

# Political Budget Cycles in the European Union and the Impact of Political Pressures: A dynamic panel regression analysis

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# Overview



- The term Political Budget Cycle (PBC) is used to describe a cyclical fluctuation in fiscal policies induced by the timing of elections.
- Incumbent politicians try to use expansionary fiscal policies before elections to please the voters, maximize their popularity and increase their chance of being reelected.

- Theoretical Studies
  - Traditional Opportunistic Models
  - Rational Opportunistic Models
    - First Generation of PBCs - adverse selection type models (Rogoff and Sibert, 1988; Rogoff; 1990)
    - Second Generation of PBCs - moral hazard type models (Persson and Tabellini, 2000; Shi and Svensson, 2002)
- Empirical Studies
  - Do PBCs exist?
  - Where PBCs exist and what explains their cross-country variation?
    - Developing vs Developed countries (Shi and Svensson, 2006)
    - Level of Democracy (Gonzalez, 2002)
    - Nature of political system (Persson and Tabellini, 2002)
    - Effect of “new democracies” (Brenner and Drazen, 2005)

# Objectives

- The presence of PBCs in the EU is theoretically questionable and empirically contradictory
- Limitations of existing empirical literature on PBCs in the EU
  - None contains the 12 “newest” member states
  - Little is known about the cross-country variation
  - Treat the timing of elections as exogenous
  - Use a univariate model or apply FE estimation
  - Focus on the detection of electoral effects in deficits

## First Objective

- Examine the presence of PBCs in several fiscal policy instruments, using data from all EU-27, and employing a system-GMM estimation technique
- Investigate how PBCs vary across the EU countries and whether they are influenced by endogenous election timing and politico-institutional conditions

- Another limitation of the existing literature on PBCs is that
  - it relies on the assumption that the electorate evaluates the government solely on the basis of its competence to deal with economic matters
  - it does not take into account the level of uncertainty over the electoral outcome (or competitiveness)

## Second Objective

- Construct proxies for non-economic voting and competitiveness using public opinion indicators and preelectoral polls
- Investigate whether these two features can explain the variability in the size of PBCs in the EU across countries and over time

# Data

- Consider annual time series for all EU-27 countries over the period 1997-2008
- Collect
  - data on economic outcomes and fiscal policy measures (Statistical Annex to European Economy)
  - data on demographic variables (US Census Bureau IDB)
  - information on election dates; forms of government; electoral rules; government's fragmentation and partisan orientation (DPI of the World Bank; Europa Yearbook, Adam Carr's EA)
  - information on the issue importance (Eurobarometer surveys)
  - poll data on voting intention and support ratings (Angus Reid Global Monitor; National Polling Organizations and Research Centers)

# Empirical Model Specification

- Employ an empirical specification of the following form:

$$Y_{it} = \sum_{j=1}^2 \alpha_j Y_{it-j} + \beta \mathbf{X}_{it} + \gamma GROWTH_{it} + \delta ELE_{it} + \mu_i + \varepsilon_{it}$$

$Y_{it}$  = fiscal policy instrument in country  $i$  and year  $t$ , such that  
 $Y_{it} \in \{NL_{it}, TEXP_{it}, TREV_{it}, CEXP_{it}, CREV_{it}, FCE_{it}, TAX_{it}\}$

$\mathbf{X}_{it}$  = vector of control variables that includes:  
 the level of development ( $LnGDP_{it}$ ),  
 the trade shock ( $TRADESK_{it}$ ),  
 two demographic variables ( $PROP1564_{it}$  and  $PROP65_{it}$ ),  
 the fractionalisation of government ( $FRAC_{it}$ )  
 and the government's partisan orientation ( $EXECRLC_{it}$ )

$GROWTH_{it}$  = GDP growth rate

$ELE_{it}$  = electoral dummy variable

$\mu_i$  = unobserved country-specific effects

$\varepsilon_{it}$  = an i.i.d error term

- Robustness/ Sensitivity Analysis
  - Replace  $ELE_{it}$  with either  $ELEP_{it}$  and  $ELENP_{it}$  (coding predetermined and non-predetermined elections) or  $WELE_{it} = ELEP_{it} + wELENP_{it}$ , where  $0 < w < 1$
  - Restrict the sample to include the post-2004 period
  - Experiment with an alternative election indicator that takes the timing of an election in the course of the year into account and control for fiscal behavior in preelection and postelection years
- Variation Across Countries/ Levels of Political Pressure
  - Partition the sample of countries into subsamples of (i) plurality and non-plurality countries (ii) presidential and parliamentary countries (iii) established and new democracies and (iv) Eurozone and non-Eurozone countries, and estimate an extended version of the original regression model
  - Construct several proxies of the level of non-economic voting and competitiveness and augment the original regression with interaction terms that capture variation in electoral effects across these two features

