The cyclically-adjusted primary balance: A novel approach for the Euro area

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(Very preliminary draft. Please do not quote)

Abstract

This paper presents novel estimates for the cyclically adjusted primary balance, based on quarterly basis data, for 19 member states in the Euro area in order to assess the fiscal policy stance pursued by them during years 1999-2017. We improve the methodology adopted by the European Commission by using data at higher frequency than the annual basis to deepen the relationship between budgetary policy and the economic cycle. We also consider two sub-periods in order to better characterize the discretionary fiscal policy of Euro area countries before and after the recent economic crisis. We find that, even though the budgetary policy of most European countries can be qualified as countercyclical, this outcome has weakened by the discretionary policies of many governments, especially after the crisis. The comparison with the pre-crisis period strengthens this finding. Overall, discretionary fiscal policy has failed its expansionary role in the most severe phases of the crisis, reducing the impact of the public intervention in the economic system.

Keywords: cyclically-adjusted primary balance, business cycle, fiscal policy, economic crisis.

JEL Classification: H30; H61; H62; E62

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1. Introduction

With the intergovernmental treaty namely The Treaty on Stability, Coordination and Governance in the Economic and Monetary Union (TSCG) - or more plainly the Fiscal Stability Treaty -, the adoption of a 'balanced budget rule' was required at a constitutional level in all member states of the European Union (EU), except the Czech Republic and the United Kingdom.[1] Starting from 2013, this new rule was aimed at affecting the budgetary policies of all signatory countries after the recent economic crisis in order to strengthening fiscal discipline and alleviating the tension of financial markets. In any case, it is worth noting that this fiscal tightening is part of a broader path started with the Maastricht Treaty.

From a theoretical point of view, it contains some room of flexibility because it expresses the balanced balance in structural terms. Indeed, by definition, the nominal/actual budget balance has a pro-cyclical nature, which means that a reduction in public revenue must be necessarily accompanied by a reduction in public expenditures; thus, it does not allow fiscal policies to counteract recessionary periods as instead invoked by the classical stabilization function of the public sector (Musgrave, 1959). Put differently, the nominal budget balance is affected by all changes in output – even those not attributable to government decisions – and by both transitory and permanent factors.[2] On the other hand, the structural budget balance allows to better define expansionary or contractionary fiscal policy, as it is a budgetary indicator independent of the economic

[1] According to the 'balanced budget rule' national budget has to be in balance (or surplus). More precisely, the structural budget balance should not exceed a country-specific Medium-Term budgetary Objective (MTO), which at most can be set to 0.5% of Gross Domestic Product (GDP) for member states with a debt-to-GDP ratio exceeding 60% (or at most 1.0% of GDP for states with debt levels within the 60% threshold).

[2] The former includes the effects temporary of GDP cyclical fluctuations on revenues and expenditures. The latter refers to the macroeconomic and institutional variables affecting permanently the budgetary items.

cycle (Blanchard, 1990; Chouraqui et. al., 1990; Larch and Turrini, 2010).[3] Since the structural balance is the actual balance adjusted for the effects of the economic cycle (and of one-off and temporary measures causing transitory effects on the budget), it is able to capture when the budget tends to improve due to booms and when it worsens due to bust periods.[4] In this perspective, the possibility of implementing expansionary fiscal policies in an anticyclical way would seem to remain intact, that is automatic stabilizers can operate even in reasonably deep recessions (Claeys et al., 2016), albeit in smaller amount after the severity of the Great Recession recently experienced.

However, the method for calculating the structural budget balance adopted by the European Commission (D'Auria et al., 2010; Mourre et al., 2013; Mourre et al., 2014) might undermine the theoretical validity of the aforementioned reasoning and, more importantly, hinder the anticyclical effects of budgetary policies in the most serious phases of the economic crisis. As highlighted by Fantacone et al. (2015), this methodology can determine unexpected consequences as, in order to comply with the European budget rules, a country could be forced to react with a restrictive budgetary policy while experiencing a recessionary phase of the economic cycle. The crucial point of this vicious circle consists, firstly, in the estimation of potential GDP by using a production function, where the potential contribution of labour depends on the unemployment rate compatible with stable wage inflation, NAWRU (Larch e Turrini,

[3] As we will see later, the cyclically-adjusted budget balance has played different roles. In particular, within the economic literature, it is possible to identify two main functions: on the one side, that of measure of fiscal sustainability; on the other hand, that of measure of *ex-post* discretionary budgetary changes implemented by fiscal authorities. In this regard, it is interesting to underline that when the cyclically-adjusted budget balance is used as an indicator of fiscal sustainability of a country, we can also qualify it as structural budget balance. In our analysis, we will refer to it in relation to the second meaning. In any case, the two definitions will be used as synonymous.

[4] The most important item of the structural budget is the parameter that summarizes the sensitivity of the public budget to the cyclical fluctuations of the actual GDP with respect to the potential GDP (where the difference between actual and potential GDP is the output gap), i.e. the cyclical component of government budget.

