0.07)	(0.07)
*gap*doecd6*	-0.24***	-0.18**	-0.25***	-0.11	-0.21***	-0.18*	-0.23***
	(0.06)	(0.09)	(0.09)	(0.08)	(0.07)	(0.09)	(0.09)
gnew	0.00	0.01	0.00	-0.01	0.02	0.00	0.03
	(0.17)	(0.19)	(0.17)	(0.20)	(0.19)	(0.19)	(0.19)
d9297	-0.86***		-0.99***		-0.63*		-0.76*
	(0.32)		(0.35)		(0.37)		(0.39)
*d9297*doecd6*	0.26		0.48		-0.12		0.12
	(0.62)		(0.81)		(0.67)		(0.91)
d9804	-0.29		-0.30		-0.41		-0.45
	(0.35)		(0.41)		(0.36)		(0.42)
*d9804*doecd6*	0.88*		0.92**		0.65		0.79
	(0.48)		(0.46)		(0.47)		(0.53)
*d9297*gap*		-0.05	-0.10			-0.07	-0.10
		(0.09)	(0.08)			(0.10)	(0.08)
*d9297*gap*doecd6*		0.09	0.14			0.17*	0.14
		(0.10)	(0.20)			(0.09)	(0.22)
*d9804*gap*		-0.05	0.09			0.04	0.11
		(0.14)	(0.14)			(0.18)	(0.14)
*d9804*gap*doecd6*		-0.15	-0.26			0.00	-0.21
		(0.26)	(0.25)			(0.22)	(0.28)
mas				-0.38**	-0.45**	-0.42**	-0.48***
				(0.18)	(0.19)	(0.18)	(0.17)
*mas*doecd6*				0.49	0.65*	0.58*	0.62
				(0.46)	(0.38)	(0.34)	(0.38)
sgp				-1.07***	-0.82**	-1.04***	-0.74**
				(0.37)	(0.40)	(0.38)	(0.36)
*sgp*doecd6*				2.00***	1.48**	1.91***	1.16**
				(0.63)	(0.62)	(0.63)	(0.57)
Adjusted R^2	0.84	0.84	0.84	0.85	0.84	0.85	0.84
Hausman Statistic[a]	59.52***	20.70***	23.32***	48.08***	53.86***	20.19***	21.82***
Cross-Section	17	17	17	17	17	17	17
Observations	373	373	373	373	373	373	373

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

'Ideological gap' between new cabinet and old one

Variable: *'Ideological gap' between new cabinet and old one*: $GGAP_{i,t}$. **Source:** Armingeon et al. (2005).

Construction: The gap is calculated as the difference of the index value ($GPART_{i,t}$) of the outgoing and the incoming government. Available until 2003.

Table 4.30: Inclusion of GGAP - Euro-11 (1980 - 2003)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
α	1.80**	2.34**	1.48**	2.00*	1.72**	2.19**	1.33**	1.91*
	(0.70)	(1.04)	(0.63)	(1.03)	(0.71)	(1.02)	(0.66)	(1.01)
pdefay(-1)	0.77***	0.77***	0.78***	0.79***	0.75***	0.76***	0.76***	0.76***
	(0.05)	(0.04)	(0.05)	(0.05)	(0.06)	(0.06)	(0.06)	(0.06)
ggflq(-1)	-0.03***	-0.03***	-0.03***	-0.03***	-0.02***	-0.02***	-0.02***	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	-0.05	-0.04	-0.03	-0.02	-0.07	-0.07	-0.06	-0.06
	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)
ele	0.65***	0.61***	0.65***	0.63***	0.66***	0.63***	0.66***	0.65***
	(0.16)	(0.14)	(0.17)	(0.16)	(0.15)	(0.13)	(0.16)	(0.15)
gap	-0.05	-0.04	-0.03	-0.03	-0.04	-0.03	-0.03	-0.04
	(0.06)	(0.06)	(0.10)	(0.11)	(0.07)	(0.06)	(0.11)	(0.11)
ggap	0.06	0.04	0.05	0.03	0.07	0.05	0.06	0.04
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)
d9297		-0.91**		-0.99**		-0.64		-0.74
		(0.42)		(0.44)		(0.48)		(0.49)
d9804		-0.35		-0.41		-0.46		-0.60
		(0.44)		(0.53)		(0.48)		(0.55)
*d9297*gap*			0.00	-0.04			-0.02	-0.05
			(0.11)	(0.12)			(0.13)	(0.12)
*d9804*gap*			0.06	0.15			0.18	0.20
			(0.20)	(0.17)			(0.22)	(0.17)
mas					-0.55**	-0.54***	-0.59***	-0.59***
					(0.23)	(0.19)	(0.22)	(0.16)
sgp					-1.01***	-1.08***	-1.08***	-1.04***
					(0.31)	(0.34)	(0.39)	(0.33)
Adjusted R^2	0.80	0.80	0.80	0.80	0.81	0.81	0.81	0.81
Hausman Statistic[a]	36.7***	39.1***	17.5***	18.5***	39.5***	41.8***	19.6***	20.7***
Cross-Section	11	11	11	11	11	11	11	11
Observations	251	251	251	251	251	251	251	251