# Cross-Country Variation

- Estimate the following version of the baseline model:

$$\begin{aligned}
 Y_{it} = & \sum_{j=1}^2 \alpha_j Y_{it-j} + \beta \mathbf{X}_{it} + \gamma GROWTH_{it} + \\
 & \gamma^1 (GROWTH_t^1 - GROWTH_t^0) + \delta^1 D_1 WELE_{it} + \delta^0 D_0 WELE_{it} + \\
 & \mu + \varepsilon_{it}
 \end{aligned}$$

where  $D_k$ ,  $k \in \{0, 1\}$  is one of the four indicator (dummy) variables  $PLUR_k$ ,  $PRES_k$ ,  $DEM_k$  and  $EURO_k$

# Non-Economic Voting

- Proxies constructed based on Eurobarometer survey items
  - “Looking ahead to the next year, do you think that the financial situation of your household will be better, worse or stay the same?”
    - $BET_{it}$  computed as the percentage of the responders whose answer is “better” in country  $i$  and year  $t$ , rescaled by subtracting the mean of this index across all 27 countries in year  $t$
  - “What do you think are the two most important issues facing your country at the moment?”
    - $NEC_{it}$  computed as the proportion of responses in country  $i$  and year  $t$  to items associated with non-economic issues rescaled by subtracting the mean across all 27 countries in year  $t$ .
- Augment the baseline model with the public opinion variable  $POL_{it} \in \{BET_{it}, NEC_{it}\}$  and its interaction term with the electoral dummy,  $WELE * POL_{it}$ .

- Econometric problem: endogeneity bias from reverse causation
  - Replace the problematic causal variable  $POL_{it}$  with the instrumental variable  $IVPOL_{it} \in \{IVBET_{it}, IVNEC_{it}\}$ , constructed using the predicted values from country-by-country regressions on the exogenous variables of the model
  - Run dynamic panel regressions of the following form:

$$Y_{it} = \sum_{j=1}^2 \alpha_j Y_{it-j} + \beta \mathbf{X}_{it} + \gamma GROWTH_{it} + \delta WELE_{it} + \zeta_1 WELE * IVPOL_{it} + \zeta_2 IVPOL_{it} + \mu_i + \varepsilon_{it}$$

- Examine the impact of the two public opinion indicators simultaneously
  - Use the variables  $COMP_{it}$  and  $WELE * COMP_{it}$ , where  $COMP_{it}$  is the standardized average of  $IVBET_{it}$  and  $IVNEC_{it}$

# Competitiveness

- Proxies constructed based on poll data on vote intention
  - $VOT_{it}$  calculated as the mean monthly difference in the polled vote share between the largest government party and the largest opposition party, plus the mean monthly change of this difference
  - C1 codes elections with a high level of competitiveness ( $|VOT_{it}| < 6\%$ ), C2 codes elections with an average level of competitiveness ( $6\% \leq |VOT_{it}| < 15\%$ ) and C3 codes elections with a low level of competitiveness ( $|VOT_{it}| \geq 15\%$ )
  - $DVOT_{it}$  calculated as the value of  $VOT_{it}$  minus the actual vote share difference between the two parties in the previous executive election. Using similar procedure we obtain  $R1$ ,  $R2$  and  $R3$ .
- Reestimate the model with  $WELE_{it}$  replaced by either  $WELE * C1_{it}$ ,  $WELE * C2_{it}$  and  $WELE * C3_{it}$  or  $WELE * R1_{it}$ ,  $WELE * R2_{it}$  and  $WELE * R3_{it}$ .

# Conclusions

- 1 Strong evidence in favor of a PBC in the overall budget deficit, derived mainly from increased government expenditure
  - Effects seem to persist when we restrict the sample to include the post-2004 period, and when we control for the impact of non-predetermined (strategically timed) elections
  - Effects do not vary under different electoral rules and are not driven by the experience of new democracies
- 2 PBCs are significantly larger, and statistically more robust, in the Eurozone countries than in the countries that have not yet adopted the euro
- 3 Incumbent governments in the EU tend to generate more pronounced PBCs when the level of non-economic voting is relatively low and when electoral competitiveness is intense
  - Once we account for these two features, differences between the Eurozone and the non-Eurozone countries seem to disappear

Thank you!