2010). Secondly, the decision of estimating the NAWRU through a methodology that does not guarantee its stability but a strong variability over time is also questionable. In particular, this methodology creates a close relationship between the estimated NAWRU and the oscillations of the economic cycle. Faced with these problems, the European Commission has recently partially revised the method for calculating the structural balance (Havik et al., 2014), succeeding in loosening the aforementioned link between the NAWRU estimate and the actual unemployment rate only in some Eurozone countries, leaving it in fact unchanged in others (Carnazza, 2018a). In other words, the detected critical issues continue to exist.

Our paper tries to fill this gap. From an empirical point of view, our decision to use the primary balance[5] adjusted for the economic cycle has been associated to the use of an alternative methodology that is not affected by the significant dependence among actual unemployment rate, NAWRU and potential GDP (Burnside and Meshcheryakova, 2005a; 2005b).[6] According to this approach, the paper provides a methodological contribution by showing new estimates of the primary budget balance adjusted for the economic cycle during the period 1999-2017 based on quarterly data from Eurostat for 19 European countries. As opposed to annual European Commission estimates, the high frequency of our estimates permits to deepen the relationship between fiscal policy and economic cycle. In particular, we define the actual trend of budgetary policy as well as its values corrected for the economic cycle, highlighting potential differences between

[5] Interest expenditure has not been included in the correction of the budget balance for the economic cycle, as it has been interpreted as a residual part of the budget, that is a part which is not directly taken into consideration in the formulation of economic policies by the government as a voice not directly controllable. Since we are interested mainly in the real fiscal policy attitude of public decision-makers, it has been natural to focus on the evolution of the primary budget balance.

[6] In detail, we refer to their analysis for the Mexican case where they estimate the cyclically-adjusted primary balance in relation to the the period between 1980 and 2003.

the two types of policies. This comparison allows to capture discretionary fiscal policy that goes beyond the role of automatic stabilizers (van den Noord, 2000). In other words, once we neutralize the influences of the economic cycle on the public balance, we will be able to isolate the discretionary component of fiscal policy decisions and their impact on budget balances in relation to the business cycle. The empirical analysis is carried out for two non-overlapping sub-periods (1999-2007 and 2008-2017), in order to study the different fiscal attitude of Euro area member states towards the economic cycle before and after the economic crisis occurred in 2008.[7] This choice has the aim of highlighting possible significant differences before and after the Great depression, with the latter period representing our main interest. In particular, what have been the discretionary fiscal attitude of the Eurozone countries during the crisis? Are there any significant differences with the previous sub-period?

The main finding is that even though the fiscal policy of most countries of the Eurozone can be qualified as countercyclical, accomplishing the traditional stabilization function, this outcome, mainly due to automatic stabilizers, has been weakened by the discretionary policies of governments, especially in the second sub-period. The comparison with the pre-crisis period highlights the relevance of this finding for some countries.

The rest of the paper is organized as follows. Section 2 describes the empirical methodology to estimate the cyclically adjusted budget balance for the EU member states. Section 3 provides and discusses the main results, while some sensitivity checks

[7] Our analysis concerns the euro area. Due to lack of data, it has not been possible to estimate Estonian cyclically-adjusted budget balance.

are included in Section 4. Section 5 briefly concludes and suggests some policy implications.

2. The empirical methodology

The national budget of 19 EU member states has been examined taking into account both the trends and the cyclical components of all the budgetary categories. In particular, we use quarterly data for each item of revenues and expenditures. The first step is to apply a procedure to seasonally adjust data through the TRAMO/SEATS approach.[8] The second step is to convert data in real terms through the use of the GDP deflator (as obtained from the two nominal and real seasonally adjusted GDP series). Finally, data have been decomposed into the trend and cycle components by using the Hodrick-Prescott filter ($\lambda = 1600$) (Hodrick and Prescott, 1997). Hodrick-Prescott decomposition represents the most used approach in the literature and it consists in choosing the values y_t^* that minimize the following quadratic loss objective function:

$$\sum_{t=1}^{T}(y_t - y_t^*)^2 + \lambda \sum_{t=2}^{T-1}[(y_{t+1}^* - y_t^*) - (y_t^* - y_{t-1}^*)]^2 \qquad (1)$$

[8] In relation to the seasonal adjustment, it is possible to divide the literature into two types of approaches: on the one hand, there is a filter-based approach, which is based on the repeated application of a series of linear filters, regardless of the structure probabilistic of the stochastic process that generated the series; on the other, there is a model-based approach, which conceives the series as the finite part of the realization of a stochastic process, whose probabilistic structure is described by an ARIMA (Auto Regressive Integrated Moving Average) model. Currently, the most used seasonal adjustment procedure is the so-called TRAMO / SEATS procedure. In particular, this seasonal adjustment procedure is a model-based approach which consists of two parts: the first part (TRAMO, Time Series Regression with Arima Noise) preliminarily eliminates the deterministic effects from the time series, it interpolates any missing observations and identifies and it estimates the ARIMA model that best fits the data; the second part (SEATS, Signal Extraction in ARIMA Time Series), based on the ARIMA model and the deterministic effects previously identified, carries out the real seasonal adjustment of the historical series. In this context, the identification of the so-called deterministic calendar effects carried out in TRAMO plays an important role as the identification of the ARIMA model requires the historical series to be purely stochastic. Subsequently, these effects are attributed by SEATS to the seasonal component (Bee Dagum and Bianconcini, 2016).

