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Does politics matter? A comparative assessment of discretionary fiscal policies in the euro area☆

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ABSTRACT

When using discretionary fiscal policies in the countries belonging to the European Union, any change affecting the current fiscal stance must run into the boundary designed by fiscal rules. This would imply that discretionary fiscal policies - being mainly driven by the need to comply with fiscal rules - might be scarcely affected by politics and the political characteristics of a country. We empirically test this hypothesis on a sample of 19 European countries observed over years 1995–2019. Using different econometric techniques and alternative specifications, we find a strong and robust fiscal pro-cyclicality. More importantly, the pro-cyclicality of the fiscal policy is not significantly affected neither by the behaviour of macroeconomic fundamentals nor by institutional and political variables. From a policy viewpoint, it seems that the mechanisms introduced to guarantee fiscal sustainability in the euro area can overcome all possible political influences on both the size and the sign of implementable fiscal policies. This would suggest that politics does not matter to shape the public budget, at least not so much as the fiscal rules.

1. Introduction

Since both the monetary and the exchange rate policies are not under national control, Eurozone member states can respond to asymmetric shocks only by relying on fiscal policy. This has led to a renewed emphasis on its role, and on how it should behave when facing economic downturns or booms, especially with interest rates near the zero-lower bound (Cook and Devereux, 2019; Vimercati et al., 2021).

While it is true that fiscal policies are planned and decided by national governments in countries belonging to the Euro area, their space of autonomy could be constrained by the presence of fiscal rules on the main aggregates of public finance (i.e. public debt and overall deficit) defined at both national and supranational levels to ensure fiscal sustainability and discipline (Hallerberg et al., 2007; Debrun et al., 2008; Wyplosz, 2013; Sacchi and Salotti, 2015; Bergman et al., 2016; Combes et al., 2022).

The main justification of this framework – abstracting from any ideological matrix – is that in a common currency area the absence

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of fiscal discipline in any given country could cause negative externalities to others such as potential inflationary pressures, financial instability, moral hazard risk within the common currency area (Hájek and Horváth, 2016; Martin, 2015).

Therefore, compared with the traditional approach of Keynesian origin according to which fiscal policy should be countercyclical (Keynes, 1936), a wide debate has been stimulated on how automatic stabilisers and discretionary fiscal policies should work during the different phases of the cycle. While there is a widespread consensus on the role of the automatic component of the public budget as a countercyclical tool (see, among others, Debrun and Kapoor, 2010),[1] much more uncertainty involves the role that discretionary policies should have with respect to the economic cycle (Lane, 2003; Afonso and Claeys, 2008; Fatás and Mihov, 2009; Afonso and Alves, 2022; Larch et al., 2022).

More importantly, when using discretionary policies any change affecting the current fiscal stance must run into the boundary designed by fiscal rules. It means that being countercyclical might be only a side effect of discretionary policies that depends on the strength of existing fiscal rules in any given country.[2] Thus, there is no assurance that fiscal policy changes might effectively compensate slumps or booms. To some extent, fiscal rules and the confidence on automatic stabilisers can serve the scope of reducing the temptation of fiscal actions to fine tune the economy in the short run, as they may end up harming long-run economic growth and fiscal sustainability (Bergman and Hutchison, 2015).

Following this reasoning, it could be argued that discretionary fiscal policies - being mainly driven by the need to comply with fiscal rules - might be scarcely affected by politics and the political characteristics of a country.[3] The intuition is that fiscal rules, *ex ante*, might already embody all the constraints (and the political compromises) that are thought to be necessary to compress discretionary fiscal policies, which are not identified, *ex post*, by any other political variable. Furthermore, the violation of fiscal rules often entails an automatic procedure to curb deficits and public budgets, which implies that politicians – to some extent – might deliberately limit their actions to avoid and dismiss blame for possibly unpopular actions (Hübscher, 2016). A large part of the political science literature also suggests that the discretionary power of politicians might have been reduced by the increasing international interdependence of domestic economies, which in turn often lead to unusual government arrangements like 'grand coalitions' or 'technocratic' governments (Cusack, 1999; Swank, 2001; Castles, 2005; Castles and Obinger, 2007).

It follows that the bulk of the political factors that might in principle shape the size and the composition of the public budget, being already embodied in the fiscal rules, would make irrelevant any further attempt to politically drive (or even manipulate) fiscal actions. Obviously, fiscal rules may remedy the possible negative impact of political failures, and this aim can be largely shared; yet, while doing this, they might also neutralise the impact of genuine fiscal policies aiming at facing the economic cycle.

Given this framework, we provide two main contributions to the existing literature. First, we analyse to what extent political variables, other than those already embodied in fiscal rules, are able to shape the sign of discretionary fiscal policies. If it is true that political attitudes – whatever they might be – are channelled into 'rules' at a supranational level and not into 'discretionary actions', we expect that either pro-cyclicality or counter-cyclicality will be the outcome of economic fundamentals only (depending on the initial condition of the public budgets) but not of the discretionary political actions of governments. Accordingly, we perform an in-depth empirical analysis of the role of political variables on the sign of the discretionary fiscal policy. This approach – for the reasons that will be explained below in the text – differs from that based on fiscal reactions functions, whose main aim is to verify the sustainability of fiscal policy focusing on the correlation between the primary budget balance and changes in public debt (see, among others, Bohn, 1998; Bohn, 2008; Mendoza and Ostry, 2008; Weichenrieder and Zimmer, 2014; Barbier-Gauchard and Mazuy, 2018; Di Iorio and Fachin, 2022).

We test our hypothesis on a sample of 19 countries belonging to the euro area observed over the years 1995–2019 using annual data. We estimate a dynamic panel data model to assess whether and how governments' discretionary fiscal policy is explained by the cyclical conditions (represented by the level of the output gap), and by the economic fundamentals. Political variables, as explained above, are expected to play a very limited role in determining the sign of fiscal policy and, in any case, are not expected to change the direction of the cyclicality determined by the other variables.

As a second contribution, we introduce a methodological innovation by formulating a new approach to capture the *effective* level of the output gap, which is that observed at the time when the decisions on fiscal policy are taken. This procedure allows to consider the actual estimates of the output gap - and not its *ex-post* revisions - on which policy decisions are based. This methodological improvement will also imply a new definition of the cyclically adjusted budget balance.

After using different econometric techniques and alternative specifications, our main results show a strong and robust pro-cyclicality of fiscal policy, which is not significantly affected neither by the behaviour of macroeconomic fundamentals nor by institutional and political variables nor by the interaction between political and economic variables. From a policy viewpoint, it seems that the mechanisms introduced to guarantee fiscal sustainability in the euro area can overcome political influences on both the size

[1] The advantages of letting the automatic stabilisers operate are well known, i.e. they are not subject to time-lags in decisions; their economic impact adjusts automatically to the cycle; unlike discretionary fiscal policy, they do not require further political decisions other than those already embodied in the public budget – and mostly agreed upon in the political arena.

[2] The intuition is that fiscal rules might have the role of weakening the possibility to implement countercyclical fiscal policies. When this happens, it should be considered a side effect, as in most cases countercyclical fiscal policies might not be feasible if the consequence is to break fiscal rules. Accordingly, those rules already steer fiscal policies; thus, the margins left to discretionary policy actions are limited.

[3] For instance, in the pre-Covid era one could observe a long row of fiscal policies having the same sign regardless of the cycle and, most importantly, of the political structure prevailing in any given time in some countries. Thus, it might be the case that the countercyclical impact of automatic stabilisers can be neutralised by discretionary policies of the opposite sign, by this way feeding the cycle.

and the sign of implementable fiscal policies. This would suggest that politics does not matter to shape the public budget, at least not so much as the fiscal rules.

Our paper sheds new lights on a large body of literature showing that there might be specific political behaviours that may induce pro-cyclicality, such as the presence of interest groups competing for a common pool of tax revenues and the political pressures for wasteful public spending when politicians are corrupted or, more generally, in presence of low quality of institutions (Woo, 2009; Larch et al., 2021). In a nutshell, our outcomes strongly dispute the influence of politics on the cyclicality of discretionary fiscal policy, suggesting that the political failures might consist in its irrelevance, including the role of cabinet composition, in shaping the behaviour of fiscal policies.

2. The European fiscal framework: a brief overview

Within the new European fiscal framework, the national budget balance has to be interpreted in structural terms. This requires splitting the overall actual budget balance (*BB*) into two different components: the cyclical component of the budget balance (*CC*), and the cyclically adjusted budget balance (*CAB*). The first term isolates the automatic stabilisers – whose changes are beyond the direct control of governments –, while the second one measures the impact of discretionary fiscal policies. To be more specific, the term *structural* refers not only to the cyclical adjustment of the budget balance (*CAB*), but also to the deduction of the one-off and temporary measures (*Tem*). Hence, the structural balance (*SB*) is properly defined as follows[4]

$$SB_t = CAB_t - Tem_t \tag{1}$$

Thus, the overall balance (*BB*) is the sum between the cyclical component of the budget balance (*CC*) and the structural balance (*SB*):

$$BB_t = CC_t + SB_t \tag{2}$$

Since the European fiscal framework now refers to the concept of structural balance, it is more useful to reframe Equation (2) as follows:

$$SB_t = BB_t - CC_t \tag{3}$$

The cyclical balance component of the budget balance (*CC*) depends on two elements: i) the output gap (*OG*), i.e. a measure of the cyclical fluctuations to which the economic system under consideration is subjected; ii) a cyclical adjustment parameter (ε), which resumes the linkage between the budget balance and the business cycle itself. This parameter is estimated by the European Commission as a semi-elasticity and gauges the reaction of the government budget to the output gap movements[5]

$$CC_t = \varepsilon \bullet OG_t \tag{4}$$

where the output gap (*OG*) indicates the distance between actual GDP (*Y*) and potential GDP (*Y**), expressed in terms of potential GDP:

$$OG_t = \frac{Y_t - Y^*}{Y^*} \tag{5}$$

The 2005 reform of the Stability and Growth Pact (SGP) – first established in 1997 – has introduced the structural deficit objective for the Medium-Term Objective (MTO). Accordingly, the MTO has been defined in structural terms and differently according to the specific situation of each member state, taking into consideration three different aspects: providing a safety margin with respect to the actual deficit limit of 3 per cent of GDP; ensuring rapid progress towards public finance sustainability; allowing room for public investment. For those countries whose debt-to-GDP ratio is above 60 per cent, the MTO must be equal to −0.5 per cent of GDP (deficit) or above (otherwise, −1 per cent of GDP).[6]

Theoretically speaking, if countries respect these structural balance targets, their discretionary fiscal policy should be a-cyclical, letting the automatic stabilisers operate at full capacity (Eyraud and Wu, 2015). In practice, member states seem to have pursued a procyclical fiscal stance, preventing the cyclical component of the budget balance from operating freely (Eyraud et al., 2017). Following this argument, the previous three aspects that characterise the MTO can determine a situation wherein the budget target takes a positive value. This implies not only that the cyclical component of the budget balance is prevented to operate, but also that the discretional interventions of governments have to be headed to weaken the countercyclical effect of automatic stabilisers (Carnazza

[4] The European fiscal framework has decided to exclude the one-off and temporary measures from its calculation to assess the underlying budget position of a country. The general idea behind this kind of use is the recognition that cyclical changes in the actual budget are related to the automatic operation of the stabilisers. Evening out the business cycle and the exceptional measures represents the correct way to evaluate the discretionary fiscal stance of a government.