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.31: Inclusion of GGAP - EU-14 (1980 - 2003)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	3.39***	2.55***	3.09***	2.80***	3.25***	2.49***	3.07***
	(0.82)	(0.44)	(0.67)	(0.53)	(0.78)	(0.45)	(0.60)
pdefay(-1)	0.74***	0.75***	0.76***	0.74***	0.75***	0.74***	0.76***
	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
ggflq(-1)	-0.03***	-0.02***	-0.02***	-0.02**	-0.02***	-0.02**	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
*ggflq(-1)*deu3*	-0.10***	-0.10***	-0.11***	-0.10***	-0.11***	-0.10***	-0.12***
	(0.02)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
inf	-0.03	-0.03	-0.01	-0.06	-0.06	-0.06	-0.05
	(0.05)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
*inf*deu3*	-0.18	-0.16***	-0.23***	-0.17***	-0.19	-0.15***	-0.23***
	(0.14)	(0.04)	(0.07)	(0.06)	(0.12)	(0.04)	(0.08)
ele	0.59***	0.58***	0.61***	0.60***	0.62***	0.61***	0.64***
	(0.12)	(0.14)	(0.13)	(0.11)	(0.11)	(0.12)	(0.12)
gap	-0.01	0.01	0.03	0.02	-0.01	0.00	0.01
	(0.07)	(0.10)	(0.09)	(0.08)	(0.06)	(0.09)	(0.09)
*gap*deu3*	-0.26**	-0.24	-0.29*	-0.34*	-0.26**	-0.20	-0.24
	(0.10)	(0.15)	(0.17)	(0.18)	(0.13)	(0.16)	(0.17)
ggap	0.03	0.03	0.02	0.06	0.05	0.05	0.04
	(0.12)	(0.11)	(0.12)	(0.11)	(0.11)	(0.11)	(0.12)
*ggap*deu3*	-0.39***	-0.43***	-0.35**	-0.43**	-0.33*	-0.35	-0.27
	(0.14)	(0.16)	(0.15)	(0.14)	(0.17)	(0.24)	(0.22)
d9297	-0.61		-0.73*		-0.34		-0.49
	(0.41)		(0.42)		(0.43)		(0.43)
*d9297*deu3*	0.79		0.91		0.91		0.79
	(0.75)		(0.86)		(0.64)		(0.59)
d9804	-0.14		-0.15		-0.23		-0.36
	(0.41)		(0.45)		(0.44)		(0.45)
*d9804*deu3*	-0.69		-0.80**		-0.79		-0.91**
	(0.76)		(0.34)		(0.65)		(0.42)
*d9297*gap*		-0.01	-0.11			-0.01	-0.10
		(0.14)	(0.11)			(0.13)	(0.10)
*d9297*gap*deu3*		-0.22***	0.12			-0.40***	-0.03
		(0.08)	(0.25)			(0.12)	(0.24)
*d9804*gap*		0.11	0.11			0.23	0.17
		(0.17)	(0.14)			(0.18)	(0.14)
*d9804*gap*deu3*		-0.33	0.11			-0.24	0.08
		(0.43)	(0.28)			(0.42)	(0.31)
mas				-0.64**	-0.56***	-0.71***	-0.62***
				(0.25)	(0.19)	(0.23)	(0.17)
*mas*deu3*				0.27	-0.25	-0.20	-0.33
				(0.46)	(0.34)	(0.60)	(0.38)
sgp				-1.01***	-1.10***	-1.19***	-1.09***
				(0.34)	(0.34)	(0.37)	(0.30)
Adjusted R^2	0.79	0.79	0.79	0.80	0.80	0.80	0.80
Hausman Statistic[a]	37.63***	13.38***	10.00***	37.70***	39.90***	15.19***	15.48***
Cross-Section	14	14	14	14	14	14	14
Observations	322	322	322	322	322	322	322

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.32: Inclusion of GGAP - OECD-17 (1980 - 2003)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	1.87***	1.30***	1.75***	1.73***	2.18**	1.45***	1.89**
	(0.68)	(0.42)	(0.61)	(0.66)	(0.86)	(0.49)	(0.75)
pdefay(-1)	0.80***	0.82***	0.81***	0.77***	0.77***	0.78***	0.78***
	(0.04)	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
ggflq(-1)	-0.02***	-0.02***	-0.02***	-0.03***	-0.03**	-0.02***	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	-0.01	-0.01	0.01	-0.06	-0.04	-0.04	-0.02
	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)
ele	0.64***	0.68***	0.65***	0.65***	0.64***	0.66***	0.66***
	(0.15)	(0.17)	(0.16)	(0.15)	(0.14)	(0.16)	(0.15)
*ele*doecd6*	-0.52*	-0.61*	-0.50	-0.58*	-0.52*	-0.56*	-0.52*
	(0.28)	(0.34)	(0.32)	(0.30)	(0.27)	(0.31)	(0.30)
gap	-0.02	-0.01	0.01	-0.05	-0.02	-0.02	0.00
	(0.04)	(0.06)	(0.06)	(0.04)	(0.05)	(0.06)	(0.07)
*gap*doecd6*	-0.24***	-0.17*	-0.24***	-0.11	-0.21***	-0.17*	-0.22**
	(0.06)	(0.09)	(0.09)	(0.08)	(0.07)	(0.09)	(0.09)
ggap	0.04	0.11	0.04	0.12	0.05	0.12	0.05
	(0.12)	(0.12)	(0.12)	(0.12)	(0.12)	(0.11)	(0.12)
*ggap*doecd6*	-0.19	-0.30*	-0.18	-0.28	-0.19	-0.26	-0.19
	(0.17)	(0.09)	(0.18)	(0.17)	(0.17)	(0.18)	(0.19)
d9297	-0.89***		-1.01***		-0.66*		-0.79**
	(0.33)		(0.37)		(0.38)		(0.40)
*d9297*doecd6*	0.23		0.44		-0.13		0.10
	(0.63)		(0.83)		(0.69)		(0.93)
d9804	-0.31		-0.31		-0.42		-0.46
	(0.37)		(0.43)		(0.38)		(0.44)
*d9804*doecd6*	0.87*		0.90**		0.63		0.76
	(0.48)		(0.45)		(0.46)		(0.51)
*d9297*gap*		-0.04	-0.09			-0.06	-0.10
		(0.09)	(0.08)			(0.10)	(0.08)
*d9297*gap*doecd6*		0.08	0.13			0.16*	0.14
		(0.10)	(0.20)			(0.09)	(0.22)
*d9804*gap*		-0.05	0.09			0.05	0.12
		(0.14)	(0.13)			(0.17)	(0.14)
*d9804*gap*doecd6*		-0.15	-0.26			-0.01	-0.21
		(0.24)	(0.24)			(0.21)	(0.27)
mas				-0.38*	-0.46**	-0.41**	-0.48***
				(0.20)	(0.19)	(0.20)	(0.17)
*mas*doecd6*				0.45	0.63	0.54	0.60
				(0.47)	(0.39)	(0.35)	(0.38)
sgp				-1.03***	-0.80**	-1.03***	-0.73**
				(0.35)	(0.40)	(0.36)	(0.35)
*sgp*doecd6*				1.94***	1.47**	1.86***	1.15**
				(0.60)	(0.61)	(0.60)	(0.56)
Adjusted R^2	0.84	0.84	0.84	0.85	0.84	0.85	0.84
Hausman Statistic[a]	59.44***	20.69***	22.68***	48.30***	53.62***	20.08***	21.31***
Cross-Section	17	17	17	17	17	17	17
Observations	372	372	372	372	372	372	372

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Changes in the government per year

Variable: *Number of changes in government per year*: $GCHAN_{i,t}$. **Source:** Armingeon et al. (2005).

Construction: This number counts the number of changes in the government per year. Three possible modifications are summed: (a) change of Prime Minister; (b) change in the party composition of the Cabinet or; (c) re-formation of the government after elections with the same Prime Minister and party composition. Available until 2003.