This minimization problem leaves a degree of freedom in relation to the choice of the parameter. In this regard, the Hodrick and Prescott filter establishes a trade-off between the adherence of the trend to the historical series and the regularity of the trend itself: setting λ equal to 0, the trend that minimizes the previous function coincides with the original series ($y_t = y_t^*$); if the parameter assumes values tending to a $+\infty$, the trend tends to take a linear form (Baffigi *et al.*, 2013). The value of λ is arbitrary, although Hodrick and Prescott (1997) provide some motivation for it. In any case, they show that the results deriving from the use of their procedure do not depend significantly on the value of the parameter λ, with the exception of a choice of this parameter with a value tending to infinity.

The importance of studying the cyclically adjusted budget balance stems from the observation that the public budget is systematically affected by the performance of economic activity. In this sense, correcting the balance by the cycle means substantially to exclude the effects of the business cycle from conventional measures of the public budget. In particular, this indicator, by neutralizing the automatic influences of the economic cycle, will allow us to correctly evaluate the fiscal policy setting during two different periods (1999-2007 and 2008-2017). In the following paragraph, we show the main results in relation to the second period in order to focus our attention on the effects of the Great Recession. At the end of the analysis, we will resume our results in a table where the fiscal policy settings of the second period will be compared to those of the first one.

The methodology used (Burnside and Meshcheryakova, 2005a, 2005b) provides for the correct identification of the components of the income statement whose fluctuations

can be considered automatic with respect to the performance of the economic cycle. In particular, it is necessary to include only those items that automatically respond to cyclical fluctuations, neglecting the part of the financial statements that is mainly influenced by the discretionary work of the public decision-maker.[9] To better catch this point, let us consider the following two examples. On the one hand, based on the revenue side of the public budget, taking an indirect tax such as VAT tends to show a natural procyclical trend determined by the fact that its tax base depends fundamentally on the performance of the economic activity itself. On the other hand, looking at the expenditure side, this often includes social and assistance programs, such as unemployment benefits, which respond in a completely automatic manner to the fluctuations of the economic cycle. From a theoretical point of view, it is natural to consider the cyclical movements of these categories of revenues and expenditures as determined by the economic cycle rather than as the cause of the cycle itself.[10]

In this framework, it should be specified that if, on the one hand, it is possible to identify the items that are mainly influenced by the trend of the economic cycle, on the other hand, it is not possible to distinguish the automatic and the discretionary components. What is done, therefore, is to label an item as automatically influenced by most of the output fluctuations, assuming that the discretionary component represents a small part of the total. To this end, we have considered two different orders of

[9] For example, capital taxes and expenditures are considered discretionary due to their nature.

[10] The presence in the public budget of components that respond automatically to fluctuations in the economic cycle leads to greater stability of income around its long-term value. This result derives not from a discretional intervention of policy-makers but simply from the existence of such components in the budget balance. In the post-World War II period, fiscal policy in industrial economies has played the role of cyclical stabilizer (Burnside e Meshcheryakova, 2005b). A fiscal policy designed in this way leads to a strongly procyclical budget balance. In other words, the structure of fiscal policy creates a stimulus to output when the economy moves into recession and it is contractionary when an expansion broadens. This means that a procyclical budget balance corresponds to an anticyclical fiscal policy in terms of economic policy.

information: the quantitative characteristics of the historical series dealt with; a qualitative examination on the economic nature of such series. That the evolution of a balance sheet item is correlated with the cyclical fluctuations of GDP, in fact, does not necessarily denote an automatic response to the economic cycle; on the contrary, given the trend of the cycle, a government may decide discretionary policies on certain categories of income or expenditure. In this sense, introducing some economic considerations will help us to identify, among the items of the financial statements that will be preliminarily correlated with the cycle, only those items that will be characterized by a non-discretionary response to the economic cycle itself.