# PBCs with non-economic voting and competitiveness

- How the information available to the market affects PBCs?
  - Politicians' incentives to manipulate fiscal policy may depend on how sensitive the reelection probability is to their competence level; this sensitivity parameter was treated as constant
  - With the development of more extensive public opinion surveys in the late nineteenth century, information on voters' perceptions and voting intentions has become readily available
  - A higher level of non-economic voting and a lower level of competitiveness may reduce the power of politicians' incentives to appear competent before elections; hence may affect the size of PBCs
  - This argument takes on particular importance in the EU context, where the citizens have full access to free media (television, radios, newspapers, etc)

# Basic Findings

Dependent Variable: net lending (+) or borrowing (-) over GDP (*NL*)  
 Method: Fixed Effects (Column (1)), Generalized Method of Moments (Columns (2)-(7))

|                 | FE<br>(1)          | Diff.<br>(2)       | (3)                | (4)                | System<br>(5)      | (6)                | (7)                |
|-----------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
|                 |                    |                    |                    |                    |                    |                    | post-2004          |
| <i>NL</i> (-1)  | 0.63***<br>(8.86)  | 0.61***<br>(6.52)  | 0.63***<br>(7.82)  | 0.76***<br>(2.92)  | 0.63***<br>(6.15)  | 0.56***<br>(5.35)  | 0.63***<br>(5.98)  |
| <i>NL</i> (-2)  | -0.13**<br>(2.18)  | -0.23*<br>(1.76)   | -0.17*<br>(1.94)   | -0.13<br>(1.04)    | -0.17*<br>(1.91)   | -0.14<br>(1.57)    | -0.45**<br>(2.40)  |
| <i>GROWTH</i>   | 0.36***<br>(6.73)  | 0.51***<br>(3.67)  | 0.36***<br>(4.22)  | 0.28<br>(1.05)     | 0.36***<br>(5.23)  | 0.35***<br>(4.28)  | 0.39***<br>(3.51)  |
| <i>LnGDP</i>    | 0.90<br>(0.68)     | 5.48<br>(0.86)     | 1.15***<br>(3.34)  | 0.10<br>(0.04)     | 1.25***<br>(3.11)  | 1.23***<br>(3.32)  | 1.50**<br>(2.52)   |
| <i>PROP1564</i> | -0.15<br>(0.65)    | -0.78<br>(1.02)    | -0.16***<br>(3.64) | -0.43<br>(0.38)    | -0.16***<br>(2.95) | -0.18**<br>(2.52)  | -0.21***<br>(5.85) |
| <i>PROP65</i>   | 0.02<br>(0.18)     | 0.15<br>(0.42)     | 0.40**<br>(2.34)   | 0.12<br>(0.22)     | 0.35*<br>(1.71)    | 0.45<br>(1.62)     | 0.50**<br>(2.42)   |
| <i>EXECRLC</i>  | -0.04<br>(0.41)    | -0.23<br>(1.15)    | -0.76**<br>(2.02)  | -0.36*<br>(1.91)   | -0.35*<br>(1.72)   | -0.43**<br>(2.02)  | -0.21<br>(0.73)    |
| <i>ELE</i>      | -0.93***<br>(4.14) | -0.73***<br>(3.26) | -0.86***<br>(3.78) | -0.81***<br>(2.67) |                    |                    |                    |
| <i>ELEP</i>     |                    |                    |                    |                    | -0.79***<br>(2.83) |                    |                    |
| <i>ELENP</i>    |                    |                    |                    |                    | -0.42<br>(0.42)    |                    |                    |
| <i>WELE</i>     |                    |                    |                    |                    |                    | -0.87***<br>(3.46) | -0.95***<br>(2.69) |
| Hansen test     |                    | 22.14<br>[0.51]    | 21.34<br>[1.00]    | 14.73<br>[1.00]    | 20.98<br>[1.00]    | 23.56<br>[0.99]    | 21.22<br>[0.57]    |
| Corr. test      |                    | 1.26<br>[0.21]     | 1.12<br>[0.26]     | 0.89<br>[0.37]     | 1.12<br>[0.26]     | 0.95<br>[0.34]     | 0.43<br>[0.66]     |
| Sign. test      |                    |                    |                    |                    | 0.00<br>[0.98]     |                    | 0.46<br>[0.64]     |
| No. countries   | 27                 | 27                 | 27                 | 27                 | 27                 | 27                 | 27                 |
| No. observ.     | 269                | 242                | 269                | 269                | 269                | 269                | 135                |