Table 4.33: Inclusion of GCHAN - Euro-11 (1980 - 2003)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
α	1.69**	2.29**	1.14	2.02*	1.63**	2.14**	1.25**	1.92*
	(0.69)	(1.06)	(0.81)	(1.03)	(0.67)	(1.03)	(0.57)	(0.99)
pdefay(-1)	0.77***	0.77***	0.78***	0.78***	0.75***	0.75***	0.75***	0.75***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)	(0.06)	(0.06)
ggflq(-1)	-0.03***	-0.03***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	-0.05	-0.04	-0.04	-0.03	-0.08	-0.07	-0.07	-0.06
	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)
gap	-0.04	-0.03	-0.01	-0.04	-0.03	-0.02	-0.04	-0.04
	(0.06)	(0.06)	(0.10)	(0.11)	(0.07)	(0.06)	(0.10)	(0.11)
gchan	0.50***	0.48***	0.93	0.48***	0.50***	0.48***	0.51***	0.48***
	(0.12)	(0.11)	(0.84)	(0.13)	(0.12)	(0.12)	(0.13)	(0.13)
d9297		-0.96**		-1.05**		-0.69		-0.80*
		(0.44)		(0.45)		(0.47)		(0.47)
d9804		-0.38		-0.46		-0.50		-0.65
		(0.49)		(0.56)		(0.53)		(0.59)
*d9297*gap*			-0.01	-0.03			-0.01	-0.03
			(0.09)	(0.12)			(0.13)	(0.12)
*d9804*gap*			0.04	0.16			0.19	0.21
			(0.09)	(0.16)			(0.21)	(0.17)
mas					-0.55***	-0.52***	-0.60***	-0.57***
					(0.21)	(0.18)	(0.21)	(0.16)
sgp					-1.02***	-1.06***	-1.09***	-1.03***
					(0.31)	(0.35)	(0.40)	(0.34)
Adjusted R^2	0.80	0.80	0.79	0.80	0.81	0.81	0.81	0.81
Hausman Statistic[a]	37.2***	39.4***	16.7***	18.8***	39.4***	42.0***	19.8***	20.8***
Cross-Section	11	11	11	11	11	11	11	11
Observations	252	252	252	252	252	252	252	252

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.34: Inclusion of GCHAN - EU-14 (1980 - 2003)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	3.11***	2.35***	3.07***	2.56***	3.03***	2.32***	3.05***
	(0.87)	(0.51)	(0.66)	(0.57)	(0.79)	(0.47)	(0.59)
pdefay(-1)	0.72***	0.74***	0.75***	0.74***	0.74***	0.74***	0.76***
	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
ggflq(-1)	-0.03***	-0.02***	-0.02***	-0.02***	-0.02***	-0.01**	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
*ggflq(-1)*deu3*	-0.09***	-0.09***	-0.11***	-0.09***	-0.10***	-0.10***	-0.11***
	(0.02)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.02)
inf	-0.03	-0.03	-0.01	-0.06	-0.05	-0.07	-0.06
	(0.05)	(0.04)	(0.04)	(0.05)	(0.06)	(0.05)	(0.05)
*inf*deu3*	-0.07	-0.12*	-0.20**	-0.12*	-0.12	-0.12**	-0.22**
	(0.16)	(0.06)	(0.09)	(0.07)	(0.12)	(0.06)	(0.10)
gap	0.00	0.01	0.03	0.02	0.00	0.00	0.01
	(0.07)	(0.10)	(0.09)	(0.07)	(0.06)	(0.09)	(0.09)
*gap*deu3*	-0.25***	-0.22	-0.27*	-0.33*	-0.26**	-0.18	-0.23
	(0.09)	(0.15)	(0.16)	(0.17)	(0.13)	(0.16)	(0.18)
gchan	0.44***	0.45***	0.43***	0.45***	0.44***	0.45***	0.43***
	(0.12)	(0.14)	(0.14)	(0.14)	(0.12)	(0.13)	(0.14)
d9297	-0.70*		-0.82**		-0.42		-0.58
	(0.41)		(0.40)		(0.42)		(0.41)
*d9297*deu3*	1.07		0.69		1.16		0.64
	(0.97)		(0.79)		(0.75)		(0.44)
d9804	-0.23		-0.24		-0.30		-0.43
	(0.44)		(0.46)		(0.47)		(0.49)
*d9804*deu3*	-0.29		-0.83**		-0.50		-0.95**
	(1.04)		(0.41)		(0.81)		(0.44)
*d9297*gap*		-0.02	-0.10			-0.01	-0.08
		(0.13)	(0.11)			(0.12)	(0.10)
*d9297*gap*deu3*		-0.27***	0.04			-0.50***	-0.11
		(0.09)	(0.28)			(0.11)	(0.23)
*d9804*gap*		0.11	0.12			0.24	0.18
		(0.17)	(0.14)			(0.19)	(0.14)
*d9804*gap*deu3*		-0.22	0.21			-0.16	0.14
		(0.30)	(0.17)			(0.28)	(0.19)
mas				-0.63***	-0.53***	-0.71***	-0.59***
				(0.23)	(0.18)	(0.22)	(0.16)
*mas*deu3*				0.14	-0.39	-0.46	-0.48
				(0.42)	(0.31)	(0.53)	(0.31)
sgp				-0.96***	-1.03***	-1.21***	-1.10***
				(0.35)	(0.37)	(0.38)	(0.30)
Adjusted R^2	0.79	0.79	0.79	0.80	0.80	0.80	0.80
Hausman Statistic[a]	30.55***	11.91***	12.75***	31.01***	32.30***	13.32***	13.47***
Cross-Section	14	14	14	14	14	14	14
Observations	323	323	323	323	323	323	323