To this purpose, it is necessary to calculate the elasticity of the cyclical components of revenues and expenditures of the public primary budget with respect to the economic cycle, so as to modify the original data for the comovements between the cyclical component of the output and the different items that automatically respond to cyclical fluctuations. Such elasticities can be estimated through a simple statistical model. In particular, in order to illustrate this method, we consider the case of direct taxes, seasonally adjusted and expressed in real terms, which we indicate with R_{1t}. Then, we indicate the cyclical component of this variable R_{1t}^{c} in the following way:

$$R_{1t}^{c} = R_{1t}/R_{1t}^{*} \tag{2}$$

where R_{1t}^{*} represents the trend component of direct tax revenues. By applying the logarithm form, we get:

$$r_{1t}^{c} = \ln(R_{1t}^{c}) = \ln(R_{1t}) - \ln\,(R_{1t}^{*}) \tag{3}$$

The cyclical elasticity of direct tax with respect to the cyclical component of GDP e_{R1} derives, therefore, from the OLS estimate of the following model:

$$r_{1t}^{c} = e_{R1} y_{t}^{c} + \varepsilon_{t} \tag{4}$$

where r_{1t}^{c} represents the logarithm of the cyclical component of direct taxes, y_{t}^{c} the logarithm of the cyclical component of GDP and ε_{t} the error term of the model.

Once we have identified those items in the public budget that are believed to automatically respond to cyclical fluctuations in output over the period considered and once the elasticity of the cyclical components of these items has been estimated, it is possible to calculate the adjusted primary balance Δ_t^A as follows:

$$\Delta_t^A = \left\{ R_t - \sum_{j=1}^{n} R_{jt}[1 - \exp\,(-\widehat{e_{Rj}}\, y_t^c)] \right\} - \left\{ X_t - \sum_{j=1}^{n} X_{jt}[1 - \exp\,(-\widehat{e_{Xj}}\, y_t^c)] \right\} \tag{5}$$

where R_t represents total revenues, X_t primary expenditure and R_{jt} and X_{jt} the different categories of the revenue and the expenditure side of the public budget.

3. Main results and discussion

Once estimated the cyclically-adjusted primary budget balance of the 19 countries of the Euro area using the methodology described above, it is possible to interpret more accurately the fiscal policy attitude of the governments after the economic crisis as reported in Figure 1. The difference between the primary balance adjusted for the economic cycle and the actual balance, represented by the continuous lines in Figure 1, allows to identify the actual link between fiscal policy and the business cycle.

[Figure 1 about here]

When this difference is positive, it means that fiscal policy has been more restrictive than previously shown by the traditional fiscal indicators. On the other hand, when the difference is negative, the government has implemented a more expansive budget policy than believed. In a recession phase of the economic cycle, in fact, the worsening of the budget balance, which at first glance may lead to a more expansive budgetary stance, is only due to the automatic decrease in revenue. This means that, actually, fiscal policy was less expansionary than initially thought.

As shown in Figure 1, most countries have experienced a more restrictive fiscal policy in the quarters following the 2008 crisis. This is the case, for example, for Austria, Belgium, Finland, France, Italy, Latvia, Lithuania, Netherlands, Poland and Slovakia. Some countries, such as Cyprus, Ireland, Luxembourg, Malta, Portugal and Spain, have not shown a significant discretionary fiscal intervention during the period considered. This is confirmed by the the analysis of the correlation between the two budget balances and the business cycle (Table 1) with the exception of Luxembourg, whose correlation

has been significantly positive but the size of the discretionary intervention has been small.

The relationship between the government intervention and the business cycle can also be seen by another point of view. To better characterize the fiscal policy stance, we try to understand if, and to what extent, the correction for the cycle has affected its dynamics towards the business cycle as reported in Table 1. In detail, if the correlation between the actual primary balance (or the cyclically adjusted primary balance) and the economic cycle is positive, it means that the former has improved in the expansionary phases of the cycle and worsened in the recessive ones, accomplishing the stabilization function tasks from a Keynesian point of view. Accordingly, the budgetary policy can be defined as countercyclical.[11]

[Table 1 about here]

Based on the previous results, we investigate the potential existence of a significant difference in the fiscal policy attitude pursued between the period preceding the 2008 crisis and the subsequent one across EU member states. We start by discussing and paying attention to what has happened during the Great Recession. In particular, in relation to the period following the outbreak of the 2008 crisis, it is possible to identify a significant group of countries (Austria, Belgium, Finland, France, Germany, Italy, Latvia, Lithuania, Luxembourg, Netherlands and Slovakia) whose fiscal policy attitude has been to weaken the original pro-cyclicality of the budget balance. This means that

[11] See footnote 10.

the discretionary intervention of the government has *de facto* neutralized the automatic stabilizers, reducing the impact of the public intervention in the economic system.

When comparing those governments' discretionary interventions with what happened in the previous period, we can note some extremely different outcomes. In particular, we observe how Austria, Finland and Latvia, while continuing to be characterized by a pro-cyclical primary budget balance, have not significantly intervened in weakening the natural anti-cyclical action of their fiscal policy. In turn, the primary budget balance of Belgium, Italy, Lithuania and Slovakia was characterized by substantial acyclicity and the corresponding adjusted value moved substantially in line with the original one. This phenomenon strengthens the previous conclusions about the dynamics highlighted in relation to the period following the 2008 crisis: these countries have changed significantly their attitude towards the fiscal policy trying to weaken the impact of the automatic stabilizers.