[5] The semi-elasticity captures the absolute change in the budget balance-to-GDP ratio in comparison with the relative change of the business cycle fluctuations. In this way, the impact of the economic cycle on both the budget balance and output can be captured, resulting in an unbiased estimate of the cyclically adjusted budget balance. This was not the case when the parameter ε was previously calculated as a simple elasticity, which corrected the nominal budget balance but not the GDP. Since the latter is strongly affected by the business cycle, this formulation implicitly assumed that the cyclically adjusted budget balance was measured in terms of actual output and not potential output as it should be (Mourre et al., 2013).

[6] In 2021, 12 out of 19 member states exceeded this threshold.

et al., 2020).

By imposing a structural balance (*SB*) substantially equal to zero, Equation (2) implies that the overall actual balance (*BB*) should coincide with the cyclical balance (*CC*). In other words, for a given semi-elasticity coefficient, the European fiscal rules allow a level of the budget balance determined by the size of the output gap and, therefore, by the functioning of the automatic stabilisers. Outside this level, corrections of fiscal policies are needed to fill the discrepancy.

For example, faced with a cyclical downturn and a nominal deficit of 5% of GDP, the size of the output gap is crucial in determining the amount of fiscal effort: the higher the output gap in absolute terms, the larger the share of the nominal deficit attributed to the cyclical component and the smaller the fiscal effort required to comply with a structural balance equal to zero.[7]

3. The empirical analysis

3.1. Conceptual framework, sample, and model

Our analysis is based on 19 countries belonging to the euro area observed over years 1995–2019.[8] To investigate the discretionary reaction of fiscal policy to the business cycle, we first examine whether and how the level of the cyclically adjusted primary budget balance (in percentage of GDP) is explained by the level of the output gap. The baseline specification is a dynamic model, in which the governments' discretionary fiscal action – embodied in the level of the cyclically-adjusted primary balance (*CAPB*) – is explained by the cyclical conditions (measured by the level of the output gap), the macroeconomic fundamentals, and the political variables, given the European fiscal framework:

$$CAPB_{i,t} = \alpha + \beta_1 CAPB_{i,t-1} + \beta_2 OG_{i,t} + \beta_3 FRI\_DEBT_{i,t-1} + \beta' \mathbf{Z}_{it} + \varphi' \mathbf{V}_{it} + u_{i,t} \quad (6)$$

In Equation (6), the level of the output gap captures the cyclical reaction of fiscal policy: if $\beta_2 < 0$, this implies a procyclical reaction, while $\beta_2 > 0$ indicates counter cyclicality. It is worth noting that the output gap enters without lags. Introducing both the dependent variable and the output gap in real time is preferable provided our methodology that allows to overcome the need of considering the lagged output gap, as deeply described in Section 3.2.[9]

Equation (6) also includes: a lag of the *CAPB* to take into account the possible persistence in the government budget; a vector $\boldsymbol{Z}$ of some macroeconomic variables; a vector $\boldsymbol{V}$ of political variables. Furthermore, it is of some relevance to consider a variable embodying jointly the impact of supranational fiscal rules and the stock of public debts (*FRI_DEBT*), as we will explain in Section 3.5. Finally, u_{it} includes – depending on the specification – country fixed-effects γ_i (to control for unobserved time-invariant country characteristics), time fixed-effects λ_t (to deal with possible exogenous shocks common to all countries in a specific year)[10] and the error component ε_{it}.

We rely on a Generalised Least Squares (GLS) estimator controlling for panel specific autocorrelation structure (AR1) and heteroskedastic but uncorrelated error structure. The presence of the lagged dependent variable as a regressor – as well as possible endogenous variables – can make standard estimators inconsistent due to the Nickell bias in a dynamic panel setting (Nickell, 1981). In fact, the Nickell bias would not be a concern for panels with a large time and cross-section dimension like ours (see also, Larch et al., 2021; Gootjes and de Haan, 2022; Aldama and Creel, 2022). In any case, we perform some robustness checks adopting the Arellano-Bond (AB) model, which uses the conventionally derived variance estimator for Generalised Method of Moments (GMM) estimation (Arellano and Bond, 1991).[11]

It is worth noting at this stage that Equation (6) may have some similarities with the approach based on fiscal reaction functions (FRF), according to which the primary surplus on GDP (or the cyclically adjusted primary balance) is assumed to depend on the changes of the debt-to-GDP ratio. As documented in the Introduction, the FRF approach is widely used in the literature to verify the long-run sustainability of public finance, which is an issue that is not directly addressed in this paper.

Furthermore, unlike the case of FRF, the impact of public debt on the cyclically adjusted primary balance is not theoretically based on an intertemporal budget constraint in our setting; rather, our interest is focused on to what extent the sign of the fiscal policy may be affected by political variables. To this regard, the introduction of political variables into the analysis involves some uncertainty about

[7] One tricky aspect of this approach is that the fiscal target rule is anchored to unobservable variables such as the NAWRU (*Non-Accelerating Wage Rate of Unemployment*), which is subject to measurement uncertainty and to excessive dependence on the actual unemployment rate, causing a vicious circle between recessionary phases, NAWRU increases, fall in potential GDP and the need for contractionary fiscal policies.

[8] We voluntarily decided not to include 2020 and 2021 in our sample since the Covid-19 pandemic and the subsequent economic crisis seem to represent an anomaly in relation to the evolution of public finance variables. In March 2020, the European Commission and the European Council have activated the general escape clause of the SGP, thus suspending the full working of the fiscal rules to leave room for aggressive stimulus policies.

[9] In general, the lagged output gap is thought to represent a credible alternative to the simultaneous output gap as policymakers might react to current cyclical conditions or use them to forecast cyclical conditions in the following year. The inertia and complexity of the decision-making process might also justify the reference to the lagged output gap (Golinelli and Momigliano, 2009).

[10] As a robustness check, we have also introduced a dummy variable which is equal to 1 from 2008 to 2011 to specifically handle the common financial crisis for the countries in our sample. We can anticipate that the main results presented in Section 4 do not change (they are available upon request).

[11] The AB approach allows to address the well-known – but often overlooked – problem of endogeneity between the structural balance and the output gap. Our new real-time definition of the output gap solves this crucial issue, as shown in Sections 3.2 and 4.1.

future fiscal outcomes that could not be properly embodied in a time-invariant discounting factor that is, instead, usually adopted in the FRF approach.[12]

In a similar fashion, we do not need specific assumptions on the response of future primary balances to changes in public debt as in the FRF approach; at the same time, in order to take into account the fiscal fatigue that may affect fiscal actions in different public finance conditions, we include interactions between fiscal rules and the level of public debt (e.g., (Checherita-Westphal and Žďárek, 2017)) as explained in Section 3.5. As it stands, our analysis should not be considered as a further contribution to the literature on FRF, rather as an investigation on whether and how political variables can shape the direction of discretionary fiscal policies over time and across countries.

3.2. The output gap

In our model, the level of the output gap plays a key role. The sign of the associated estimation parameter (β_2) qualifies the discretionary fiscal policy as procyclical (if negative values) or anticyclical (if positive values). More generally, the size of the output gap absorbs the cyclical component of the nominal budget balance, reducing the structural correction needed to comply with the European fiscal rules.

Since 2003, the European Commission recalculates the output gap twice a year, i.e. spring and autumn forecasts. Consequently, many time series exist since those revisions take into consideration not only forecasts of future levels but they are also based on past values. This would not be problematic if the estimated output gap was stable over time, but unfortunately this is not the case: given its high variability, the choice of which forecast to consider could affect the outcome of fiscal cyclicality as well as distorting its results.[13]

It is worth noting that the empirical economic literature traditionally focuses on the last *ex post* estimate of the output gap. Far from this approach, we adopt a different methodology, and we introduce a new variable whose aim is to capture the *effective* level of the output gap observed at the time that the decisions on fiscal policy are taken. To this purpose, for each country we built a matrix as shown in Table A1 in the Appendix, which reports an example for Italy.[14] The variable *OG* matches the timing of the fiscal policy decision with the estimated output gap at that time. Since the output gap is exposed to periodic revisions and we are interested in characterising fiscal policy decisions as implemented at the time they have been made, this procedure allows to consider the actual estimates of the output gap on which policy decisions are based, and not the *ex post* revisions.

To capture the dimension of the change about the output gap, Fig. 1 summarizes the entire spectrum of the output gap values for all countries of our sample as provided by the annual review processes. Each country is characterised by the following information: first, the minimum, the maximum and the average values that the output gap has registered when considering all the revisions; second, the related standard error; finally, the output gap as estimated in spring 2022 (*OG2022* – green line) and the output gap as estimated following our methodology (*OGmatched* – light blue line). It is worth noting that – as also reported in the last column of Table A1 for Italy – there is a non-negligible difference between the standard way of considering the output gap (column '2022' in table) and our methodology, and that this difference is either positive or negative in different years. Overall, our proposed method is more appropriate to define how the output gap might affect fiscal policy decisions, being directly linked to the timing of the fiscal policy decision. Summary statistics are reported in Table A3 in Appendix.

3.3. The semi-elasticities

Close to the output gap, there is a second important element that must be considered, which is the cyclical adjustment parameter, ε in Equation (4), which has been introduced in the form of semi-elasticity based on a recent update (Mourre et al., 2013). It is worth recalling that the semi-elasticities are computed by combining the individual elasticities of each revenue and expenditure item composing the budget balance and their weights as a percentage of GDP.

The budget balance semi-elasticity (ε) is simply equal to the difference between revenue semi-elasticity (ε_R) and expenditure semi-elasticity (ε_G). Semi-elasticities can be decomposed into the effect of the revenue/expenditure-to-GDP ratios (R/Y and G/Y) and the

[12] In most cases, the approach based on the intertemporal budget constraint implicitly assumes a time-invariant discounting factor to measure the present discounted value of all future primary surpluses required to match changes in public debt. This implies a certain degree of certainty about the future behaviour of all relevant variables. For a similar argument on the adoption of a proper discounting factor and on the role that expectations and uncertainty may have on prospective fiscal variables, see Perotti (2007).

[13] It is worth noting that this is mainly due to the high volatility of the estimate of potential GDP – and thus of the output gap – caused by the *NAWRU*. Such volatility derives from an empirical methodology which delivers an excessive dependence of the estimated *NAWRU* on the actual unemployment rate. This implies that in times of strong turbulence in the labour market, as especially experienced by southern European countries during the first half of 2010, the upward revisions of the *NAWRU* estimates determine a narrowing of the output gap width, with direct consequences in the corresponding fiscal space.

[14] Operationally, our variable is built by taking – from the data in each column – only the values of the rows at the corresponding year; we get a sequence of values highlighted in the grey diagonal in the matrix. An exception is made for the years before 2003, for which data are not available; thus, all the values of that column are used to build the variable. Within each year, the difference between the past values estimated in the autumn and spring forecasts is minimal. Results related to the autumn estimates are robust and available upon request. Values from 1995 to 2002 are taken from the 2003 spring forecast since this is the first moment when the European Commission starts estimating this variable. Those estimates represent a better assessment for real time fiscal policy decisions than the last *ex post* evaluation of the output gap. Analogous elaborations are done for each country of the sample, but they are not reported in the paper for the sake of space.