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.35: Inclusion of GCHAN - OECD-17 (1980 - 2003)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	1.82***	1.26***	1.76***	1.67***	2.15**	1.42***	1.91**
	(0.68)	(0.40)	(0.61)	(0.63)	(0.85)	(0.46)	(0.74)
pdefay(-1)	0.80***	0.82***	0.81***	0.76***	0.76***	0.77***	0.78***
	(0.04)	(0.05)	(0.04)	(0.06)	(0.05)	(0.06)	(0.05)
ggflq(-1)	-0.02***	-0.02***	-0.02***	-0.03***	-0.03***	-0.02***	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	-0.01	-0.01	0.00	-0.06	-0.04	-0.05	-0.03
	(0.04)	(0.03)	(0.04)	(0.05)	(0.06)	(0.05)	(0.05)
gap	-0.01	-0.01	0.00	-0.05	-0.02	-0.02	-0.01
	(0.05)	(0.07)	(0.07)	(0.05)	(0.05)	(0.07)	(0.08)
*gap*doecd6*	-0.24***	-0.16	-0.22**	-0.11	-0.20**	-0.16	-0.20**
	(0.07)	(0.10)	(0.10)	(0.09)	(0.08)	(0.10)	(0.10)
gchan	0.48***	0.51***	0.47***	0.48***	0.47***	0.49***	0.47***
	(0.13)	(0.15)	(0.14)	(0.14)	(0.13)	(0.14)	(0.14)
*gchan*doecd6*	-0.56**	-0.64**	-0.56*	-0.60*	-0.57**	-0.59*	-0.56*
	(0.27)	(0.32)	(0.29)	(0.31)	(0.27)	(0.32)	(0.30)
d9297	-0.89***		-1.00***		-0.67*		-0.79**
	(0.33)		(0.35)		(0.35)		(0.37)
*d9297*doecd6*	0.23		0.41		-0.13		0.06
	(0.63)		(0.83)		(0.69)		(0.94)
d9804	-0.29		-0.32		-0.41		-0.46
	(0.39)		(0.44)		(0.41)		(0.46)
*d9804*doecd6*	0.79		0.82*		0.54		0.69
	(0.49)		(0.45)		(0.47)		(0.52)
*d9297*gap*		-0.02	-0.07			-0.05	-0.08
		(0.10)	(0.09)			(0.11)	(0.09)
*d9297*gap*doecd6*		0.06	0.10			0.14	0.11
		(0.11)	(0.20)			(0.10)	(0.22)
*d9804*gap*		-0.03	0.10			0.05	0.13
		(0.14)	(0.13)			(0.17)	(0.14)
*d9804*gap*doecd6*		-0.19	-0.30			-0.05	-0.25
		(0.25)	(0.25)			(0.22)	(0.29)
mas				-0.37**	-0.44**	-0.40**	-0.46***
				(0.18)	(0.18)	(0.17)	(0.16)
*mas*doecd6*				0.47	0.63	0.54	0.60
				(0.48)	(0.41)	(0.36)	(0.41)
sgp				-1.04***	-0.81**	-1.03***	-0.75**
				(0.37)	(0.40)	(0.37)	(0.35)
*sgp*doecd6*				1.94***	1.50**	1.84***	1.17**
				(0.65)	(0.63)	(0.64)	(0.56)
Adjusted R^2	0.84	0.84	0.84	0.85	0.85	0.85	0.85
Hausman Statistic[a]	59.45***	21.02***	23.32***	48.08***	53.58***	20.37***	21.78***
Cross-Section	17	17	17	17	17	17	17
Observations	373	373	373	373	373	373	373

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Type of government

Variable: *Type of government*: $GTYPE_{i,t}$. **Source:** Armingeon et al. (2005).

Construction: Index representing the type of government of the country in a particular year. Its classification takes into account whether the government has a majority in the parliament as well as the number of parties that form the coalition. The intuition is that if a government has a majority in the parliament and the lower is the number of parties forming it, the greater is its governability.

Classification: (1) single party majority government; (2) minimal-party winning coalition majority government; (3) exceeding-party coalition majority government (4) single party minority government (5) multi party minority government (6) caretaker provisory government. The indicator refers to that type of government that was in office for the longest period each year. Available until 2003.

Table 4.36: Inclusion of GTYPE - Euro-11 (1980 - 2003)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
α	1.83**	2.20*	1.23	1.36	1.52*	1.79	0.76	0.95
	(0.85)	(1.13)	(0.81)	(1.42)	(0.84)	(1.11)	(0.83)	(1.42)
pdefay(-1)	0.79***	0.79***	0.81***	0.81***	0.79***	0.79***	0.80***	0.80***
	(0.06)	(0.06)	(0.07)	(0.08)	(0.07)	(0.07)	(0.09)	(0.09)
ggflq(-1)	-0.03***	-0.03***	-0.02**	-0.02*	-0.02**	-0.02**	-0.02	-0.02
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	-0.03	-0.01	0.01	0.03	-0.03	-0.02	0.01	0.01
	(0.07)	(0.07)	(0.07)	(0.06)	(0.08)	(0.08)	(0.07)	(0.07)
ele	0.47***	0.43**	0.48***	0.44**	0.46***	0.44**	0.47**	0.45**
	(0.17)	(0.17)	(0.18)	(0.20)	(0.17)	(0.19)	(0.19)	(0.21)
gap	-0.03	-0.01	0.12	0.12	-0.01	0.00	0.15	0.15
	(0.08)	(0.07)	(0.21)	(0.21)	(0.09)	(0.08)	(0.21)	(0.22)
gtype	-0.11	-0.09	-0.07	-0.05	-0.03	-0.01	0.01	0.03
	(0.08)	(0.07)	(0.09)	(0.10)	(0.07)	(0.07)	(0.08)	(0.10)
d9297		-0.80*		-0.81		-0.44		-0.45
		(0.44)		(0.56)		(0.49)		(0.60)
d9804		-0.26		-0.09		-0.29		-0.16
		(0.45)		(0.64)		(0.47)		(0.68)
*d9297*gap*			-0.18	-0.21			-0.23	-0.24
			(0.16)	(0.21)			(0.17)	(0.21)
*d9804*gap*			-0.13	-0.02			-0.06	-0.03
			(0.24)	(0.20)			(0.25)	(0.20)
mas					-0.61***	-0.59***	-0.69***	-0.65***
					(0.16)	(0.13)	(0.17)	(0.12)
sgp					-1.55***	-1.65***	-1.67***	-1.62***
					(0.38)	(0.34)	(0.38)	(0.41)
Adjusted R^2	0.78	0.78	0.78	0.78	0.79	0.79	0.79	0.79
Hausman Statistic[a]	27.3***	28.7***	11.1***	12.8***	30.2***	32.1***	12.9***	14.7***
Cross-Section	11	11	11	11	11	11	11	11
Observations	223	223	223	223	223	223	223	223