On the contrary, comparing the two sub-periods, it is worth noting how France, Germany, Luxembourg and Netherlands have been consistent in terms of fiscal policy intervention, showing the same dynamics without significant differences. In this context, Greece represents an interesting case.

In line with the previous analysis, looking at the second sub-period, there is a group of countries (Cyprus, Ireland, Malta, Portugal and Spain) which have been characterized by an overall acyclicality of fiscal policy. For Cyprus and Spain, this remarks a difference with the previous period: automatic stabilizers have worked more efficiently and the discretionary policies contributed to slightly weaken the countercyclical action of fiscal policy.

4. Sensitivity analysis

Between the end of the Seventies and the beginning of the Eighties, the idea of a fiscal policy aimed at an exclusive goal of managing short-term demand shows some critical issues and the conviction that a country should pay more attention to medium-term implications of public budgets took place. This reorientation of fiscal policy can be attributed both to empirical and theoretical factors (Chouraqui et al., 1990). In any case, it is possible to state that, in this context, the introduction of a cyclically-adjusted measure of the budget balance reflects the need to correctly evaluate the efforts of the various governments in relation to the medium-term fiscal consolidation (Larch and Turrini, 2010). Within the economic literature, it is possible to identify two main functions of this indicator.

First, the cyclically-adjusted budget balance can be used as a sustainability measure. It is believed, in other words, that this indicator can clarify whether a given fiscal policy can be carried out over the years in a sustainable way. The logic behind the use of this indicator is clear: since the cyclical variations of the actual balance balance tend to disappear during the economic cycle, it seems natural to use this indicator to assess the sustainability of a fiscal policy in the long term. If, from a theoretical point of view, the logic underlying the structural balance seems reasonable, from a practical point of view, its use raises many doubts. On the one hand, this indicator does not take into consideration the possibility that the future may diverge from the present. On the other hand, it is the assumption that the evolution of GDP is characterized by cyclical fluctuations around a deterministic trend to represent a troublesome problem. This assumption is not neutral, implying a certain position on what is considered to be the

functioning of an economic system. In this meaning, therefore, the debate about the nature of fluctuations plays a fundamental role.

In relation to the second possible function, the cyclically-adjusted budget balance can be used as a measure of discretionary budgetary changes implemented by fiscal authorities. Declined in this role, this indicator does not seem to show significant conceptual difficulties. In particular, if all that is needed to distinguish between induced and discretionary fiscal policy changes, any benchmark will do (Blanchard, 1990). In the present article, the cyclically-adjusted budget balance has been used in this second declination, and, in order to show its independence to the detrendisation method used and to strengthen the results achieved with the application of the Hodrick-Prescott filter, the analysis will be repeated using three different filters. What we expect is the confirmation of the previous results regardless of the degree of polynomial approximation chosen as benchmark.[12]

5. Conclusions

This paper has estimated the cyclically-adjusted primary budget balance for countries of the Eurozone in the new millennium using quarterly basis budgetary data. We use the cyclically adjusted measure in its function of *ex-post* indicator of discretionary changes of fiscal policy. In other words, the comparison between the actual primary balance and the primary balance adjusted for the cycle has allowed to isolate the impact of discretionary fiscal policies in different countries. We differ from the previous empirical approaches based on the EC definition and methodology at least for two relevant reasons. First, they provide estimates on an annual basis and, therefore, with a too low frequency

[12] For more details, see Carnazza (2018b).

to capture significant reactions of fiscal policy to economic fluctuations. Second, they are characterized by some limits and shortcomings in the evaluation of those estimates.

Our estimation of the cyclically adjusted primary balance provides the opportunity to better characterize the discretionary fiscal policy in two different sub-periods. Especially in relation to the period after the crisis (i.e. 2008-2017), we can qualify the fiscal policy of most European countries as countercyclical, accomplishing the traditional stabilization function. However, this outcome, mostly affected by the role of automatic stabilizers, has been weakened by discretionary government policies. Once we remove the natural impact of the economic cycle on the budget balance, we are able to see how the cyclically adjusted indicator loses its original positive correlation with the business cycle, which means that discretionary policies have weakened the original and automatic countercyclical nature of the budget policy. This result highlights to what extent discretionary fiscal policies has failed to provide their expansionary contribution in the most severe phases of the economic crisis. The comparison with the pre-crisis period also reveals the exceptionality of this phenomenon for some countries, such as Italy, whose primary budget balance and its cyclically adjusted measure have been substantially acyclical.