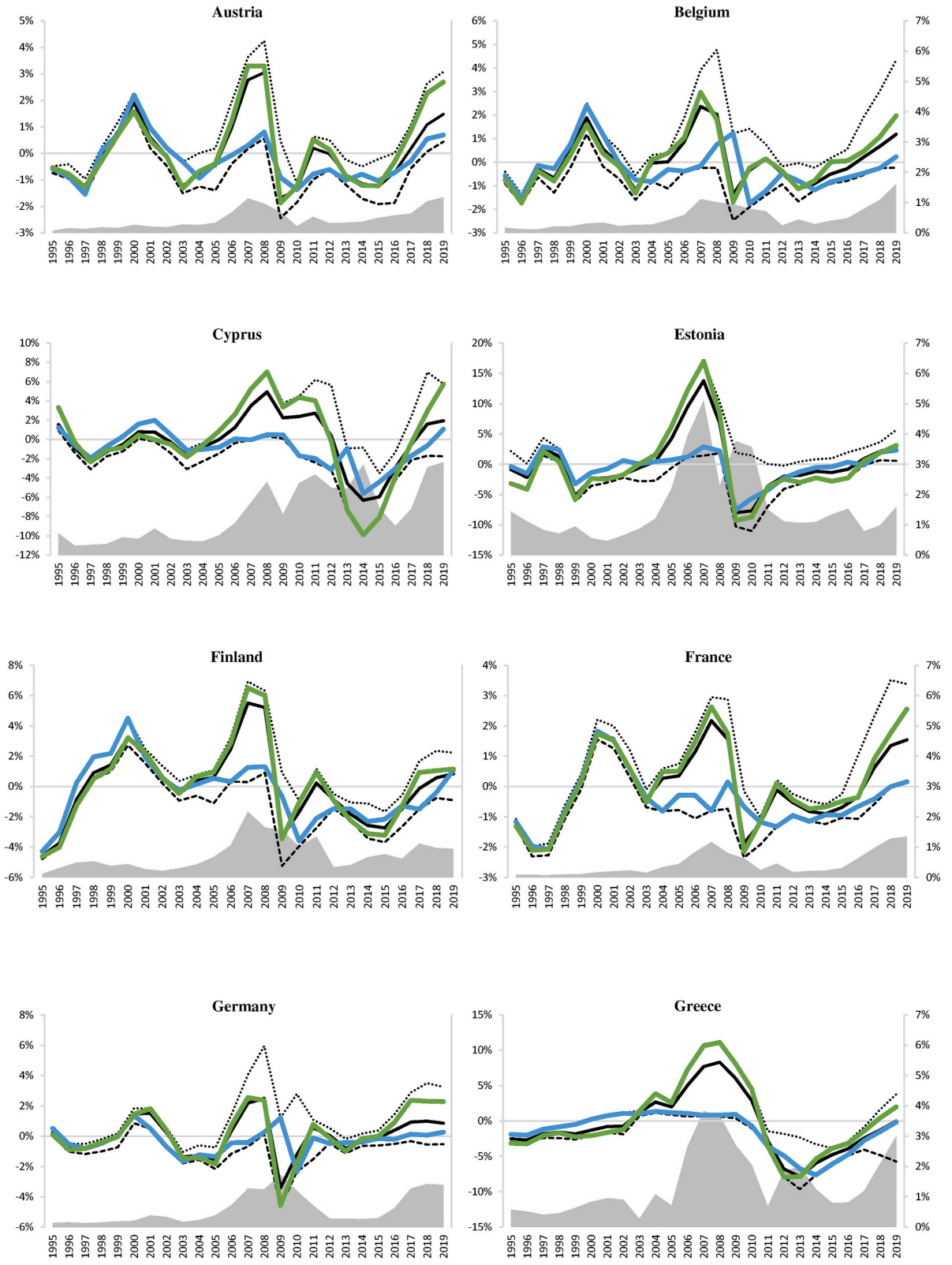

Fig. 1. Revisions in the output gap estimates

Note: we consider the spring forecasts (within each year, the difference with the past values estimated in the autumn forecast is minimal). The figures resume the entire spectrum of the output gap values as provided by the annual review processes from 2003 to 2022. In order to facilitate the comparison among countries, country-specific standard deviations have been estimated taking into account the average, the minimum and the maximum values of the output gap revisions. In this regard, each chart shares the same right-hand scale and the grey area represents the related standard deviation. *Source*: authors' elaborations on AMECO data.

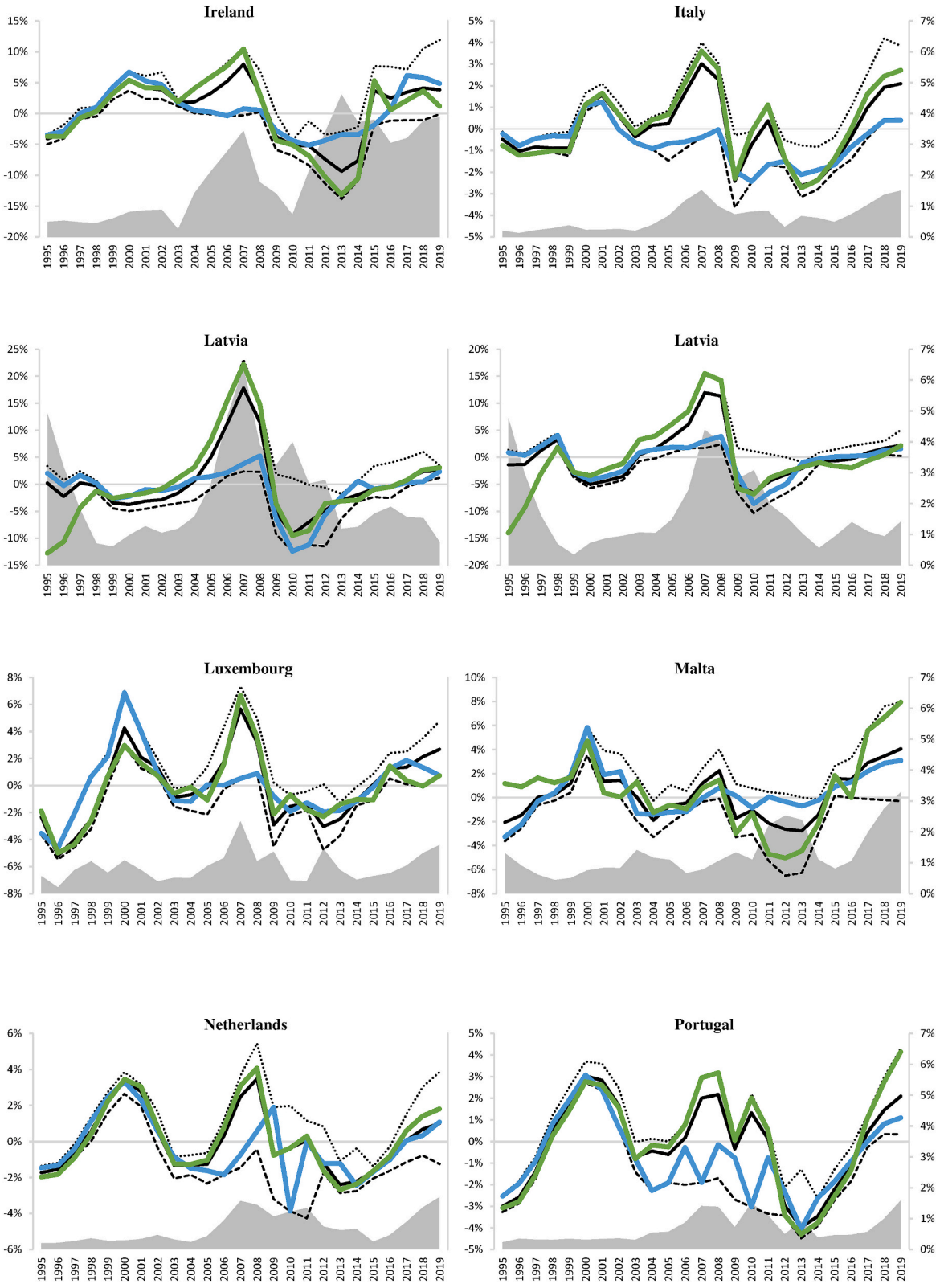

Fig. 1. (*continued*).

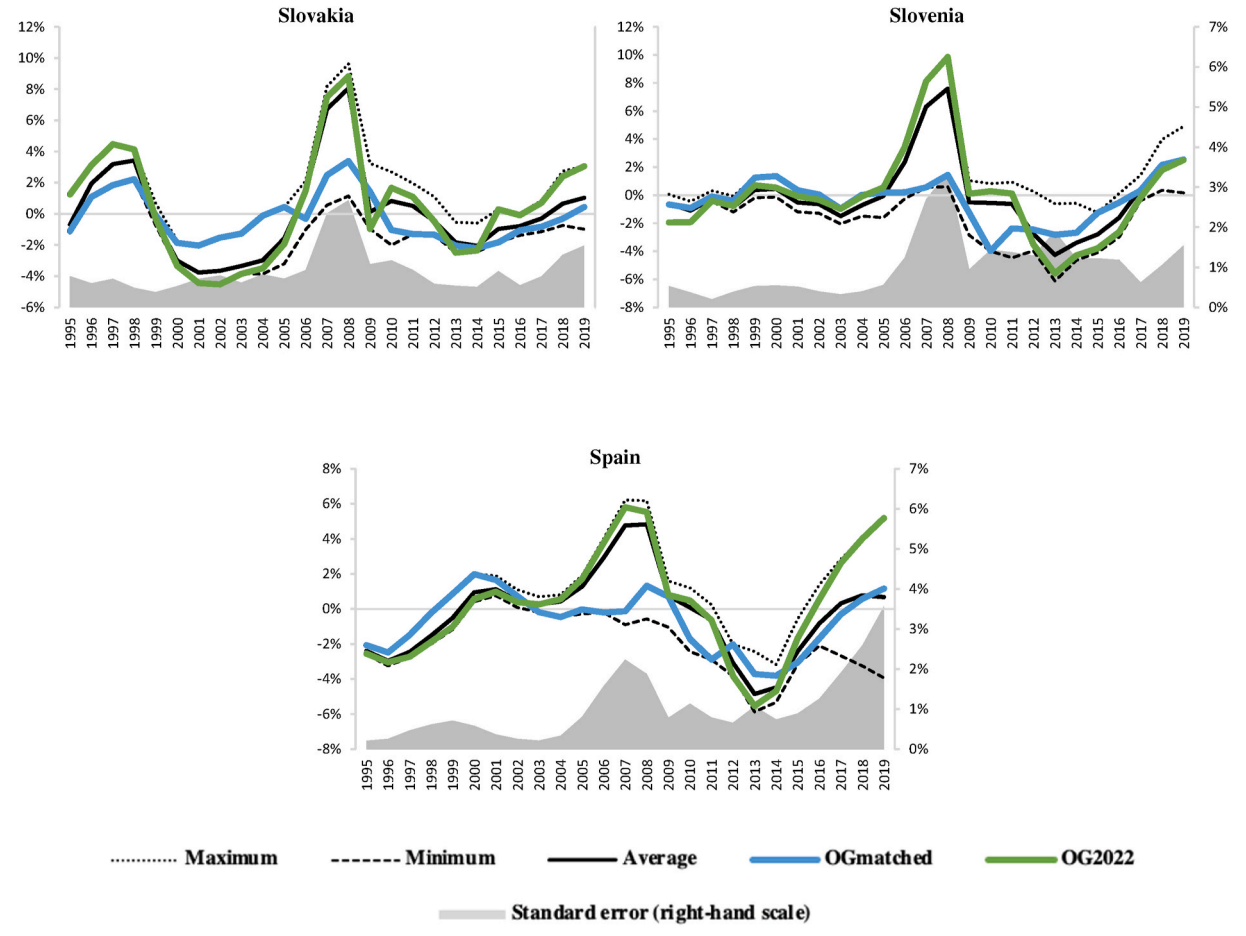

Fig. 1. (*continued*).

composition effect reflected by their elasticities (respectively, η_R and η_G):

$$\varepsilon = \varepsilon_R - \varepsilon_G = \frac{R}{Y} \bullet (\eta_R - 1) - \frac{G}{Y} \bullet (\eta_G - 1) \tag{7}$$

In the official methodology, these semi-elasticities are constant and the weights (i.e. R/Y and G/Y) are currently computed as 10-year averages over the 2008–2017 period (Mourre et al., 2019); this simplification is aimed at computing a unique semi-elasticity for each member state as shown in Table A2 in the Appendix. In any case, a time-varying version of the semi-elasticities does not determine substantial variations since the most important influence on the cyclically adjusted budget balance always derives from the level of the output gap.