# Compositional Effects

|                   |                     |  |
|-------------------|---------------------|--|
| Total Expenditure | Current Expenditure | (1) Final Consumption Expenditure<br>(2) Social Benefits other than Social Transfers in Kind<br>(3) Interest<br>(4) Subsidies<br>(5) Other Current Expenditure |
|                   | Capital Expenditure | (1) Gross Fixed Capital Formation<br>(2) Other Capital Expenditure   |
| Total Revenue     | Current Revenue     | (1) Taxes<br>(2) Social Contributions Received<br>(3) Other Current Revenue  |
|                   | Capital Revenue     | (1) Capital Transfers Received   |

The partition of expenditure and revenue into components and subcomponents is based on the European System of Accounts 1995 (ESA 95). Source: Statistical Annex to European Economy; European Commission.

Dependent Variable: total expenditure (*TEXP*), current expenditure (*CEXP*), final cons expenditure (*FCE*), total revenue (*TREV*), current revenue (*CREV*), total taxes (*TAX*) (all shares of GDP)  
 Method: System Generalized Method of Moments (Arellano-Bover/Blundell-Bond)

|                 | <i>TEXP</i>        | <i>CEXP</i>         | <i>FCE</i>         | <i>TREV</i>       | <i>CREV</i>       | <i>TAX</i>        |
|-----------------|--------------------|---------------------|--------------------|-------------------|-------------------|-------------------|
|                 | (1)                | (2)                 | (3)                | (4)               | (5)               | (6)               |
| <i>Y</i> (-1)   | 0.66***<br>(7.11)  | 0.68***<br>(4.54)   | 0.58***<br>(4.15)  | 0.92***<br>(7.97) | 0.97***<br>(4.70) | 0.96***<br>(7.05) |
| <i>Y</i> (-2)   | 0.03<br>(0.23)     | -0.01<br>(0.08)     | 0.11<br>(1.64)     | -0.02<br>(0.25)   | -0.02<br>(0.14)   | -0.07<br>(0.48)   |
| <i>GROWTH</i>   | -0.51***<br>(5.56) | -0.41***<br>(15.41) | -0.22***<br>(6.10) | 0.01<br>(0.08)    | 0.04<br>(0.99)    | 0.14***<br>(3.27) |
| <i>LnGDP</i>    | 0.65<br>(1.54)     | 1.07***<br>(2.74)   | 0.24<br>(1.26)     | 0.81**<br>(2.16)  | 0.55<br>(0.97)    | 0.88***<br>(4.05) |
| <i>PROP1564</i> | 0.20**<br>(2.51)   | 0.17***<br>(3.34)   | 0.09***<br>(5.11)  | 0.01<br>(0.11)    | -0.02<br>(0.45)   | -0.05<br>(1.50)   |
| <i>PROP65</i>   | -0.06<br>(0.36)    | -0.06<br>(0.50)     | -0.02<br>(0.34)    | 0.04<br>(0.35)    | 0.09<br>(1.15)    | 0.16<br>(1.40)    |
| <i>EXECRLC</i>  | 0.08<br>(0.53)     | -0.08<br>(0.97)     | 0.16**<br>(2.26)   | -0.01<br>(0.04)   | 0.04<br>(0.25)    | -0.01<br>(0.05)   |
| <i>WELE</i>     | 0.75**<br>(2.49)   | 0.36**<br>(2.37)    | 0.19*<br>(1.95)    | -0.20<br>(0.88)   | -0.32<br>(1.63)   | -0.21<br>(1.18)   |
| Hansen test     | 20.62<br>[1.00]    | 20.49<br>[1.00]     | 19.32<br>[1.00]    | 22.84<br>[0.99]   | 18.96<br>[1.00]   | 21.38<br>[1.00]   |
| Corr. test      | 0.96<br>[0.34]     | 0.71<br>[0.48]      | -0.36<br>[0.71]    | 0.40<br>[0.69]    | 0.13<br>[0.90]    | 0.56<br>[0.57]    |
| No. countries   | 27                 | 27                  | 27                 | 27                | 27                | 27                |
| No. observ.     | 267                | 269                 | 269                | 267               | 267               | 269               |