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.37: Inclusion of GTYPE - EU-14 (1980 - 2003)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	3.61***	3.27***	3.66***	3.15***	3.28***	2.92***	3.37***
	(1.19)	(0.72)	(0.88)	(0.67)	(1.05)	(0.72)	(0.81)
pdefay(-1)	0.73***	0.75***	0.75***	0.76***	0.76***	0.76***	0.78***
	(0.07)	(0.06)	(0.07)	(0.06)	(0.06)	(0.06)	(0.07)
ggflq(-1)	-0.03***	-0.02***	-0.02**	-0.02**	-0.02**	-0.01*	-0.01*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
*ggflq(-1)*deu3*	-0.09***	-0.10***	-0.12***	-0.09***	-0.10***	-0.11***	-0.12***
	(0.02)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.03)
inf	0.01	0.00	0.03	-0.01	0.00	-0.01	0.00
	(0.09)	(0.08)	(0.07)	(0.09)	(0.09)	(0.08)	(0.07)
*inf*deu3*	-0.06	-0.15**	-0.25**	-0.12	-0.12	-0.16**	-0.27**
	(0.21)	(0.07)	(0.12)	(0.08)	(0.16)	(0.07)	(0.13)
ele	0.46***	0.45***	0.47***	0.45***	0.49***	0.46***	0.50***
	(0.14)	(0.16)	(0.17)	(0.14)	(0.15)	(0.16)	(0.18)
gap	0.01	0.12	0.13	0.03	0.01	0.13	0.13
	(0.09)	(0.16)	(0.14)	(0.10)	(0.08)	(0.15)	(0.13)
*gap*deu3*	-0.24**	-0.31*	-0.36*	-0.34*	-0.28**	-0.30	-0.35*
	(0.11)	(0.19)	(0.20)	(0.18)	(0.13)	(0.18)	(0.20)
gtype	-0.13*	-0.10	-0.08	-0.03	-0.03	0.00	0.01
	(0.07)	(0.09)	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
*gtype*deu3*	-0.44**	-0.67**	-0.62**	-0.59***	-0.48**	-0.68**	-0.65**
	(0.21)	(0.29)	(0.27)	(0.17)	(0.19)	(0.34)	(0.31)
d9297	-0.57		-0.69		-0.19		-0.35
	(0.42)		(0.42)		(0.43)		(0.43)
*d9297*deu3*	1.18		0.62		1.08		0.50
	(1.34)		(0.75)		(1.17)		(0.50)
d9804	-0.12		-0.02		-0.11		-0.12
	(0.41)		(0.45)		(0.42)		(0.45)
*d9804*deu3*	-0.12		-0.93		-0.39		-1.05
	(1.35)		(0.74)		(1.15)		(0.75)
*d9297*gap*		-0.17	-0.23*			-0.19	-0.23*
		(0.16)	(0.13)			(0.14)	(0.13)
*d9297*gap*deu3*		-0.18	0.13			-0.32**	0.03
		(0.13)	(0.35)			(0.14)	(0.32)
*d9804*gap*		-0.04	-0.02			0.06	0.01
		(0.22)	(0.14)			(0.22)	(0.13)
*d9804*gap*deu3*		-0.03	0.38*			0.09	0.36*
		(0.31)	(0.21)			(0.27)	(0.21)
mas				-0.69***	-0.60***	-0.80***	-0.68***
				(0.19)	(0.14)	(0.21)	(0.14)
*mas*deu3*				0.21	-0.26	-0.21	-0.27
				(0.34)	(0.26)	(0.42)	(0.28)
sgp				-1.52***	-1.53***	-1.67***	-1.59***
				(0.39)	(0.36)	(0.37)	(0.35)
Adjusted R^2	0.78	0.78	0.77	0.78	0.79	0.79	0.79
Hausman Statistic[a]	33.27***	11.26***	8.85***	35.58***	35.69***	12.81***	13.44***
Cross-Section	14	14	14	14	14	14	14
Observations	294	294	294	294	294	294	294

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.38: Inclusion of GTYPE - OECD-17 (1980 - 2003)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	1.56**	1.02**	1.22*	1.40*	1.70**	1.01*	1.19
	(0.65)	(0.43)	(0.64)	(0.72)	(0.85)	(0.55)	(0.80)
pdefay(-1)	0.81***	0.85***	0.83***	0.78***	0.79***	0.81***	0.81***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)	(0.06)
ggflq(-1)	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02***
	(0.01)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	0.05	0.03	0.08	0.00	0.03	0.02	0.06
	(0.06)	(0.05)	(0.05)	(0.08)	(0.07)	(0.05)	(0.06)
ele	0.48***	0.50***	0.49**	0.46**	0.48**	0.47**	0.49**
	(0.18)	(0.18)	(0.20)	(0.18)	(0.19)	(0.20)	(0.21)
*ele*doecd6*	-0.34	-0.38	-0.33	-0.35	-0.33	-0.33	-0.33
	(0.27)	(0.29)	(0.30)	(0.27)	(0.27)	(0.28)	(0.29)
gap	-0.01	0.08	0.08	-0.04	-0.01	0.09	0.08
	(0.06)	(0.11)	(0.11)	(0.06)	(0.07)	(0.11)	(0.12)
*gap*doecd6*	-0.25***	-0.25**	-0.31***	-0.12	-0.23***	-0.26**	-0.31***
	(0.07)	(0.12)	(0.11)	(0.08)	(0.08)	(0.12)	(0.11)
gtype	-0.04	0.02	-0.03	0.02	-0.01	0.05	0.02
	(0.05)	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)
d9297	-0.77**		-0.88**		-0.46		-0.58
	(0.32)		(0.35)		(0.35)		(0.38)
*d9297*doecd6*	0.29		0.60		-0.10		0.23
	(0.63)		(0.77)		(0.69)		(0.88)
d9804	-0.15		-0.06		-0.22		-0.14
	(0.33)		(0.39)		(0.34)		(0.40)
*d9804*doecd6*	0.90*		0.91**		0.71		0.80
	(0.46)		(0.44)		(0.47)		(0.50)
*d9297*gap*		-0.14	-0.17			-0.17	-0.19
		(0.13)	(0.12)			(0.13)	(0.12)
*d9297*gap*doecd6*		0.16	0.21			0.25*	0.23
		(0.13)	(0.20)			(0.13)	(0.21)
*d9804*gap*		-0.18	-0.01			-0.10	-0.01
		(0.17)	(0.13)			(0.19)	(0.13)
*d9804*gap*doecd6*		-0.01	-0.11			0.14	-0.06
		(0.27)	(0.25)			(0.24)	(0.26)
mas				-0.47***	-0.55***	-0.54***	-0.58***
				(0.16)	(0.12)	(0.15)	(0.12)
*mas*doecd6*				0.52	0.68**	0.64**	0.64*
				(0.44)	(0.33)	(0.29)	(0.34)
sgp				-1.69***	-1.52***	-1.79***	-1.51***
				(0.39)	(0.31)	(0.39)	(0.31)
*sgp*doecd6*				2.52***	2.04***	2.47***	1.81***
				(0.57)	(0.50)	(0.60)	(0.54)
Adjusted R^2	0.84	0.84	0.84	0.85	0.85	0.85	0.84
Hausman Statistic[a]	51.88***	16.58***	19.25***	43.24***	47.77***	16.35***	18.25***
Cross-Section	17	17	17	17	17	17	17
Observations	344	344	344	344	344	344	344

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Fractionalization of the party-system

Variable: *Index of fractionalization of the party-system according to Rae (1968)*: $RAE_{i,t}$.
Source: Armingeon et al. (2005).

Construction: The index is constructed as follows[36]:

$$RAE_{i,t} = 1 - \sum_{j=1}^{m} t_{i,t}^2,$$

where $t_{i,t}$ is the share of votes for party j in country i and period t, and m the number of parties.