3.4. The cyclically adjusted primary balance

Given the preliminary steps, we can estimate the cyclical component of the budget balance by using the estimation of the output gap and of the semi-elasticities already discussed. Formally, the cyclically adjusted primary balance (*CAPB*) can be written[15]

$$CAPB_t = PB - (\varepsilon \bullet OG_t) \tag{8}$$

[15] It is worth noticing that the calculation of the cyclically adjusted primary balance excludes interest payments on public debt as they are considered outside the direct control of policymakers, whereas it includes the one-off and temporary measures since they are part of the discretionary budgetary decisions. However, it should be noted that their amount is totally negligible in our sample, being equal to zero in most years and to small percentage points in the rest of the years. In any case, we will run regressions for both the specifications of our dependent variable, i.e. including and excluding *Tem*, and we can anticipate that the main results remain unchanged (available upon request).

where *PB* defines the primary balance. The *CAPB* is defined in terms of potential GDP, considering that it has been estimated consistently with the real-time or *ex-post* definition of the output gap. Based on our methodology, we use the *real time* version of the output gap (*OGmatched*) to define our measure of the cyclically adjusted budget balance (*CAPBmatched*). To provide a comparison with the standard method, we also calculate the cyclically adjusted budget balance (*CAPB 2022*) based on the last *ex post* revision of the output gap (*OG 2022*).[16] In order to make the results more comparable and consistent with the use of the actual output gap estimate (*OGmatched*) and of the *ex post* revision (*OG 2022*), in both cases, we decide to implement the constant values of the semi-elasticities that are applied in the standard methodology (Table A2 in the Appendix). Given that the *OGmatched* and *CAPBmatched* are not affected by endogeneity issues, as documented in Section 4.1, and they better capture the timing of the fiscal policy decision, we rely on them in our estimates. Fig. 2 displays the trends of the two measures in our countries; their ssummary statistics are reported in Table A3 in Appendix.

3.5. Debt sustainability and fiscal rules

To assess the cyclicality nature of the fiscal policy, the impact of supranational fiscal rules and of public debt should be considered. Indeed, the former might limit the space for adjusting the budget balance and higher values of the latter are likely to call for contractionary fiscal policies (Mauro et al., 2015; Eyraud et al., 2017).

Since the country's fiscal space mostly depends on the joint effect of the two variables, we interact the level of the debt-to-GDP ratio with a country-specific fiscal rules index (built as described below). Intuitively, a certain level of the debt-to-GDP ratio will be more important the more stringent the implementation and supervision of the supranational fiscal rules in national law. In countries with high public debts, governments may be bound to implement a restrictive discretionary fiscal policy during bad times to keep public deficits at low levels and avoid breaching the reference value of 3% of GDP (Huart, 2013; Reuter, 2019). In this framework, fiscal rules themselves may induce a procyclical bias in fiscal policy during bad times.

The role of fiscal rules is particularly relevant in the EU context where the number of national fiscal rules has increased significantly in recent years: in 2019, there were roughly two times as many national fiscal rules in force in the EU compared to a decade earlier and three times as many since the adoption of the Stability and Growth Pact in 1997 (European Commission, 2022).

Following Gootjes et al. (2021), we rely on the IMF's Fiscal Rules Dataset (Davoodi et al., 2022), which includes national and supranational fiscal rules covering budget balances rules (BBR), debt rules (DR), expenditure rules (ER) and revenue rules (RR). We focus on the first two types of rules (i.e. BBR and DR), estimating four different sub-indexes at national and supranational levels. For each country i in year t, specific fiscal sub-index (*FSI*) has been calculated:

$$FSI^{j}_{i,t} = coverage^{j}_{i,t} + legal\ basis^{j}_{i,t} + supporting\ procedures^{j}_{i,t} + enforcement^{j}_{i,t} \tag{9}$$

where $j = 1, \ldots, 4$ defines the type of the rule combined with the relative level under consideration, i.e. BBR at national (1) and supranational (2) levels; DR at national (3) and supranational (4) levels.

About the single component of each rule, we have: '*coverage*' that identifies which sector of the government is covered by the rule (i.e. central government or general government or wider public sector); '*legal basis*' considers the highest legal basis of the rule (i.e. political commitment, coalition agreement, statutory rule, international treaty or constitutional rule); 'supporting *procedures*' examines the existence of multi-year expenditure ceilings, a fiscal responsibility law and an independent fiscal body setting budget assumptions and monitoring its implementation[17]; '*enforcement*' checks what kind of enforcement mechanism is in place (i.e. a formal enforcement procedure and a monitoring mechanism of compliance outside the government).[18] Since only the last two components are dummy variables that are equal to 1 when a certain supporting procedure or enforcement mechanism is in place (0 otherwise), we normalize to unity '*coverage*' and '*legal basis*'.[19] The country specific time-varying Fiscal Rules Index (namely *FRI*) is then calculated as a normalization to unity of the sum of the previous four sub-indexes, assigning equal weight to each sub-index:

$$FRI_{i,t} = \left(normalisation \sum_{j=1}^{4} FSI^{j}_{i,t} \right) \tag{10}$$

The outcome of equation (10), where 0 represents the minimum fiscal constraint and 1 the maximum fiscal constraint, is finally multiplied by the level of the debt-to-GDP ratio to get the variable *FRI_DEBT*. Since the impact of this variable may occur with some delay, we introduce its lagged value in Equation (6). If the relative coefficient β_3 is positive and significant, this implies that the higher

[16] The two alternative definitions of the dependent variables must be regressed against the consistent version of the output gap.

[17] The role of independent fiscal institutions for the supporting procedures is crucial since they allow to increase credibility and transparency of active fiscal policies and public debt targeting, as theoretically shown by Barbier-Gauchard et al. (2022).

[18] Following Schaechter et al. (2012), we do not include 'flexibility' in the aggregated fiscal sub-index. More sophisticated rules may not be equally suited for all countries and create new challenges for monitoring and effective implementation. In any case, results including '*flexibility*' are similar and available upon request.

[19] '*Coverage*' may assume three different values: 0 (no coverage), 1 (central government), and 2 (general government or wider). '*Legal basis*' takes on five different values: 1 (political commitment), 2 (coalition agreement), 3 (statutory rule), 4 (international treaty), and 5 (constitutional rule).

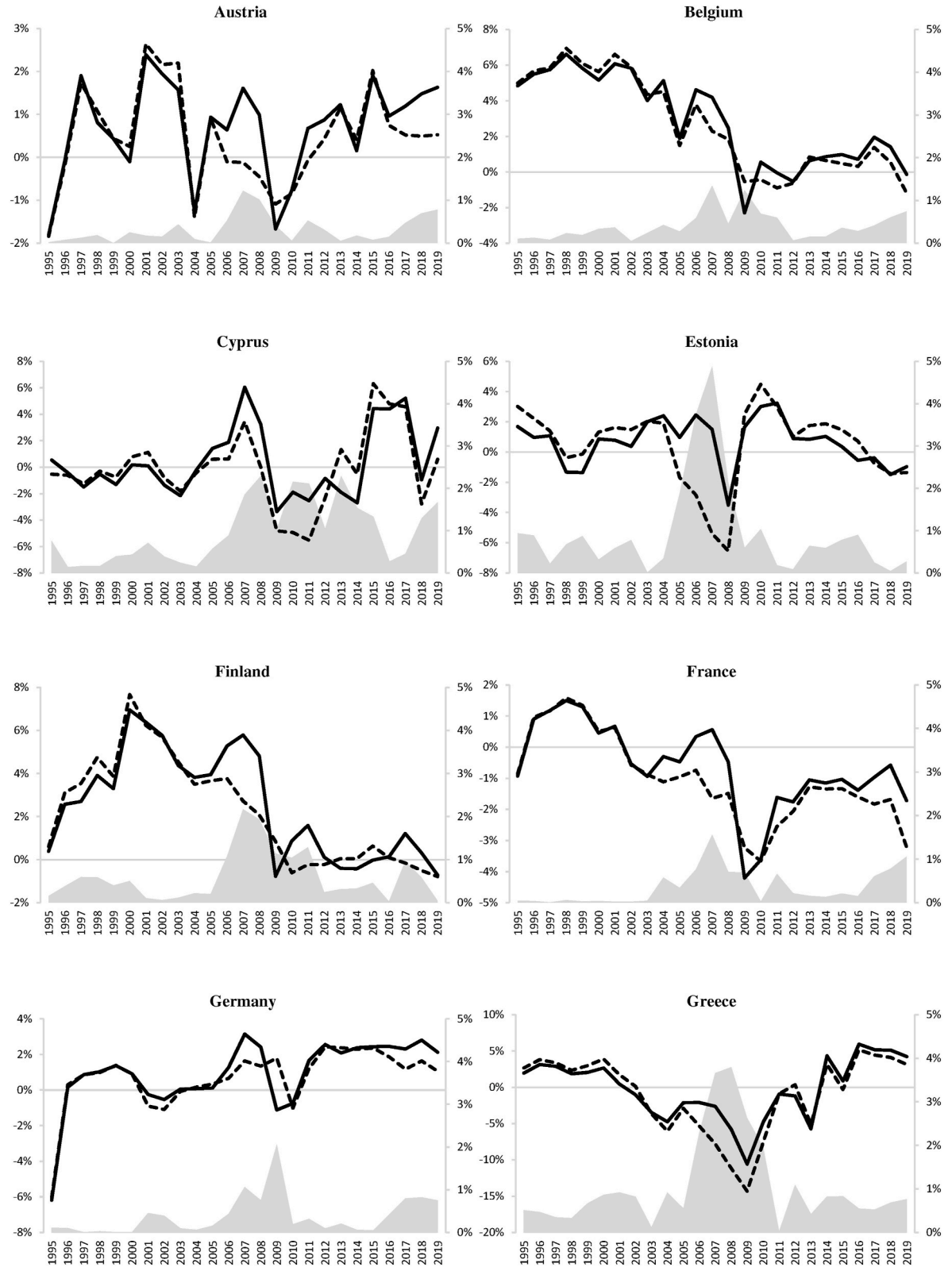

Fig. 2. Real-time *vs ex post* estimates of the cyclically adjusted primary balance
Note: we use the real time version of the output gap (*OGmatched*) to define *CAPBmatched*. On the contrary, *CAPB2022* is based on the last *ex post* revision of the output gap (*OG 2022*). Both are based on the 2019 semi-elasticity. In order to facilitate the comparison, country-specific standard deviations have been estimated taking into account the two different measures of the output gap. In this regard, each figure shares the same right-hand scale and the grey area represents the related standard deviation. *Source*: authors' elaborations on AMECO data.