# Cross-Country Variations

Dependent Variable: net lending (+) or borrowing (-) (*NL*), current expenditure (*CEXP*), current revenue (*REV*) (all shares of GDP)  
Method: System Generalized Method of Moments (Arellano-Bover/Blundell-Bond)

|                           | Plurality/non-Plurality |                    |                   | Established/New Democracies |                     |                  | Eurozone/non-Eurozone |                     |                  |
|---------------------------|-------------------------|--------------------|-------------------|-----------------------------|---------------------|------------------|-----------------------|---------------------|------------------|
|                           | <i>NL</i>               | <i>CEXP</i>        | <i>REV</i>        | <i>NL</i>                   | <i>CEXP</i>         | <i>REV</i>       | <i>NL</i>             | <i>CEXP</i>         | <i>REV</i>       |
|                           | (1)                     | (2)                | (3)               | (4)                         | (5)                 | (6)              | (7)                   | (8)                 | (9)              |
| <i>GROWTH</i>             | 0.26**<br>(2.30)        | -0.38***<br>(8.96) | -0.05<br>(0.81)   | 0.46***<br>(3.99)           | -0.42***<br>(10.76) | 0.09*<br>(1.77)  | 0.41***<br>(5.32)     | -0.42***<br>(11.76) | -0.01<br>(0.36)  |
| <i>LnGDP</i>              | 1.07<br>(1.04)          | 2.37**<br>(2.37)   | 0.50<br>(1.63)    | 0.71**<br>(1.99)            | 1.14**<br>(2.46)    | 1.06*<br>(1.90)  | 1.12***<br>(2.63)     | 1.08***<br>(2.78)   | 0.98**<br>(2.07) |
| <i>PROP1564</i>           | -0.16<br>(1.38)         | 0.15*<br>(2.28)    | -0.02<br>(0.35)   | -0.17*<br>(1.95)            | 0.15***<br>(3.17)   | -0.04<br>(0.60)  | -0.28***<br>(2.85)    | 0.17***<br>(3.48)   | -0.05<br>(0.77)  |
| <i>PROP65</i>             | 0.39<br>(1.37)          | -0.06<br>(0.43)    | 0.16<br>(1.17)    | 0.58<br>(1.47)              | -0.08<br>(0.51)     | 0.27**<br>(1.99) | 0.93**<br>(2.25)      | -0.10<br>(0.60)     | 0.32**<br>(1.97) |
| <i>EXECRLC</i>            | -0.45***<br>(2.60)      | -0.02<br>(0.25)    | -0.05<br>(0.54)   | -1.69<br>(1.25)             | 0.08<br>(0.25)      | 0.09<br>(0.72)   | -1.62<br>(1.16)       | 0.12<br>(0.47)      | -0.03<br>(0.33)  |
| <i>WELE*D<sub>1</sub></i> | -1.26***<br>(2.88)      | 0.41*<br>(1.89)    | -0.46<br>(1.54)   | -0.90**<br>(2.43)           | 0.47***<br>(2.86)   | -0.26<br>(1.24)  | -1.25***<br>(4.40)    | 0.52***<br>(3.28)   | -0.36*<br>(1.94) |
| <i>WELE*D<sub>0</sub></i> | -0.72**<br>(2.20)       | 0.38*<br>(1.94)    | -0.27<br>(1.42)   | -1.67<br>(1.37)             | 0.37<br>(0.90)      | -1.16<br>(1.33)  | -1.40<br>(1.03)       | -0.11<br>(0.18)     | 0.06<br>(0.15)   |
| <i>DEVGR</i>              | -0.48**<br>(2.19)       | 0.10<br>(1.64)     | -0.26**<br>(2.17) | 0.16**<br>(2.39)            | -0.02<br>(0.56)     | 0.06<br>(1.30)   | 0.16*<br>(1.73)       | -0.05*<br>(1.67)    | 0.08*<br>(1.85)  |
| Hansen test               | 20.55<br>[1.00]         | 18.54<br>[1.00]    | 16.58<br>[1.00]   | 18.23<br>[1.00]             | 22.07<br>[0.99]     | 13.03<br>[1.00]  | 17.39<br>[1.00]       | 19.63<br>[1.00]     | 15.02<br>[1.00]  |
| Corr. test                | 0.83<br>[0.41]          | 0.66<br>[0.51]     | 0.69<br>[0.49]    | 0.61<br>[0.54]              | 0.78<br>[0.44]      | -0.06<br>[0.95]  | 1.11<br>[0.26]        | 0.47<br>[0.64]      | -0.39<br>[0.70]  |
| No. countries             | 27                      | 27                 | 27                | 27                          | 27                  | 27               | 27                    | 27                  | 27               |
| No. observ.               | 269                     | 269                | 267               | 269                         | 269                 | 267              | 269                   | 269                 | 267              |