Table 4.39: Inclusion of RAE - Euro-11 (1980 - 2003)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
α	5.71**	6.35**	5.95**	6.59**	5.08*	5.54**	5.14*	5.76**
	(2.61)	(2.69)	(2.63)	(2.71)	(2.70)	(2.77)	(2.64)	(2.74)
pdefay(-1)	0.76***	0.75***	0.76***	0.77***	0.74***	0.74***	0.74***	0.74***
	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)	(0.06)	(0.07)	(0.06)
ggflq(-1)	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.03***	-0.02***	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	-0.03	-0.02	-0.02	-0.01	-0.06	-0.05	-0.05	-0.04
	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)	(0.07)	(0.06)
ele	0.68***	0.64***	0.69***	0.66***	0.68***	0.65***	0.69***	0.67***
	(0.16)	(0.15)	(0.17)	(0.16)	(0.15)	(0.15)	(0.16)	(0.16)
gap	-0.05	-0.04	-0.07	-0.07	-0.05	-0.04	-0.06	-0.06
	(0.06)	(0.05)	(0.11)	(0.11)	(0.06)	(0.06)	(0.11)	(0.12)
rae	-0.05	-0.05	-0.06	-0.06*	-0.04	-0.04	-0.05	-0.05
	(0.04)	(0.04)	(0.04)	(0.03)	(0.04)	(0.04)	(0.04)	(0.04)
d9297		-0.78*		-0.83*		-0.54		-0.61
		(0.46)		(0.46)		(0.50)		(0.50)
d9804		-0.21		-0.30		-0.34		-0.50
		(0.49)		(0.55)		(0.53)		(0.56)
*d9297*gap*			0.04	0.01			0.02	-0.01
			(0.13)	(0.13)			(0.15)	(0.13)
*d9804*gap*			0.14	0.22			0.24	0.25
			(0.21)	(0.18)			(0.23)	(0.18)
mas					-0.52**	-0.50**	-0.57***	-0.54***
					(0.22)	(0.20)	(0.21)	(0.16)
sgp					-0.91***	-1.01***	-1.01***	-0.97***
					(0.32)	(0.36)	(0.38)	(0.34)
Adjusted R^2	0.80	0.80	0.80	0.80	0.81	0.81	0.81	0.81
Hausman Statistic[a]	36.8***	38.8***	17.3***	17.8***	39.3***	41.2***	19.3***	20.0***
Cross-Section	11	11	11	11	11	11	11	11
Observations	252	252	252	252	252	252	252	252

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

[36] This formula is also presented in Armingeon et al. (2005), was initially proposed by Rae (1968).

Table 4.40: Inclusion of RAE - EU-14 (1980 - 2003)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	4.23*	4.30*	4.09*	3.67*	3.44	3.80	3.48
	(2.28)	(2.22)	(2.25)	(2.17)	(2.22)	(2.30)	(2.29)
pdefay(-1)	0.72***	0.73***	0.75***	0.73***	0.74***	0.74***	0.76***
	(0.05)	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)
ggflq(-1)	-0.03***	-0.02***	-0.02***	-0.02***	-0.02***	-0.02**	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
*ggflq(-1)*deu3*	-0.09***	-0.09**	-0.11***	-0.08***	-0.09***	-0.09***	-0.11***
	(0.02)	(0.03)	(0.03)	(0.03)	(0.02)	(0.03)	(0.02)
inf	-0.01	-0.01	0.00	-0.04	-0.04	-0.05	-0.04
	(0.05)	(0.05)	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)
*inf*deu3*	-0.05	-0.08	-0.17*	-0.07	-0.10	-0.09	-0.19*
	(0.18)	(0.06)	(0.09)	(0.06)	(0.13)	(0.06)	(0.10)
ele	0.60***	0.60***	0.62***	0.60***	0.62***	0.62***	0.65***
	(0.13)	(0.15)	(0.14)	(0.12)	(0.12)	(0.13)	(0.14)
gap	-0.01	0.00	0.02	0.02	-0.01	-0.01	0.00
	(0.07)	(0.10)	(0.10)	(0.08)	(0.06)	(0.10)	(0.09)
*gap*deu3*	-0.26***	-0.24	-0.31*	-0.34*	-0.27**	-0.20	-0.26
	(0.09)	(0.15)	(0.18)	(0.18)	(0.12)	(0.16)	(0.19)
rae	-0.05	-0.05	-0.05	-0.05	-0.04	-0.04	-0.04
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
*rae*deu3*	0.18***	0.12	0.18***	0.14***	0.16***	0.10	0.15*
	(0.04)	(0.07)	(0.06)	(0.05)	(0.05)	(0.09)	(0.08)
d9297	-0.43		-0.52		-0.21		-0.34
	(0.51)		(0.47)		(0.49)		(0.45)
*d9297*deu3*	0.92		0.73		1.08		0.75
	(1.03)		(1.06)		(0.69)		(0.69)
d9804	0.02		0.02		-0.08		-0.21
	(0.51)		(0.50)		(0.53)		(0.49)
*d9804*deu3*	-0.61		-1.08***		-0.83		-1.15***
	(0.97)		(0.33)		(0.73)		(0.40)
*d9297*gap*		-0.01	-0.09			0.00	-0.08
		(0.14)	(0.11)			(0.13)	(0.11)
*d9297*gap*deu3*		-0.24***	0.13			-0.47***	-0.03
		(0.08)	(0.33)			(0.09)	(0.27)
*d9804*gap*		0.17	0.14			0.28	0.19
		(0.19)	(0.15)			(0.20)	(0.15)
*d9804*gap*deu3*		-0.20	0.23			-0.15	0.17
		(0.33)	(0.21)			(0.31)	(0.22)
mas				-0.63**	-0.51***	-0.71***	-0.57***
				(0.26)	(0.19)	(0.23)	(0.16)
*mas*deu3*				0.08	-0.51*	-0.49	-0.56*
				(0.44)	(0.30)	(0.52)	(0.28)
sgp				-0.88**	-1.03***	-1.15***	-1.06***
				(0.36)	(0.35)	(0.37)	(0.30)
Adjusted R^2	0.79	0.79	0.79	0.80	0.80	0.80	0.80
Hausman Statistic[a]	37.59***	13.53***	9.99***	38.69***	40.31***	15.37***	15.54***
Cross-Section	14	14	14	14	14	14	14
Observations	323	323	323	323	323	323	323