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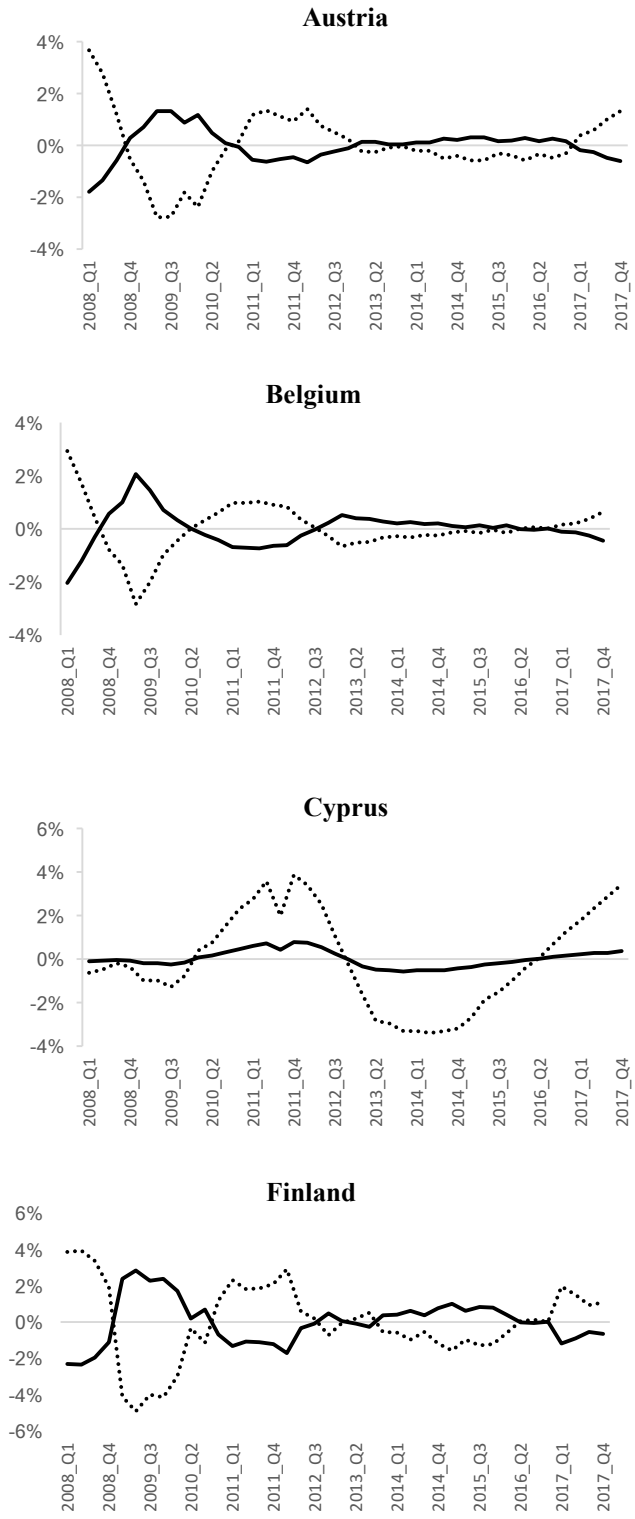
Figures and tables

Figure 1 – *The cyclical adjustment of the primary budget balance (2008-2017)*



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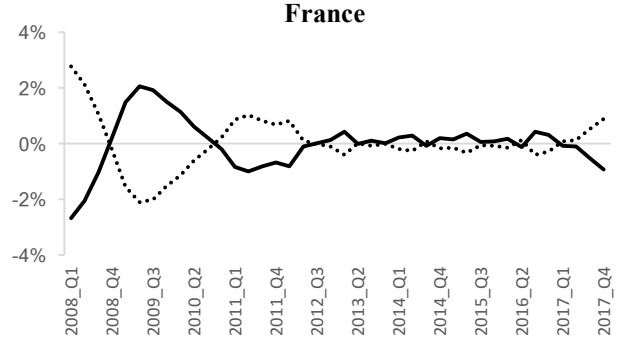

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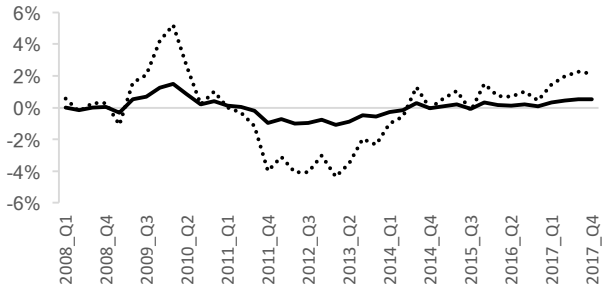