*WELE\*D<sub>1</sub>* and *WELE\*D<sub>0</sub>* are interaction terms between the electoral dummy *WELE* and *D<sub>1</sub>* and *D<sub>0</sub>* respectively, where *D<sub>1</sub>* ∈ {*PLUR<sub>1</sub>*, *PRES<sub>1</sub>*, *DEM<sub>1</sub>*, *EURO<sub>1</sub>*} and *D<sub>0</sub>* ∈ {*PLUR<sub>0</sub>*, *PRES<sub>0</sub>*, *DEM<sub>0</sub>*, *EURO<sub>0</sub>*}. *DEVGR* denotes the annual difference in the GDP growth rate between the various subsamples as defined by *D<sub>1</sub>* and *D<sub>0</sub>*.

# PBCs with non-economic voting

Dependent Variable: net lending (*NL*), total expenditure (*TEXP*), current expenditure (*CEXP*); final cons expenditure (*FCE*)  
 Method: System Generalized Method of Moments (Arellano-Bover/Blundell-Bond)

|                   | Controls based on <i>IVBET</i> |                    |                     |                    | Controls based on <i>COMP</i> |                    |                     |                    |
|-------------------|--------------------------------|--------------------|---------------------|--------------------|-------------------------------|--------------------|---------------------|--------------------|
|                   | <i>NL</i>                      | <i>TEXP</i>        | <i>CEXP</i>         | <i>FCE</i>         | <i>NL</i>                     | <i>TEXP</i>        | <i>CEXP</i>         | <i>FCE</i>         |
|                   | (1)                            | (2)                | (3)                 | (4)                | (5)                           | (6)                | (7)                 | (8)                |
| <i>GROWTH</i>     | 0.40***<br>(5.35)              | -0.46***<br>(5.87) | -0.42***<br>(10.97) | -0.21***<br>(8.71) | 0.40***<br>(7.27)             | -0.47***<br>(6.78) | -0.43***<br>(12.45) | -0.22***<br>(7.83) |
| <i>WELE</i>       | -0.95***<br>(2.60)             | 1.00***<br>(5.32)  | 0.68***<br>(3.71)   | 0.29***<br>(2.74)  | -0.90***<br>(3.25)            | 0.96***<br>(4.60)  | 0.71***<br>(3.55)   | 0.30***<br>(2.53)  |
| <i>WELE*IVBET</i> | 0.05**<br>(2.13)               | -0.05***<br>(4.43) | -0.03**<br>(2.10)   | -0.02***<br>(3.94) |                               |                    |                     |                    |
| <i>IVBET</i>      | -0.03<br>(0.62)                | 0.03<br>(1.24)     | 0.02<br>(1.37)      | 0.03***<br>(3.33)  |                               |                    |                     |                    |
| <i>WELE*COMP</i>  |                                |                    |                     |                    | 0.75***<br>(2.64)             | -0.77***<br>(4.47) | -0.33**<br>(2.56)   | -0.30<br>(1.48)    |
| <i>COMP</i>       |                                |                    |                     |                    | 0.33<br>(0.29)                | 0.54<br>(1.09)     | 0.42**<br>(2.00)    | 0.45**<br>(2.40)   |
| Hansen test       | 18.00<br>[0.76]                | 17.83<br>[0.77]    | 16.35<br>[0.84]     | 15.91<br>[0.86]    | 17.21<br>[0.80]               | 19.07<br>[0.70]    | 14.90<br>[0.90]     | 19.41<br>[0.68]    |
| Corr. test        | 0.47<br>[0.64]                 | -1.47<br>[0.14]    | -0.67<br>[0.51]     | -1.71<br>[0.09]    | 0.06<br>[0.95]                | -1.74<br>[0.08]    | -0.77<br>[0.44]     | -1.59<br>[0.11]    |
| Sign. test        | 5.07<br>[0.08]                 | 22.24<br>[0.00]    | 5.28<br>[0.07]      | 29.02<br>[0.00]    | 7.16<br>[0.03]                | 20.32<br>[0.00]    | 6.16<br>[0.05]      | 6.13<br>[0.05]     |
| No. countries     | 27                             | 27                 | 27                  | 27                 | 27                            | 27                 | 27                  | 27                 |
| No. observ.       | 135                            | 135                | 135                 | 135                | 135                           | 135                | 135                 | 135                |