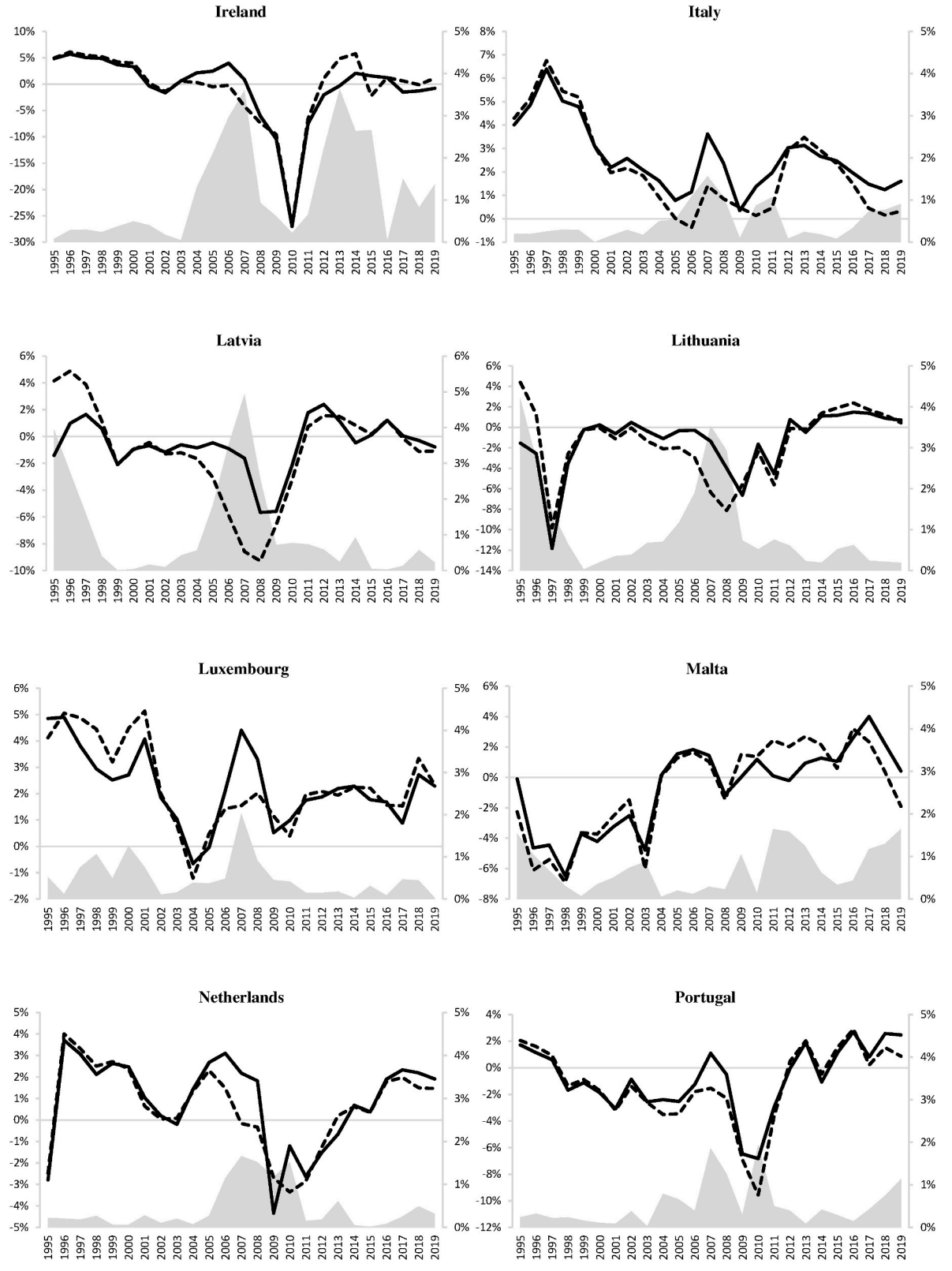

Fig. 2. (*continued*).

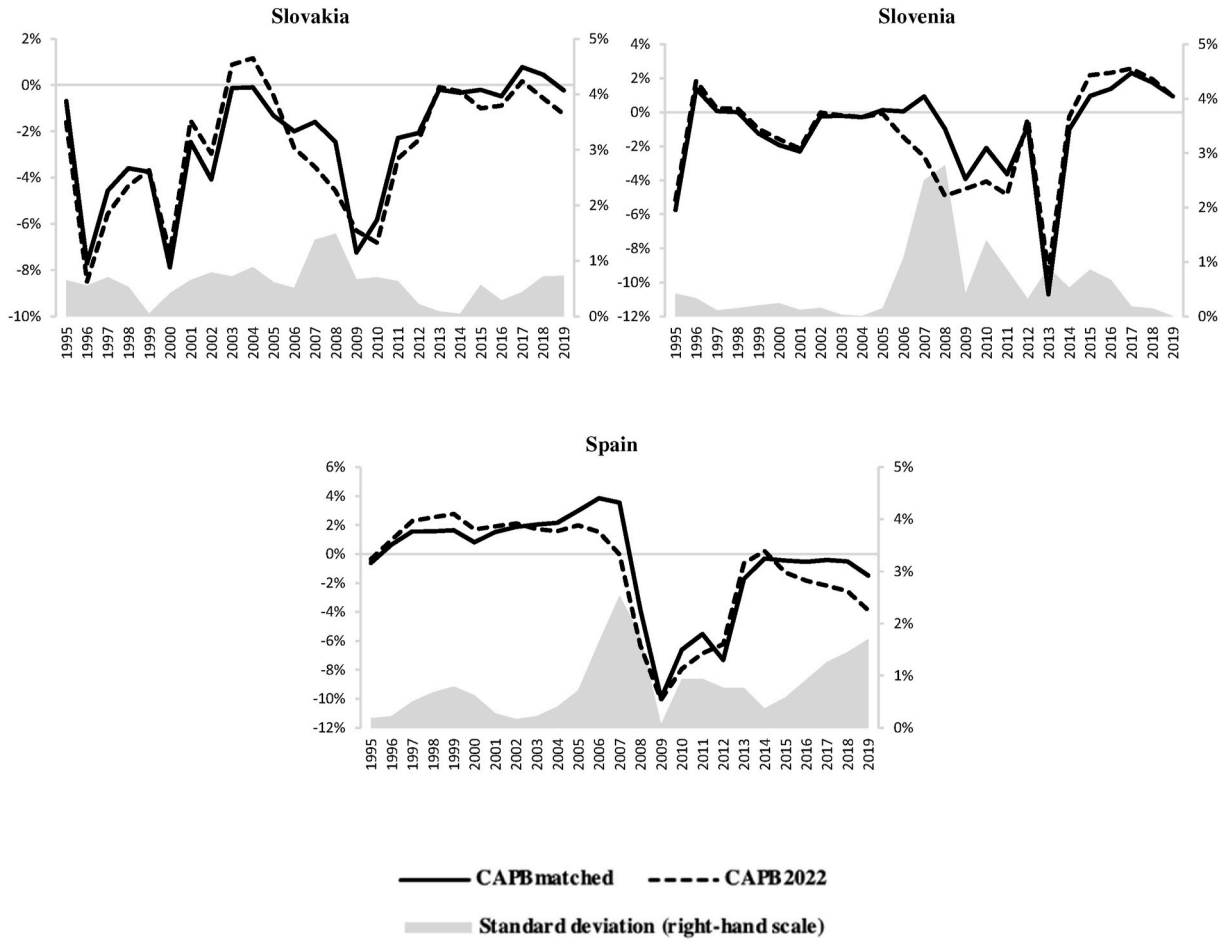

Fig. 2. (*continued*).

the debt level and the more stringent the fiscal rules the higher the fiscal effort observed in each country, as measured by a high level of the cyclically adjusted budget balance.[20] Fig. 3 displays the outcome of this interaction in our sample. Summary statistics are reported in Table A3 in Appendix.

3.6. *The macroeconomic fundamentals*

The vector **Z** includes some macroeconomic controls such as openness, terms of trade, interest rate, unemployment, inflation, and age dependency. The choice of the fundamentals is based on previous empirical studies investigating the cyclical and structural behaviour of fiscal policy (see, among others, Lane 2003; Raess and Pontusson, 2015; Mauro et al., 2015; Jalles, 2018; Gootjes and de Haan, 2022).

In detail, openness is the ratio of a country's total trade to the country's domestic product, and terms of trade represents the ratio between a country's export prices and its import prices; both variables allow to capture changes in fiscal aggregates induced by external trade shocks. Interest rate is the ratio of interest expenditure at time *t* to public debt at time *t-1*; it reflects the implicit interest rate as the main determinants of fiscal sustainability. Both the unemployment and the inflation rates represent short run variables being able to capture the impact of the business cycle; the former is measured by the number of unemployed persons as a percentage of the labour force based on International Labour Office (ILO) definition, while the latter is calculated on the GDP deflator.

Finally, as demographics could call for governments' intervention via discretionary measures, we take this into account with the age dependency variable, which is the sum of the young population (under age 15) and elderly population (age 75 and over) relative to the working-age population (ages 15 to 74). Summary statistics and source of those variable are reported in Tables A3 in the online

[20] The two variables have been also included in the model separately; in this case, the *FRI* lacks statistical significance at the conventional level. This test of robustness confirms our choice of using a unique variable embodying fiscal rules and debt level.

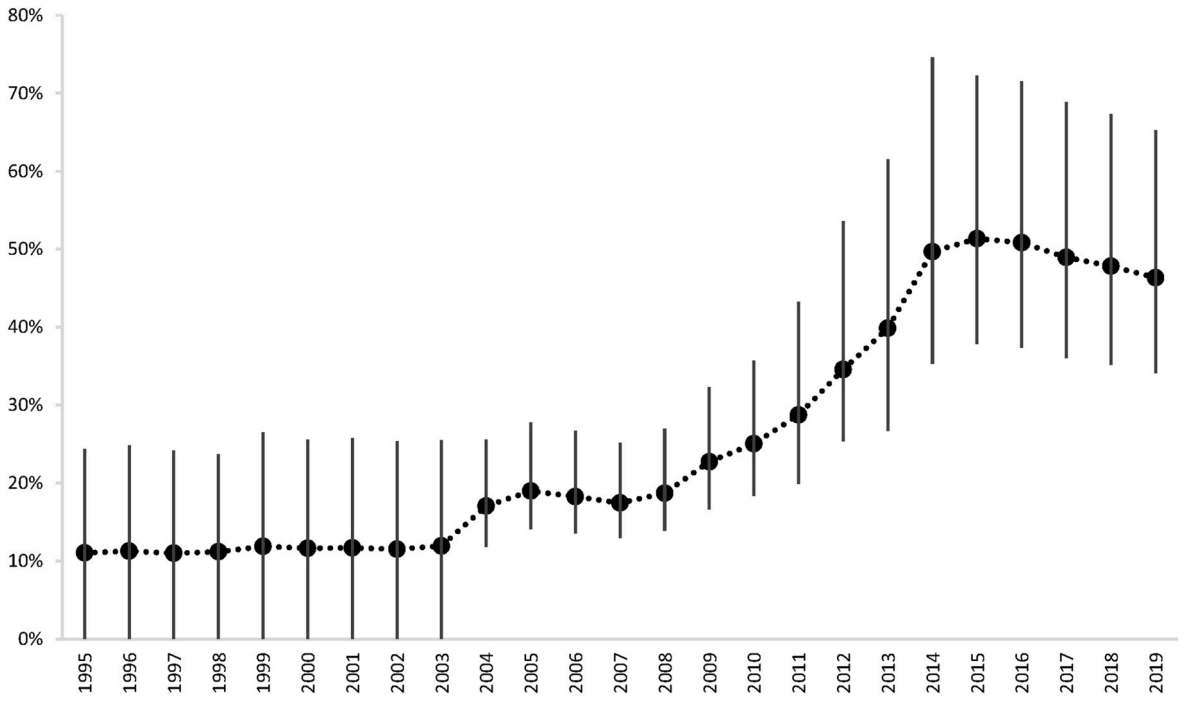

Fig. 3. The *FRI_DEBT* variable
Note: *FRI* is a year- and country-specific variable that goes from 0 (minimum fiscal constraints) to 1 (maximum fiscal constraints). In general, the *FRI_DEBT* variable is the result of the interaction between the previous index and the debt-to-GDP ratio. We consider the average debt-to-GDP ratio of the Eurozone and the minimum, maximum and average values of the *FRI* variable. The dotted line then represents the relationship between the average values of *FRI* and the average debt-to-GDP ratio. *Source*: authors' elaborations on IMF and Eurostat data.