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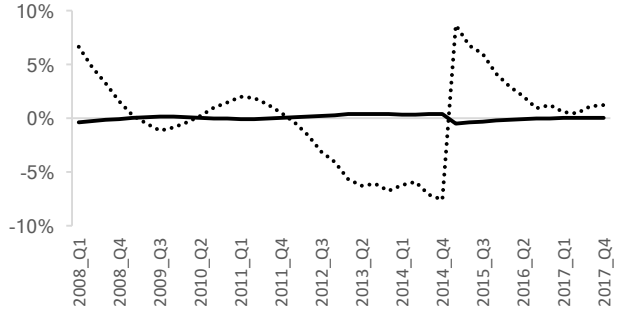
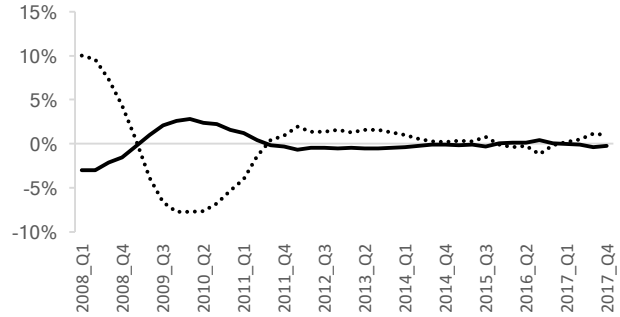
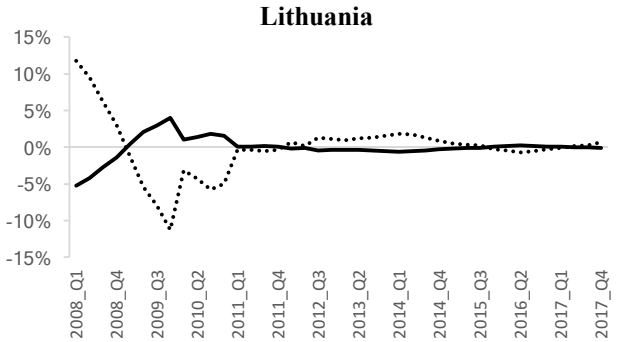


Italy

Latvia



Lithuania



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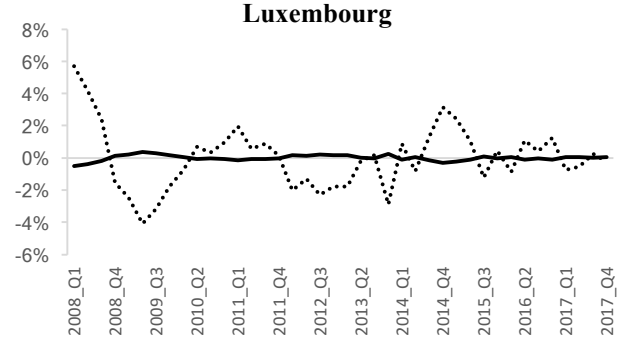

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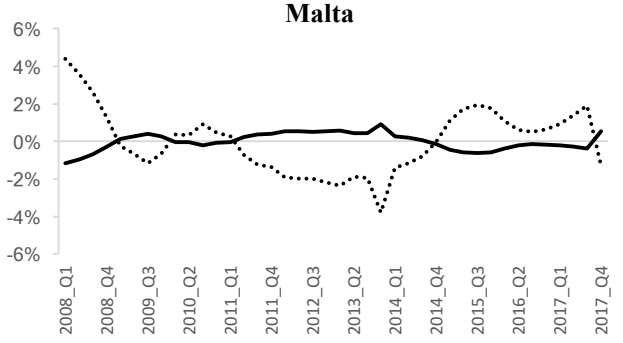