$IVPOL_{it}$  is an instrumental variable for  $POL_{it} \in \{BET_{it}, NEC_{it}\}$  and  $COMP_{it}$  is the standardized average of  $IVBET_{it}$  and  $IVNEC_{it}$

# PBCs with non-economic voting and competitiveness

| Dependent Variable: net lending ( <i>NL</i> ), total expenditure ( <i>TEXP</i> ), current expenditure ( <i>CEXP</i> ); final cons expenditure ( <i>FCE</i> ) |                    |                    |                     |                    |  |                    |                     |                     |
|--|--------------------|--------------------|---------------------|--------------------|--|--------------------|---------------------|---------------------|
| Method: System Generalized Method of Moments (Arellano-Bover/Blundell-Bond)  |                    |                    |                     |                    |  |                    |                     |                     |
|  | No Controls        |                    |                     |                    | Electoral Variables based on <i>DVOT</i> |                    |                     |                     |
|  | <i>NL</i>          | <i>TEXP</i>        | <i>CEXP</i>         | <i>FCE</i>         | <i>NL</i>                                | <i>TEXP</i>        | <i>CEXP</i>         | <i>FCE</i>          |
|  | (1)                | (2)                | (3)                 | (4)                | (5)                                      | (6)                | (7)                 | (8)                 |
| <i>GROWTH</i>  | 0.39***<br>(3.51)  | -0.48***<br>(4.72) | -0.45***<br>(13.78) | -0.22***<br>(7.18) | 0.41***<br>(6.13)                        | -0.46***<br>(5.57) | -0.43***<br>(12.38) | -0.23***<br>(10.19) |
| <i>WELE</i>  | -0.95***<br>(2.69) | 0.90***<br>(3.49)  | 0.65**<br>(2.40)    | 0.33**<br>(2.10)   |  |                    |                     |                     |
| <i>WELE</i> * <i>R1</i>  |                    |                    |                     |                    | -1.50***<br>(3.11)                       | 1.49***<br>(4.41)  | 0.97***<br>(3.50)   | 0.44**<br>(2.21)    |
| <i>WELE</i> * <i>R2</i>  |                    |                    |                     |                    | -0.89*<br>(1.76)                         | 0.53<br>(1.38)     | 0.38<br>(1.00)      | 0.01<br>(0.05)      |
| <i>WELE</i> * <i>R3</i>  |                    |                    |                     |                    | -0.34<br>(0.62)                          | 0.64<br>(0.50)     | 0.66<br>(0.56)      | 0.31<br>(0.69)      |
| <i>WELE</i> * <i>COMP</i>  |                    |                    |                     |                    | 0.95***<br>(3.92)                        | -0.76***<br>(3.21) | -0.41**<br>(2.46)   | -0.19<br>(0.99)     |
| <i>COMP</i>  |                    |                    |                     |                    | 0.25<br>(0.31)                           | 0.76<br>(1.15)     | 0.35<br>(1.64)      | 0.47***<br>(2.62)   |
| Hansen test  | 21.21<br>[0.57]    | 22.15<br>[0.51]    | 17.61<br>[0.78]     | 22.84<br>[0.45]    | 15.70<br>[0.87]                          | 19.05<br>[0.70]    | 15.60<br>[0.87]     | 17.00<br>[0.81]     |
| Corr. test   | 0.43<br>[0.66]     | -1.42<br>[0.15]    | -0.88<br>[0.38]     | -1.68<br>[0.10]    | 0.30<br>[0.77]                           | -1.22<br>[0.22]    | -0.63<br>[0.53]     | -1.50<br>[0.13]     |
| Sign. test   |                    |                    |                     |                    | 16.31<br>[0.00]                          | 11.57<br>[0.00]    | 8.35<br>[0.02]      | 6.92<br>[0.03]      |
| No. countries  | 27                 | 27                 | 27                  | 27                 | 27                                       | 27                 | 27                  | 27                  |
| No. observ.  | 135                | 135                | 135                 | 135                | 135                                      | 135                | 135                 | 135                 |