Appendix.

3.7. The political variables

Since our main interest is to understand the influence of politics on the fiscal policy stance, we include some sets of variables pertaining to the political sphere in Equation (6). These variables come from two main sources: the Comparative Political Data Set (CPDS), which provides a collection of political and institutional country-level data suited for cross-national, longitudinal, and pooled time-series analysis (Armingeon et al., 2021), and the Database of Political Institutions (DPI), which includes institutional and electoral data in a comparative political economy framework (Cesi et al., 2021).

We use four groups of political variables. The first is related to the characteristics of the governments in charge and of their oppositions; the second contains information on the election events and the voter turnout; the third is related to the characteristics of the party system; the fourth describes some institutional features of the political structure.

We include many political factors as possible for the following reasons. The first set of variables allows to assess the possibility that fiscal actions may be affected by government ideology and/or by the veto power of the opposition forces as well as by the frequency of governments' changes. Furthermore, these variables include the classical view that left- and right-wing parties might have different attitudes towards both the composition and the size of the public budget yet facing the same constraints when addressing public policies in times of fiscal pressures. According to the traditional view, left governments should be less supportive of harsh fiscal actions than the right ones, and they usually rely more heavily on redistributive policies, which might have consequences of the direction of the primary balance especially during fiscal downturns and in presence of fiscal constraints (Blekesaune, 2007; Jensen, 2007).

The second set of political variables, in principle, follows a large strand of literature based on the existence of an electoral cycle, according to which it is more likely that fiscal consolidation and fiscal expansion occur, respectively, at the beginning and at the end of the electoral cycle (e.g., Wenzelburger, 2011; Armingeon, 2012). The third set of variables refers, instead, to some political characteristics that might affect both the timing of the decision and the direction of fiscal actions, with reference to the degree of fractionalization of both the electoral and legislative structures. Finally, the fourth set includes those institutional variables that might shape the implementation of fiscal actions; in particular, they might prevent large variations of the primary budget balance due to constitutional and structural constraints.

More specifically, the characteristics of the government are defined considering some political dimensions such as the cabinet composition (i.e. *gov_party*), reflecting the number of cabinet posts in government split into the categories right, centre and left. In detail, the variable *gov_party* is based on the Schmidt (1992) index passing from 1 that is hegemony of right-wing and centre parties to 5

that is hegemony of social-democratic and other left parties. Overall, the variable measures the ideological homogeneity of the cabinet along a three-level scale: hegemony, dominance, and balance (see also Murtinu et al., 2022).

Moreover, we rely on the type of government (*gov_type*) that was in office for the longest period in each year; it is based on a classification from 1 that represents a single-party majority government where one party takes all governments seats and has a parliamentary majority (i.e. more than 50%)[21] to 7 denoting a technocratic government that is a government run by a technocratic prime minister, with a majority of technocratic ministers and with a mandate to change the status quo (see also McDonnell and Valbruzzi, 2014).

Another relevant variable for highlighting the characteristics of the government in charge and its opposition is the number of changes in government per year (*gov_chan*); changes could be imputed to different events such as elections, voluntary resignation of the Prime Minister, break-up of the coalition, lack of parliamentary support, intervention by the head of state, or broadening of the coalition, inclusion of new parties. Likewise, we use a variable to capture whether the government have an absolute majority in the houses that have law-making power (*allhouse*), where the case of an appointed senate is considered as controlled by the executive. To take into account the size and weight of the government in charge and its opposition, we include a set of variables based on appointed and elected seats (*gov1seat, opp1seat, numopp, oppvote*); accordingly, we capture the largest government party as well as the largest opposition one in terms of both the number of seats and the vote share.

The second group of political variables refers to the election domain. We consider the date of election of national parliament (lower house), namely *elect*. If there were two elections in a year, the date of the second is given.[22] The voter turnout in those national elections is also considered (*vturn*).

About the third group, the degree of political fragmentation in a country is captured by the share of votes for a single party given the total number of parties (*rae_ele*) and by the share of seats for a single party given the total number of parties (*rae_leg*). The former refers to the electoral fractionalization, while the latter to the legislative fractionalization; both indices range between 0 (minimal fractionalization) and 1 (maximal fractionalization) and are calculated according to the formula proposed by Rae (1968).

Finally, institutional features of the political system are reflected in the constraints proxied by the structure of checks and balances (*checks*). This index equals 1 if legislatures are not competitively elected and, accordingly, the country is deemed autocratic or a country in which democratic institutions are not consolidated and leadership is personality-based; in the other cases, the index is incremented by one if there is a chief executive if he/she is competitively elected and if the opposition controls the legislature.[23] In parliamentary systems, the prime minister's party is not counted as a check if there is a closed rule in place – the prime minister is presumed in this case to fully control the party. The other institutional variables included in the analysis account for the various dimensions of constitutional structures and consensus democracies such as the degree of federalism (*fed*), of bicameralism (*bic*), the type of executive-legislative relations (*pres*) and of representation (*prop*) by following Lijphart (2012).

The description of all variables and their summary statistics are reported, respectively, in Tables A4 and A5 in the online Appendix.

4. Results and discussion

4.1. The endogeneity issues

Before moving to the estimation of Equation (6), it is worth addressing potential endogeneity issues between the output gap and the cyclically adjusted budget balance. To this purpose, Table 1 reports the baseline model in which *CAPB* – in the two alternative forms described above, i.e. *CAPB2022* and *CAPBmatched* – is regressed against *OG*, also in the two consistent alternative definitions, i.e. *OG2022* and *OGmatched*. To be sure that the results will not depend on the estimator used, we perform regressions using, one at a time, the fixed effects (FE), the generalised least-squares (GLS) and the Arellano-Bond (AB) estimators.

Columns (1)–(6) report the outcome when using the standard definition of both *CAPB* and *OG* (namely, *CAPB2022* and *OG 2022*). It is easy to note that *OG* significantly explains *CAPB,* in columns (1)–(3), but also that *CAPB* significantly explains *OG* in columns (4)–(6), leaving unsolved the issue of endogeneity.

Instead of introducing the instrumental variables approach, we move to the use of our definitions of *CAPBmatched* and *OGmatched*. It is still true that *OGmatched* significantly explains *CAPBmatched* in columns (7) to (9), but now *CAPBmatched* is not able to explain *OGmatched* in columns (10) to (12). It is also worth noting that this outcome does not depend on the specific estimator used.

From a theoretical viewpoint, it is true that the budget balance could affect the business cycle, but it should be also considered that

[21] For instance, if a single party's seat share is exactly 50%, the government is coded as a single party minority government; if two governmental parties possess combined 50% of the seat share, the government is coded as a multi multi-party minority government; if the government consists of three parties of which the two biggest ones hold 50% of the seat share, it is coded as a minimal winning coalition one. Sister parties count as one party for the classification of the type of government (for example, the CDU and CSU in Germany).

[22] For instance, in the case of Greece (2012) when two elections occurred (May 6 and June 17), only the results of the second one on June 17 are entered. The same was for Spain as two elections occurred in 2019 (28 May and 10 November), and only the results of the second one on 10 November are entered.

[23] In presidential systems, it increases by one for each chamber of the legislature and for each party coded as allied and which has an ideological orientation closer to that of the main opposition party. In parliamentary systems, it increases by one for every party in the government coalition as long as the parties are needed to maintain a majority and for every party in the government coalition that has a position on economic issues closer to the largest opposition party.

Table 1
Endogenous/exogenous relationship between CAPB and OG.

Dep. Var.	*CAPB*			*OG*			*CAPBmatched*			*OGmatched*		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	FE	GLS	AB	FE	GLS	AB	FE	GLS	AB	FE	GLS	AB
L.CAPB	0.546 ***	0.521 ***	0.487 ***									
	[0.046]	[0.033]	[0.037]									
OG	−0.276 ***	−0.281 ***	−0.334 ***									
	[0.032]	[0.026]	[0.037]									
L.OG				0.650 ***	0.543 ***	0.628 ***						
				[0.037]	[0.041]	[0.028]						
CAPB				−0.131 *	−0.154 ***	−0.193 ***						
				[0.071]	[0.034]	[0.036]						
L.CAPBmatched							0.568 ***	0.560 ***	0.521 ***			
							[0.045]	[0.037]	[0.040]			
OGmatched							−0.218 ***	−0.245 ***	−0.277 ***			
							[0.060]	[0.042]	[0.063]			
L.OGmatched										0.641 ***	0.555 ***	0.630 ***
										[0.042]	[0.039]	[0.033]
CAPBmatched										−0.007	−0.006	−0.013
										[0.028]	[0.020]	[0.027]
Country FE							Yes					
Time FE							Yes					
N. obs.	456	456	437	456	456	437	456	456	437	456	456	437
N. countries							19					
Wald chi^2							***					

Note: ***, **, * denote significance at 1%, 5% and 10% level, respectively. The constant is included but not reported. FE = Fixed Effects (robust standard errors); GLS = Generalised Least Squares (controlling for panel-specific AR1 autocorrelation structure and heteroskedastic but uncorrelated error structure); AB = Arellano-Bond (with the lagged dependent variable treated as endogenous variable).

Table 2
The baseline results.