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.41: Inclusion of RAE - OECD-17 (1980 - 2003)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
α	5.03**	2.95	4.79*	3.92	5.21**	3.41	4.89*
	(2.42)	(2.41)	(2.65)	(2.56)	(2.59)	(2.68)	(2.90)
pdefay(-1)	0.79***	0.80***	0.80***	0.75***	0.75***	0.77***	0.77***
	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.05)
ggflq(-1)	-0.03***	-0.02***	-0.02***	-0.03***	-0.03***	-0.02***	-0.02***
	(0.01)	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
inf	0.01	0.01	0.02	-0.04	-0.02	-0.02	-0.01
	(0.04)	(0.04)	(0.04)	(0.06)	(0.05)	(0.05)	(0.05)
ele	0.67***	0.71***	0.69***	0.67***	0.67***	0.69***	0.69***
	(0.16)	(0.17)	(0.17)	(0.15)	(0.15)	(0.16)	(0.16)
*ele*doecd6*	-0.53*	-0.63**	-0.53*	-0.57**	-0.51*	-0.57**	-0.52*
	(0.28)	(0.31)	(0.31)	(0.27)	(0.27)	(0.29)	(0.30)
gap	-0.02	0.00	-0.01	-0.05	-0.03	-0.01	-0.02
	(0.04)	(0.06)	(0.07)	(0.04)	(0.05)	(0.07)	(0.08)
*gap*doecd6*	-0.25***	-0.20**	-0.25***	-0.13	-0.21***	-0.19**	-0.23**
	(0.06)	(0.09)	(0.09)	(0.08)	(0.07)	(0.09)	(0.09)
rae	-0.06*	-0.05*	-0.06*	-0.05	-0.05	-0.05	-0.05
	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)	(0.03)	(0.03)
*rae*doecd6*	0.04	0.10	0.05	0.05	0.03	0.07	0.04
	(0.07)	(0.09)	(0.08)	(0.07)	(0.08)	(0.08)	(0.09)
d9297	-0.70*		-0.77**		-0.50		-0.59
	(0.37)		(0.38)		(0.39)		(0.40)
*d9297*doecd6*	0.16		0.25		-0.18		-0.03
	(0.51)		(0.70)		(0.56)		(0.82)
d9804	-0.11		-0.13		-0.24		-0.29
	(0.41)		(0.43)		(0.44)		(0.45)
*d9804*doecd6*	0.80*		0.76		0.56		0.68*
	(0.44)		(0.47)		(0.38)		(0.39)
*d9297*gap*		-0.06	-0.06			-0.07	-0.07
		(0.09)	(0.09)			(0.10)	(0.09)
*d9297*gap*doecd6*		0.15	0.11			0.19**	0.12
		(0.10)	(0.20)			(0.09)	(0.22)
*d9804*gap*		0.01	0.13			0.08	0.15
		(0.16)	(0.15)			(0.18)	(0.15)
*d9804*gap*doecd6*		-0.24	-0.29			-0.08	-0.23
		(0.30)	(0.28)			(0.30)	(0.32)
mas				-0.34*	-0.42**	-0.37**	-0.44***
				(0.18)	(0.19)	(0.17)	(0.16)
*mas*doecd6*				0.40	0.65*	0.47	0.60
				(0.38)	(0.38)	(0.30)	(0.38)
sgp				-0.97***	-0.77**	-0.92**	-0.70**
				(0.37)	(0.39)	(0.36)	(0.35)
*sgp*doecd6*				1.89***	1.50***	1.70**	1.18**
				(0.61)	(0.56)	(0.70)	(0.57)
Adjusted R^2	0.84	0.84	0.84	0.85	0.84	0.85	0.84
Hausman Statistic[a]	59.01***	21.15***	22.59***	47.60***	52.55***	19.95***	20.94***
Cross-Section	17	17	17	17	17	17	17
Observations	373	373	373	373	373	373	373

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

4.F.3 Heterogeneity of output gap and inflation for Euro-11

Table 4.42: Estimation with heterogenous output gap - Euro-11

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
α	1.69**	1.96**	1.85***	1.94*	1.44**	1.69*	1.50**	1.80
	(0.66)	(0.88)	(0.70)	(1.04)	(0.63)	(0.89)	(0.68)	(1.10)
pdefay(-1)	0.77***	0.77***	0.76***	0.77***	0.77***	0.77***	0.76***	0.77***
	(0.06)	(0.05)	(0.05)	(0.05)	(0.06)	(0.05)	(0.06)	(0.06)
ggflq(-1)	-0.03***	-0.03***	-0.03***	-0.03***	-0.02**	-0.02**	-0.02**	-0.02**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
inf	-0.05	-0.05	-0.05	-0.05	-0.08	-0.08	-0.08	-0.08
	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
ele	0.65***	0.63***	0.64***	0.63***	0.66***	0.64***	0.64***	0.64***
	(0.15)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.15)
$gap_{med}{}^a$	0.24	0.24	0.19	0.22	0.25	0.24	0.16	0.17
gap_{max}	0.39	0.42	0.36	0.41	0.38	0.41	0.33	0.33
gap_{min}	-0.10	-0.09	-0.21	-0.08	-0.09	-0.08	-0.16	-0.12
d9297		-0.40		-0.45		-0.25		-0.42
		(0.46)		(0.50)		(0.52)		(0.57)
d9804		-0.26		-0.27		-0.37		-0.47
		(0.39)		(0.48)		(0.40)		(0.49)
*d9297*gap*			0.15	-0.02			0.10	0.00
			(0.10)	(0.13)			(0.11)	(0.13)
*d9804*gap*			0.06	0.04			0.14	0.14
			(0.18)	(0.16)			(0.20)	(0.13)
mas					-0.46**	-0.44***	-0.43**	-0.46***
					(0.19)	(0.17)	(0.18)	(0.15)
sgp					-1.01***	-1.00**	-1.09**	-1.01**
					(0.38)	(0.40)	(0.44)	(0.41)
Adjusted R^2	0.81	0.81	0.81	0.81	0.82	0.82	0.82	0.81
Hausman Statistic[b]	1.97**	2.21**	0.71	1.60*	2.5***	2.7***	0.83	1.02
Cross-Section	11	11	11	11	11	11	11	11
Observations	263	263	263	263	263	263	263	263

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Median value of heterogeneous coefficients of *gap* per country. [b] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

Table 4.43: Estimation with heterogenous inflation - Euro-11

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
α	1.92**	2.41**	0.88	2.11**	1.75**	2.35**	0.69	1.47
	(0.80)	(0.97)	(0.67)	(0.99)	(0.86)	(0.99)	(0.78)	(0.98)
pdefay(-1)	0.68***	0.69***	0.69***	0.69***	0.66***	0.67***	0.65***	0.68***
	(0.05)	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)	(0.04)	(0.06)
ggflq(-1)	-0.03***	-0.03***	-0.02***	-0.03***	-0.03***	-0.03***	-0.02**	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
ele	0.58***	0.55***	0.58***	0.56***	0.59***	0.58***	0.58***	0.59***
	(0.18)	(0.17)	(0.20)	(0.18)	(0.17)	(0.16)	(0.18)	(0.19)
gap	-0.04	-0.02	-0.02	0.00	-0.03	-0.02	0.00	0.00
	(0.06)	(0.06)	(0.09)	(0.14)	(0.06)	(0.06)	(0.09)	(0.10)
inf^a_{med}	-0.11	-0.05	-0.01	-0.03	-0.11	-0.09	0.00	0.01
inf_{max}	0.20	0.24	0.28	0.25	0.24	0.25	0.34	0.32
inf_{min}	-0.58	-0.45	-0.36	-0.45	-0.53	-0.51	-0.36	-0.31
d9297		-1.08**		-1.23**		-0.67		-0.73
		(0.51)		(0.53)		(0.58)		(0.56)
d9804		-0.72		-0.76		-0.81*		-0.67
		(0.48)		(0.51)		(0.46)		(0.50)
*d9297*gap*			-0.05	-0.09			-0.12	-0.12
			(0.11)	(0.17)			(0.12)	(0.11)
*d9804*gap*			0.18	0.16			0.28	0.18
			(0.17)	(0.21)			(0.20)	(0.16)
mas					-0.69***	-0.69***	-0.81***	-0.72***
					(0.19)	(0.16)	(0.19)	(0.14)
sgp					-1.18***	-1.29***	-1.44***	-1.22***
					(0.28)	(0.22)	(0.42)	(0.32)
Adjusted R^2	0.80	0.80	0.80	0.80	0.81	0.81	0.82	0.81
Hausman Statistic[b]	5.78***	6.23***	3.33***	5.07***	5.87***	6.14***	3.60***	3.57***
Cross-Section	11	11	11	11	11	11	11	11
Observations	263	263	263	263	263	263	263	263