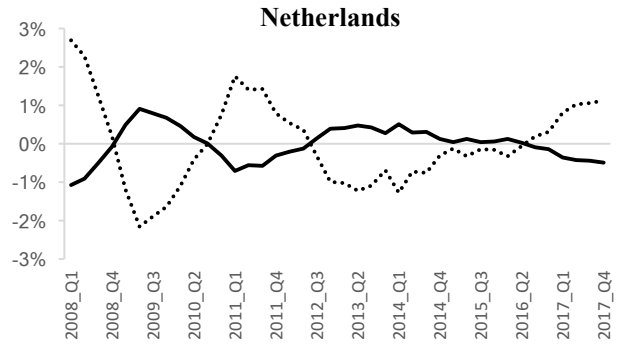
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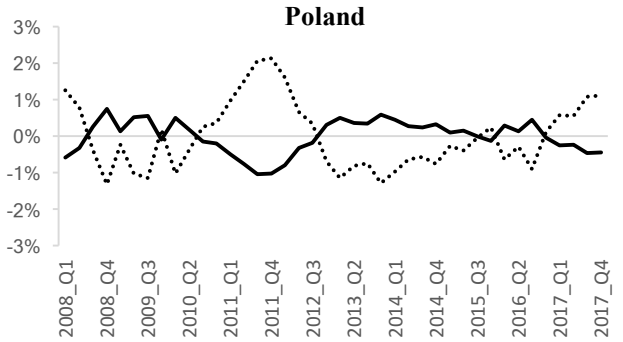
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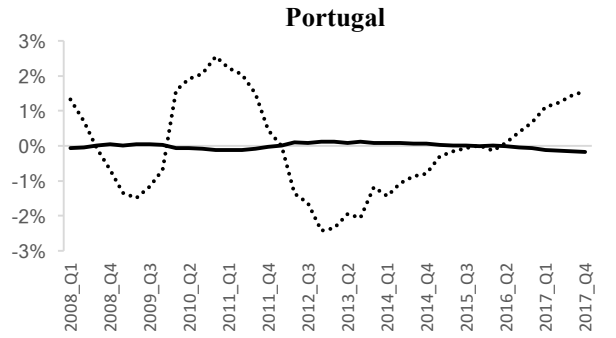
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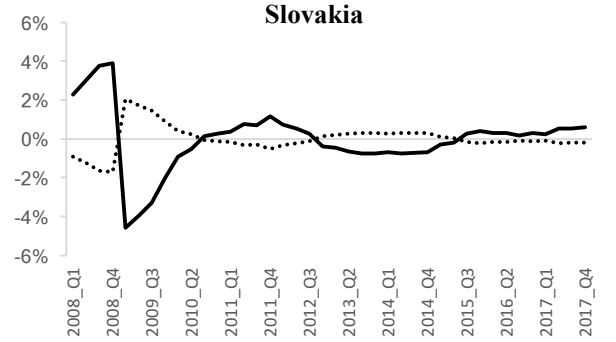
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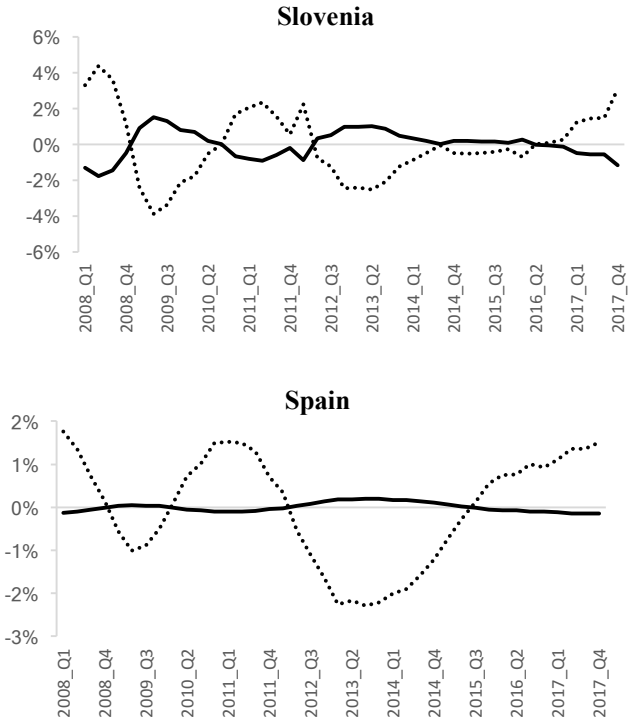

Note: the continuous line represents the difference between the cyclically adjusted primary balance and the primary balance while the dotted line represents the economic cycle. Each series is presented as a percentage of the HP trend of the real GDP.
Source: authors' elaborations on Eurostat data

Table 1 – *Cyclical properties of the primary budget balances (1999-2007; 2008-2017)*

	1999 - 2007		*2008 - 2017*	
	Primary budget balance	**Cyclically-adjusted primary balance**	**Primary budget balance**	**Cyclically-adjusted primary balance**
Austria	0.51***	0.41**	0.57***	0.13
Belgium	0.24	0.06	0.63***	0.14
Cyprus	0.59***	0.25	0.1	0.16
Finland	0.82***	0.36**	0.66***	0.14
France	0.50***	0.1	0.73***	0.12
Germany	0.43**	0.11	0.51***	0.05
Greece	-0.35**	-0.25	0.26	0.34**
Ireland	-0.01	-0.2	-0.06	-0.08
Italy	0.12	0.03	0.38**	-0.04
Latvia	-0.35**	-0.42**	0.38**	0.01
Lithuania	-0.2	-0.07	0.45***	0.05
Luxembourg	0.65***	0.50**	0.41***	0.29*
Malta	0.29	0.01	0.15	-0.07
Netherlands	0.40**	0.15	0.48***	0.30*
Poland	0.27	-0.05	0.18	-0.11
Portugal	0.12	-0.1	-0.15	-0.17
Slovakia	-0.05	-0.09	0.41***	0.13
Slovenia	0.09	0.01	0.25	0.12
Spain	0.33**	-0.06	0.14	0.11

Notes: the correlation with the economic cycle is calculated taking into account the original primary balance and the cyclically adjusted primary balance as a percentage of the HP trend of the real GDP; the economic cycle is expressed in the same way. The significant of the correlation coefficients is indicated by the number of stars, which represent three different levels of significance: 0,01 (***); 0,05 (**); 0,1 (*). The availability of data in some countries is reduced in relation to the first sub-period: Austria (2001-2007); Germany (2002–2007); Ireland (2002–2007); Luxembourg (2002–2007); Malta (2000–2007); Poland (2002–2007). *Source*: Authors' elaborations on Eurostat data