Dependent variable	*CAPBmatched*											
	(1)		(2)		(3)		(4)		(5)		(6)	
	GLS						AB					
L.CAPBmatched	0.527	***	0.531	***	0.546	***	0.504	***	0.527	***	0.519	***
	[0.036]		[0.036]		[0.038]		[0.040]		[0.041]		[0.042]	
OGmatched	−0.223	***	−0.165	*			−0.194	***	−0.292	**		
	[0.042]		[0.089]				[0.063]		[0.130]			
L.FRI_Debt	0.046	***	0.045	***	0.052	***	0.065	***	0.054	***	0.070	***
	[0.008]		[0.008]		[0.009]		[0.014]		[0.014]		[0.014]	
FRI_OGmatched			−0.173						0.336			
			[0.237]						[0.347]			
OGmatched_forecast					−0.210	***					−0.247	***
					[0.043]						[0.064]	
Country FE						Yes						
Time FE						Yes						
Number of observations	456		456		437		437		437		418	
Number of countries						19						
Wald chi^2						***						

Note: ***, **, * denote significance at 1%, 5% and 10% level, respectively. The constant term is included, but not reported. GLS = Generalised Least Squares (controlling for panel-specific AR1 autocorrelation structure and heteroskedastic but uncorrelated error structure); AB = Arellano-Bond (with the lagged dependent variable treated as endogenous variable; the lagged *FRI_Debt* considered a predetermined variable; *OGmatched* is not endogenous – see Table 1).

the *real time* version of the output gap does not fully include its impact over time. Put differently, we rely on an output gap variable (*OGmatched*) whose observations are, in a certain way, independent of the budget balance as endogenous determinant. This aspect seems to be confirmed when comparing the results of fiscal procyclicality obtained by using the two different output gap specifications: the higher fiscal procyclicality that is generally observed in the case of the *ex post* revision of the output gap could depend on the fact that the budget balance has time to affect the future values of the output gap. For example, if during a recession the government is planning an improvement of the budget balance, according to the principle of fiscal procyclicality, the *ex post* revision of the output gap is likely to incorporate the adverse effects of the contractionary fiscal policy. This does not occur when using the *real time* version of the output gap, which appears to isolate the influence of the budget balance on the output gap. In our estimations, we will exclusively rely on *CAPBmatched* and *OGmatched* variables since they better capture the timing of the fiscal policy decisions and solve the endogeneity issue.

4.2. The baseline model

Column (1) of Table 2 reports the results when estimating Equation (6) in its basic form, i.e. without including any control variables, using GLS with country fixed-effects and time fixed-effects. As expected, the coefficient on the output gap (β_2) is statistically significant with a negative sign, which implies robust pro-cyclicality of the *CAPBmatched* in the EU context. To some extent, this result is in line with recent findings such those by Gootjes and de Haan (2022), wherein a pro-cyclical reaction of comparable size (−0.188) emerges for 27 European countries over the period 2000–2015.

On the other hand, the sign of the coefficient on *FRI_DEBT* is positive, implying that fiscal rules either increase the positive balance or decrease the negative balance, even though nothing can be inferred with respect to their impact on the specific phase of the economic cycle.

Columns (2) and (3) of Table 2 also take into consideration two alternative hypotheses based on the variables' specification. The first is the possibility that the *CAPB* is affected by the intensity of the fiscal rules, which requires to model an interaction between the fiscal rules and the output gap (*FRI_OGmatched*) beyond to the standard variable of fiscal rules used in column (1). As reported in column (2), its coefficient is not statistically significant, rejecting the hypothesis that the impact on the cyclically adjusted primary balance depends on the strength of the fiscal rules. Rather, it still appears strongly driven by the initial conditions of the public debt.

The second hypothesis lies on the possibility that the proper timing for representing the output gap is not the time when the government plans the budget, but the forecast of the same variable. To deal with this issue, the measure of the output gap has been calculated by considering, at time *t*, the forecast of the output gap at time *t+1* (see Ramey, 2011),[24] namely *OGmatched_forecast*. As reported in column (3) of Table 2, the use of such variable instead of the standard *OGmatched* does not reverse the fiscal procyclicality and its estimated coefficient is also comparable in size. This might imply that the government information set at time *t* already includes, at least to some extent, the forecast of the output gap at time *t+1*.

To check whether the previous outcomes may depend on the estimator, we reply the same analysis using an Arellano-Bond estimator in columns (4)–(6). Nothing changes significantly, neither in terms of the direction nor in terms of the magnitude of the procyclicality.

Given these findings, we make two additional steps. First, we introduce some fundamental macroeconomic variables as additional

[24] She addresses this issue of the relevance of either current or forecast variables to explain the impact of government spending shocks.

Table 3
The role of macroeconomic fundamentals.

Dependent variable	*CAPBmatched*															
	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)	
	GLS														AB	
L.CAPBmatched	0.520	***	0.513	***	0.513	***	0.491	***	0.465	***	0.474	***	0.504	***	0.469	***
	[0.036]		[0.036]		[0.036]		[0.037]		[0.038]		[0.038]		[0.036]		[0.041]	
OGmatched	−0.233	***	−0.241	***	−0.240	***	−0.245	***	−0.279	***	−0.245	***	−0.213	***	−0.195	***
	[0.041]		[0.040]		[0.040]		[0.040]		[0.053]		[0.053]		[0.041]		[0.064]	
L.FRI_Debt	0.051	***	0.048	***	0.048	***	0.049	***	0.052	***	0.050	***	0.047	***	0.056	***
	[0.009]		[0.009]		[0.009]		[0.009]		[0.010]		[0.010]		[0.008]		[0.014]	
Openness	0.017	***	0.015	***	0.015	***	0.015	***	0.016	***	0.016	***	0.014	***	0.013	
	[0.005]		[0.005]		[0.005]		[0.005]		[0.005]		[0.005]		[0.005]		[0.009]	
Terms of trade			5.486	***	5.480	***	4.823	**	5.013	**	4.792	**	4.590	**	6.065	
			[2.079]		[2.092]		[2.025]		[2.133]		[2.105]		[2.001]		[3.793]	
Interest rate					0.010		−0.063		−0.067		−0.044					
					[0.074]		[0.077]		[0.080]		[0.080]					
Age Dependency							−0.113	***	−0.110	***	−0.096	**	−0.093	***	−0.019	
							[0.037]		[0.038]		[0.039]		[0.036]		[0.059]	
Unemployment Rate									−0.044		−0.038					
									[0.038]		[0.037]					
Inflation											−0.072	***	−0.075	***	−0.086	**
											[0.026]		[0.025]		[0.043]	
Country FE								Yes								
Time FE								Yes								
Number of observations	456		452		452		452		451		451		452		433	
Number of countries								19								
Wald chi^2								***								

Note: ***, **, * denote significance at 1%, 5% and 10% level, respectively. The constant term is included, but not reported. FE = Fixed Effects; GLS = Generalised Least Squares (controlling for panel-specific AR1 autocorrelation structure and heteroskedastic but uncorrelated error structure); AB = Arellano-Bond (with the lagged dependent variable treated as endogenous variable; the lagged *FRI_Debt* considered a predetermined variable; *OGmatched* is not endogenous – see Table 1).

Table 4
The role of politics.

Dependent variable	*CAPBmatched*																							
	GLS																AB							
	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)		(9)		(10)		(11)		(12)	
L.CAPBmatched	0.586	***	0.601	***	0.553	***	0.580	***	0.546	***	0.590	***	0.450	***	0.451	***	0.482	***	0.373	***	0.366	***	0.408	***
	[0.035]		[0.035]		[0.036]		[0.036]		[0.036]		[0.034]		[0.038]		[0.038]		[0.039]		[0.045]		[0.046]		[0.046]	
OGmatched	−0.269	***	−0.270	***	−0.262	***	−0.270	***	−0.286	***	−0.262	***	−0.237	***	−0.204	***			−0.293	***	−0.387	***		
	[0.048]		[0.050]		[0.049]		[0.050]		[0.048]		[0.047]		[0.051]		[0.090]				[0.081]		[0.142]			
L.FRI_Debt	0.037	***	0.031	***	0.041	***	0.025	***	0.035	***	0.035	***	0.053	***	0.053	***	0.055	***	0.012	***	0.074	***	0.079	***
	[0.008]		[0.008]		[0.008]		[0.008]		[0.008]		[0.008]		[0.010]		[0.010]		[0.011]		[0.016]		[0.017]		[0.018]	
Governments																								
gov_party	−0.021								−0.034															
	[0.058]								[0.059]															
gov_type	0.042								0.002															
	[0.071]								[0.073]															
gov_chan	−0.237	***							−0.206	*	−0.258	***	−0.274	***	−0.272	***	−0.310	***	−0.313	**	−0.317	**	−0.345	**
	[0.088]								[0.117]		[0.081]		[0.079]		[0.079]		[0.084]		[0.155]		[0.155]		[0.165]	
yrsoffc	−0.030								−0.025															
	[0.025]								[0.025]															
allhouse	−0.826	***							−0.720	***	−0.914	***	−0.868	***	−0.875	***	−0.807	***	−0.779	*	−0.718		−0.856	*
	[0.260]								[0.272]		[0.223]		[0.267]		[0.267]		[0.277]		[0.472]		[0.479]		[0.487]	
gov1seat	0.001								0.003															
	[0.002]								[0.002]															
opp1seat	0.000								0.002															
	[0.004]								[0.004]															
gov1age	−0.003								−0.003															
	[0.002]								[0.003]															
numopp	0.000								−0.001															
	[0.003]								[0.003]															
oppvote	−0.009								−0.004															
	[0.006]								[0.006]															
Elections																								
elect			−0.300	**					−0.055															
			[0.126]						[0.171]															
vturn			0.000						−0.004															
			[0.008]						[0.011]															
Party system																								
rae_ele					0.942				1.833															
					[1.911]				[3.078]															
rae_leg					3.358	**			2.598															
					[1.492]				[2.623]															
Institutions																								
fed							0.024		0.018															
							[0.126]		[0.145]															
pres							−0.198	**	−0.089															
							[0.099]		[0.111]															

(*continued on next page*)

Table 4 (*continued*)

Dependent variable	*CAPBmatched*											
	GLS									AB		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
prop				0.162	0.490							
				[0.302]	[0.362]							
bic				0.135	0.033							
				[0.123]	[0.162]							
checks				−0.159 **	−0.261 ***	−0.145 **	−0.23 **	−0.223 **	−0.197 **	−0.118	−0.133	−0.147
				[0.079]	[0.088]	[0.070]	[0.089]	[0.090]	[0.093]	[0.141]	[0.142]	[0.151]
FRI_OGmatched								−0.104			0.288	
								[0.230]			[0.353]	
OGmatched_forecast									−0.203 ***			−0.331 ***
									[0.050]			[0.080]
Country FE	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Late entry EMU							Yes					
Time FE							Yes					
N. observations	447	451	451	450	446	446	446	446	428	424	424	406
N. countries							19					
Wald chi^2							***					

Note: ***, **, * denote significance at 1%, 5% and 10% level, respectively. The constant term and the macroeconomic fundamental variables used in Table 3 are included but not reported. FE = Fixed Effects; GLS = Generalised Least Squares (controlling for panel-specific AR1 autocorrelation structure and heteroskedastic but uncorrelated error structure); AB = Arellano-Bond (with the lagged dependent variable treated as endogenous variable; the lagged *FRI_Debt* considered a predetermined variable; *OGmatched* is not endogenous – see Table 1).

Table 5
Interaction models: politics and output gap.