Notes: Regressions estimated by Two-Stage Least Squares (TSLS). ***, **, * Level of significance at 1%, 5% and 10% respectively. White's period robust coefficient standard errors in parenthesis. [a] Median value of heterogeneous coefficients of *gap* per country. [b] Hausman test whose null hypothesis is that the regressors are exogenous, and therefore, OLS is more adequate than 2SLS.

4.G Unit root tests

In this Appendix, we apply panel unit root tests to assess the presence of unit roots in some of our variables. Intuitively, non-stationarity could be a problem for some variables used in Sections 4.3 and 4.4, such as the lagged debt/GDP ratio when the debt path is explosive and unsustainable, the inflation rate, the interest rate and the share of the population that is not in the labour market (due to the ageing process). Following Baltagi (2005), three alternative panel unit root tests are performed. The first is Levin, Lin and Chu (2002) test - LLC. These authors argue that individual unit root tests have limited power against alternative hypotheses with highly persistent deviations from equilibrium. So, they propose a more powerful panel unit root test than performing individual unit root tests for each cross-section. The null hypothesis is that each individual time series contains a unit root against the alternative that each time series is stationary. The augmented Dickey-Fuller (ADF) equation is

$$\Delta y_{it} = \alpha y_{i,t-1} + \Sigma_{j=1}^{k_i} \beta_{ij} \Delta y_{i,t-j} + \gamma_{mi} X_{mt} + \varepsilon_{it}, \qquad m = 1, 2, 3,$$

with X_{mt} indicating the vector of deterministic variables and γ_{mi} the corresponding vector of coefficients for $m = 1, 2, 3$. Assuming $\alpha = \rho - 1$, the null hypothesis of a unit root to be tested is then $H_0 : \alpha = 0$, against the alternative $H_1 : \alpha < 0$.

LLC suggest using their panel unit root test for panels of moderate size with N between 10 and 250 and T between 25 and 250 (our case). However, this test has its limitations. It crucially depends upon the *independence* assumption across cross-sections and is not applicable if cross-sectional correlation is present. Second, the assumption that *all* cross-sections have or do not have a unit root is restrictive.

Instead, Im, Pesaran, and Shin (2003) - IPS - allow for a heterogenous coefficient of $y_{i,t-1}$, i.e. for individual unit root process so that ρ_i in the equation may vary across cross-sections. Hence, they relax the assumption that $\rho_1 = \rho_2 = ... = \rho_N$ and propose an alternative test procedure based on averaging individual unit root statistics. The null hypothesis is that each series in the panel contains a unit root, i.e. $H_0 : \alpha_i = 0$, for all i and the alternative hypothesis allows for some but not all of the individuals series to have unit roots, i.e.,

$$H_1 = \begin{cases} \alpha_i = 0, & for \;\; i = 1, 2, ...N_1 \\ \alpha_i < 0 & for \;\; i = N_1 + 1, N_2 + 2, ..., N \end{cases},$$

implying that some fraction of the individual processes are stationary.

Hadri (2000) derives a residual-based Lagrange multiplier (LM) test where the null hypothesis states that there is no unit root in any one of the series in the panel against the alternative of a common unit root in the panel. In particular, he considers the following two models:

$$\begin{aligned} y_{it} &= r_{it} + \varepsilon_{it} \qquad i = 1, ..., N; \qquad t = 1, ..., T, \text{ and} \\ y_{it} &= r_{it} + \beta_i t + \varepsilon_{it}, \end{aligned} \tag{4.4}$$

where $r_{it} = r_{i,t-1} + u_{it}$ is a random walk. $\varepsilon_{it} \sim IIN\left(0, \sigma_{\varepsilon}^{2}\right)$ and $u_{it} \sim \left(0, \sigma_{\mu}^{2}\right)$ are mutually independent normal variables that are IID across i and over t. Iterating the expression for r_{it} and substituting the result in (4.4), we obtain:

$$y_{it} = r_{i0} + \beta_i t + \sum_{s=1}^{t} u_{is} + \varepsilon_{it} = r_{i0} + \beta_i t + \nu_{it},$$

where $\nu_{it} = \Sigma_{s=1}^{t} u_{is} + \varepsilon_{it}$. The stationarity hypothesis is then $H_0 : \sigma_u^2 = 0$ for all i, in which case $\nu_{it} = \varepsilon_{it}$.

Therefore, we perform these three tests on the dependent and control variables of Appendix 4.A. Table 4.44 reports the results of the tests. Their null hypotheses for the LLC, the IPS and the Hadri tests are, respectively, a common unit root, an individual unit root and no unit root in any of the series. So, lower P-values reject those null hypotheses. For the two first tests, LLC and IPS, the hypothesis of a unit root can be rejected for all series at least at the 5% significance level. Therefore, although those panel unit root tests have been criticized because they assume cross-sectional independence, Table (4.44) suggests that our dependent and control variables are stationary and can be estimated in level.

Table 4.44: Panel unit root tests - results

Test		pdefay	gap	deb	irlrc	nwp	infoil
	Stat.	−1.72	−6.32	−2.82	−3.47	−5.77	−25.09
LLC	Prob.	0.043**	0.000***	0.002***	0.000***	0.000***	0.000***
	Obs.	615	676	561	794	937	989
	Stat.	−3.31	−8.77	−1.42	−3.13	−2.57	−22.21
IPS	Prob.	0.000***	0.000***	0.077*	0.000***	0.005***	0.000***
	Obs.	615	615	561	794	937	989
	Stat.	7.58	0.31	13.45	5.42	17.22	−1.85
Hadri	Prob.	0.000***	0.377	0.000***	0.000***	0.000***	0.968
	Obs.	615	725	605	834	837	1012

LLC - Levin, Lin & Chu test. Null hypothesis: common unit root. IPS - Im, Pesaran and Shin test. Null hypothesis: individual unit root. Hadri test's null hypothesis: common no-unit root. (***), (**),(*) Significant at 1%, 5% and 10% respectively.

However, for all the variables analyzed, Hadri's test rejects the null hypothesis in favor of a common unit root in all the series.