$C_j$  and  $R_j$  for  $j = 1, 2, 3$  are dummy variables associated with the level of competitiveness (high, average and low) as determined by the variables  $VOT_{it}$  and  $DVOT_{it}$  respectively

# PBCs with non-economic voting and competitiveness (Eurozone vs non-Eurozone countries)

| Dependent Variable: net lending ( <i>NL</i> ), total expenditure ( <i>TEXP</i> ), current expenditure ( <i>CEXP</i> ); final cons expenditure ( <i>FCE</i> ) |                   |                    |                     |                    |  |                    |                     |                     |
|--|-------------------|--------------------|---------------------|--------------------|--|--------------------|---------------------|---------------------|
| Method: System Generalized Method of Moments (Arellano-Bover/Blundell-Bond)  |                   |                    |                     |                    |  |                    |                     |                     |
|  | No Controls       |                    |                     |                    | Electoral Variables based on <i>DVOT</i> |                    |                     |                     |
|  | <i>NL</i>         | <i>TEXP</i>        | <i>CEXP</i>         | <i>FCE</i>         | <i>NL</i>                                | <i>TEXP</i>        | <i>CEXP</i>         | <i>FCE</i>          |
|  | (1)               | (2)                | (3)                 | (4)                | (5)                                      | (6)                | (7)                 | (8)                 |
| <i>GROWTH</i>  | 0.41***<br>(4.94) | -0.46***<br>(4.58) | -0.45***<br>(12.59) | -0.23***<br>(6.74) | 0.39***<br>(6.03)                        | -0.46***<br>(5.01) | -0.43***<br>(13.53) | -0.23***<br>(11.21) |
| <i>WELE</i> * <i>EURO</i> <sub>1</sub>   | -1.04**<br>(2.48) | 0.97***<br>(3.22)  | 0.61*<br>(1.83)     | 0.34<br>(1.35)     |  |                    |                     |                     |
| <i>WELE</i> * <i>EURO</i> <sub>0</sub>   | -0.55<br>(1.08)   | 0.96<br>(1.41)     | 0.71<br>(1.44)      | 0.36<br>(1.46)     |  |                    |                     |                     |
| <i>WELE</i> * <i>R12</i> * <i>EURO</i> <sub>1</sub>  |                   |                    |                     |                    | -1.28***<br>(2.69)                       | 1.00***<br>(3.83)  | 0.61**<br>(2.14)    | 0.17<br>(1.08)      |
| <i>WELE</i> * <i>R12</i> * <i>EURO</i> <sub>0</sub>  |                   |                    |                     |                    | -1.08*<br>(1.83)                         | 1.15***<br>(2.18)  | 0.91***<br>(2.87)   | 0.34<br>(1.10)      |
| <i>WELE</i> * <i>R3</i>  |                   |                    |                     |                    | -0.46<br>(0.79)                          | 0.84<br>(0.51)     | 0.60<br>(0.60)      | 0.79<br>(1.00)      |
| <i>WELE</i> * <i>COMP</i>  |                   |                    |                     |                    | 0.97***<br>(3.68)                        | -0.90***<br>(4.34) | -0.53***<br>(2.71)  | -0.25<br>(1.09)     |
| <i>COMP</i>  |                   |                    |                     |                    | 0.27<br>(0.34)                           | 0.71<br>(1.00)     | 0.22<br>(1.02)      | 0.42**<br>(2.13)    |
| Hansen test  | 18.53<br>[0.73]   | 23.82<br>[0.41]    | 17.25<br>[0.80]     | 22.12<br>[0.51]    | 15.89<br>[0.86]                          | 18.16<br>[0.75]    | 12.98<br>[0.95]     | 16.65<br>[0.83]     |
| Corr. test   | 0.49<br>[0.62]    | -1.25<br>[0.21]    | -0.95<br>[0.34]     | -1.62<br>[0.11]    | -1.16<br>[0.87]                          | -1.67<br>[0.10]    | -0.92<br>[0.36]     | -1.47<br>[0.14]     |
| Sign. test   |                   |                    |                     |                    | 15.10<br>[0.00]                          | 20.54<br>[0.00]    | 8.18<br>[0.02]      | 5.85<br>[0.05]      |
| No. countries  | 27                | 27                 | 27                  | 27                 | 27                                       | 27                 | 27                  | 27                  |
| No. observ.  | 135               | 135                | 135                 | 135                | 135                                      | 135                | 135                 | 135                 |

*R12* is a dummy variable associated with high or average level of competitiveness calculated as the sum of *R1* and *R2*