Dependent variable	*CAPBmatched*															
	GLS								AB							
	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)	
L.CAPBmatched	0.448	***	0.445	***	0.430	***	0.435	***	0.373	***	0.357	***	0.346	***	0.340	***
	[0.038]		[0.038]		[0.038]		[0.038]		[0.045]		[0.045]		[0.045]		[0.046]	
OGmatched	−0.252	***	−0.215	***	−0.557	***	0.050	***	−0.295	***	−0.254	***	−0.848	***	−0.697	***
	[0.060]		[0.053]		[0.146]		[0.152]		[0.092]		[0.082]		[0.193]		[0.203]	
L.FRI_Debt	0.053	***	0.050	***	0.052	***	−0.454	***	0.071	***	0.065	***	0.074	***	0.069	***
	[0.010]		[0.011]		[0.011]		[0.011]		[0.016]		[0.016]		[0.016]		[0.016]	
Governments																
gov_chan	−0.264	***	−0.286	***	−0.259	***	−0.278	***	−0.311	*	−0.321	**	−0.274	*	−0.300	*
	[0.082]		[0.080]		[0.081]		[0.084]		[0.160]		[0.154]		[0.154]		[0.158]	
allhouse	−0.849	***	−1.015	***	−0.897	***	−1.009	***	−0.778		−1.223	**	−0.866	*	−1.219	**
	[0.266]		[0.275]		[0.268]		[0.274]		[0.474]		[0.488]		[0.468]		[0.485]	
Institutions																
checks	−0.217	**	−0.216	**	−0.158	*	−0.162	*	−0.117		−0.107		−0.025		−0.041	
	[0.090]		[0.090]		[0.093]		[0.093]		[0.143]		[0.140]		[0.142]		[0.143]	
OGmatched_gov_chan	0.022						−0.012		0.003						−0.019	
	[0.041]						[0.043]		[0.062]						[0.061]	
OGmatched_allhouse			−0.254	**			−0.194				−0.538	***			−0.438	**
			[0.117]				[0.119]				[0.168]				[0.172]	
OGmatched_checks					0.075	**	0.059	*					0.120	***	0.097	**
					[0.032]		[0.034]						[0.038]		[0.039]	
Country FE								Yes								
Late entry EMU								Yes								
Time FE								Yes								
Number of observations	446		446		446		446		424		424		424		424	
Number of countries								19								
Wald chi^2								***								

Note: ***, **, * denote significance at 1%, 5% and 10% level, respectively. The constant term and the macroeconomic fundamental variables used in Table 3 are included but not reported. FE = Fixed Effects; GLS = Generalised Least Squares (controlling for panel-specific AR1 autocorrelation structure and heteroskedastic but uncorrelated error structure); AB = Arellano-Bond (with the lagged dependent variable treated as endogenous variable; the lagged *FRI_Debt* considered a predetermined variable; *OGmatched* is not endogenous – see Table 1).

controls. Second – which is the core of our analysis – we use a wide range of political variables to investigate their impact on the procyclicality of the primary budget balance.

4.3. The role of macroeconomic fundamentals

Table 3 shows the results when including a set of macroeconomic variables described in Section 3.6. We start with a parsimonious model and add progressively all the variables considered up to column (6) that is the most comprehensive specification. In column (7), we include only variables that are statistically significant in column (6). The statistical significance of the coefficients is stable for all the variables. When using all variables together in column (6), interest rates and unemployment rate do not play any role.

More important for our purposes – beyond the specific significance of each coefficient – is that those macroeconomic variables neither affect the pro-cyclicality of the fiscal policy nor the positive impact of *FRI_DEBT* on the cyclically adjusted primary balance. Indeed, these findings are robust to all the specifications considered. Additionally, the impact of *FRI_BEBT* seems basically a-cyclical; it means that they are not built to follow booms or recessions, rather to direct fiscal policy toward a stable fiscal consolidation path.[25]

Even stronger is the result obtained when moving to the Arellano-Bond estimator in column (8); in this case, the procyclicality of the fiscal policy stays invariant, while only inflation seems to play a role among the macroeconomic variables included in the regression.

So far, it seems that fundamental macroeconomic variables cannot affect the pro-cyclicality of the fiscal policy. A natural question to be answered in the next section is whether political variables can mitigate this outcome.

4.4. The role of politics

Regressions in Table 4 show the main results obtained by estimating Equation (6) in its complete form when using the political variables described in Section 3.7. Since we use four sets of variables that capture a specific nuance of politics – i.e. governmental, electoral, political, and institutional –, we progressively add each group of them from column (1) to (4), and then perform a comprehensive specification including all variables at the same time in column (5). In columns (6) and (7), we maintain only the set of political variables that turn out to be statistically significant in column (5).

In all specifications, we add a country-specific dummy to take into account that not all 19 countries entered the EMU at the same time (i.e. *Late entry EMU*); this might have led, in fact, to different reactions of the cyclically adjusted primary balance, especially when political variables are considered.[26] Additionally, as robustness checks we estimate columns (8) and (9), where the former includes the interaction variable between fiscal rules and the output gap, while the latter use the forecasts of the output gap as done in the previous tables. Finally, in columns from (10) to (12), the AB estimator is implemented on the main statistically significant specifications.

Overall, it can be noted that the bulk of political variables are not statistically significant, with only *gov_chan*, *allhouse* and *checks* overcoming the various steps at the standard significance level of at least 5 percent as reported in column (5). In particular, the coefficient on *allhouse* has a negative sign, signalling that when a government controls all parliamentary houses, there is a tendency to worsen the budget balance, as well as when governments change frequently as proxied by *gov_chan*. This might be explained by the fact that in these cases, the opposition might not be able to introduce veto points on some governmental actions that might be directed to favour specific constituencies, regardless of the impact on the budget (Hallerberg and Scartascini, 2017).

Likewise, in countries where legislatures are not competitively elected, only the executive wields a check, and this would lead to worsen the budget balance as captured by the negative coefficient on the variable *checks*. This is in line with the observation that even though all democracies might have separation of powers, different structures of this separation make the 'checks and balance' system more or less powerful, depending on the relationship between the executive and the legislative process. We are not able to control for the effective power of checks and balances in different countries and over time. Our results would simply suggest that, on average, checks and balances do not seem to be particularly effective in controlling the public budget, and that they are not able to affect the general pro-cyclicality of fiscal policies.

It should be noted that in the economic growth literature, the extent of checks and balances is considered a proxy for institutional quality (e.g., Glaeser et al., 2004), according to the fact that institutionalized checks and balances in the public decision-making process might help policymakers to implement sounder policies, including the fiscal ones (Persson et al., 1997). This is also in line with the observation that when checks and balances perform in the appropriate way, they can help to moderate the political business cycle, and the suitable way is usually defined as the situation in which the legislative power is not aligned with the executive power (Streb et al., 2009). On the other hand, there is also some evidence that a larger number of veto players that lack ideological cohesion might not necessarily result in better fiscal outcomes, being associated with more fiscal instability and, ultimately, with higher public deficits (e.g., Tsebelis, 1995).

On the other hand, the cabinet composition (*gov_party*), reflecting the ideology of the ruling party, does not affect the pro-cyclicality

[25] This result cannot be directly inferred from Table 3. We run specific regressions where *FRI_DEBT* has been examined considering positive and negative values of the *OGmatched*, separately. The estimated coefficients on *FRI_DEBT* are basically the same under both scenarios. This confirms the a-cyclical nature of the *FRI_DEBT* variable in our case.

[26] The countries are: Slovenia 2007; Cyprus and Malta, 2008; Slovakia 2009; Estonia 2011; Latvia 2014; Lithuania 2015. For each country, the dummy *Late entry EMU* is equal to 1 starting from the year they join the monetary union. The EMU comes into existence in Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Portugal and Spain in 1999 and in Greece in 2001. These countries have been considered as a uniform group of core countries.

of the budget balance. Such lack of impact does not support the prediction that more polarized countries are likely to run more procyclical fiscal policy as in Woo (2009). However, it should be noted that his time span and country sample are different with respect to ours (i.e. he focuses on a large sample including also developing countries observed over the period 1960–2003), and that he measures polarization of preferences through income and educational inequality.

Furthermore, neither the electoral fractionalization (*rae_ele*) nor the legislative fractionalization (*rae_leg*) have a statistically significant impact on fiscal outcomes. This result could be interpreted in line with the empirical studies in the common pool literature finding an ambiguous relationship between the number of players (as proxied by different variables such as the power of dispersion, the cabinet size, and others) and the fiscal outcomes, including the degree of fiscal procyclicality because it would depend on the utility functional shape (Volkerink and De Haan, 2001; Perotti and Kontopoulos, 2002; Lane, 2003). Likewise, neither a federalist (*fed*) nor a bicameral structure (*bic*) can counteract the estimated pro-cyclicality. Again, under any circumstances political variables are not able to remove and influence the procyclicality of the fiscal policy, as the sign of *OG* remains stable across regressions.

When the interactions between fiscal rules and the output gap and forecast values of the output gap are included, they do not affect (and they are not affected by) the impact of political variables; this is true regardless of the estimator used as shown in columns (8), (9), (11) and (12).

4.4.1. Interaction models: politics and output gap

At this point, an issue to be addressed is whether the impact of the output gap on *CAPB* could be either strengthened or weakened by its interaction with political variables. Operationally, this means to test whether the effect of an interaction between the output gap and the political variables is statistically different from zero. For that purpose, starting from the result in column (7) of Table 4, we present Table 5 where we estimate three different regressions with an interaction term between output gap and *gov_chan*, *allhouse*, *checks,* used one at a time, in columns (1) to (3). In column (4), all the interactions are considered at the same time.

Concerning the interaction variable *OGmatched_gov_chan* in column (1), its estimated coefficient is not statistically significant, suggesting that the response of the *CAPB* to the economic cycle is not significantly different if the number of government changes per year is low or high. Differently, columns (2) and (3) reveal that the output gap may have a different impact on *CAPB* depending on the position of *allhouse* and of *checks*. In particular, the negative sign associated with the interaction with *allhouse* means that the control of the Parliament by part of the government may exacerbate fiscal procyclicality. On the other hand, the positive sign associated with the interaction with *checks* would mitigate procyclicality. In other words, fiscal procyclicality would be less intense where the system of checks and balance is more powerful.[27] However, the previous results do not appear satisfactorily stable, as when all the interactions are included in the regression as shown in column (4), where the statistical significance – at least at 5 per cent – is lost.

When using an Arellano-Bond estimator in columns (5) to (8), the role of political variables is even weaker. When adding each interaction separately in columns (5) to (7), the same political variables appear statistically significant with the same sign as with the GLS estimator. The only notable difference is that when including all interactions together in column (8), *allhouse* and *checks* significantly interact with the output gap in the same direction as explained above. Overall, this set of information seems to return sufficiently unstable results on the political side, leaving fiscal procyclicality basically unaffected.

5. Concluding remarks

The main result of our contribution is that the procyclicality of fiscal policy is not significantly affected by political variables in our sample. We have shown that many institutional and structural political variables cannot affect the fundamental procyclical relationship between the level of the output gap and the changes in the cyclically adjusted primary balance.

Our idea – which has been largely confirmed by the empirical results – provides an interpretation of the increasingly tightening European public finance rules as a supranational mechanism that has become able to shape the discretionary - and in some cases, weaken the automatic - fiscal policies of euro area countries. Accordingly, one might conclude that fiscal rules are prominent in shaping public budget, while politics does not play any further role once fiscal rules are approved and shared at a supranational level.

In fact, the European fiscal framework is currently under scrutiny in order to check its consistency and flexibility with respect to the need to redesign fiscal rules among the possible budgetary institutions aimed at ensuring fiscal sustainability in the EU (Eyraud and Wu, 2015; European Fiscal Board, 2019; Blanchard et al., 2021; Afonso et al., 2022).

Declaration of competing interest

The authors declare that they do not have any conflict of interests.

Data availability

Data will be made available on request.

[27] To some extent, the power of checks and balances here identified may be in line with the general argument that at least constitutional checks and balances on the power of Parliament may favour a well-functioning economic system. For an application to the US, see La Porta et al. (2003).

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ejpoleco.2023.102435.

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