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**Article**

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## Research Article

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# Fiscal Rules in Economic Crisis: The Trade-off Between Consolidation and Recovery, from a European Perspective

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**Abstract:** In this study, we will perform a simulation exercise to investigate whether the use of explicit fiscal rules improves the macroeconomic performance in the economic framework of the European Union (EU), where the fall in income levels occurred very asymmetrically, and this has accentuated the social inequality that existed before the recent crises. To evaluate the performance of fiscal rules, we will allow for a fiscal rule keeping the growth of the public expenditure below the growth of the inflation. This special design of the fiscal rule is a novelty in the European context, although the inflation constraint has been successfully implemented in other countries as, for example, Brazil. As the results, we expect to find that before the financial crisis of 2008, the EU public finances keep relatively stable. However, after the crisis, the budget of the member states suffered a significant deterioration. In addition, therefore, we will discuss to which extent the use of proper fiscal rules could help to rationalize fiscal consolidation efforts.

**Keywords:** fiscal rules, consolidation, crisis

**JEL classification:** F45, H62, H68

## 1 Introduction

Since the 1990s, in parallel with the globalization process, the world economy has faced several economic crises. Among the crisis should be noticed the Mexican peso crisis in 1994–1995, the Asian crisis in 1997, the Brazilian crisis in 1998–1999, the Argentinean crisis in 2001–2002, the 2007–2008 international financial crisis (IFC) and, as a result, the 2009 Great Recession (GR), the Euro crisis in 2011–2012, and, recently, the economic crisis provoked by the COVID-19 pandemic.

The effects of these crises were not neutral in economic and social terms. Moreover, focusing attention on the IFC and, as a consequence, the GR, it is possible to observe that both crises have substantially altered the dynamic process of the international economy and represent a major turning point. Governments of both the G7 countries and the emerging countries have responded to the IFC and GR with massive countercyclical fiscal and monetary policies.

Given that, the purpose of this study is to analyze the macroeconomic policies, more specifically the fiscal policy. Aimed for that, in this study, we will perform a simulation exercise to investigate, in qualitative terms, whether the use of explicit fiscal rules improves the macroeconomic performance in the economic framework of the European Union (EU), where, after the IFC, the GR, and the Euro crisis, the fall in income levels occurred very asymmetrically; and this has accentuated the social inequality that existed before the recent crises.

For some years, among the fiscal consolidation strategies proposed at both the political and academic levels, the use of fiscal policy rules to address high levels of accumulated debt has gained interest. One of the reasons, for fiscal authorities, is to gain a reputation because the fiscal rules, as concrete measures of stabilization policies, are a way to assure credibility (European Central Bank, 2013; Galli & Grembi, 2013, among others). The literature on the usefulness of fiscal rules is extensive.

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The discussion covers areas such as its need (Grembi, Nannicini, & Troiano 2016), the comparison with discretionary fiscal policy (Hallac & Yared, 2014, 2018, 2019), or its importance in federal government structures, which is of great interest in the Eurozone area (Dovis & Kirpalani, 2020). The question of the effectiveness of the fiscal rules is not a consensus in the literature, as highlighted by Grembi *et al.* (2016), because of the problem of commitment and, above all, related to the different structures of public administrations in countries. The authors emphasize the effectiveness of fiscal rules when they are enforced by a national government, and they are included in the national legislation. One of the key points for the success of fiscal policies relies on the design of the rules (Blanchard, Leandro, & Zettelmeyer, 2021; Hallac & Yared, 2021), with special attention to the role played by the composition of expenditure, because its structure is fundamental to assessing the growth constraints that may result from the use of fiscal rules (see Ardanaz, Cavallo, Izquierdo, & Puig, 2019; Asatryan, Castellón, & Stratmann, 2018; Eliason & Lutz, 2018 among others).

In this study, to evaluate the performance of fiscal rules, designed to control excessive government deficits, we will follow a fiscal rule along the lines of Ballabriga & Martínez-Mongay (2003). The rule has been conceived with stabilization purposes, and it is designed in terms of the accumulated debt, and the inertia of the previous deficit. Those elements allow for a smoothed evolution of the fiscal deficit. Our fiscal rule also relates the fiscal deficit with the output growth. In that sense, our rule incorporates a simple mechanism that links the evolution of the government deficit with the economic cycle, allowing for countercyclical fiscal policies.

We use that methodology to perform a counterfactual exercise calculating the figures for fiscal deficit/surplus when fiscal authorities follow an explicit fiscal rule. However, as our first methodological contribution, we will extend the rule by Ballabriga & Martínez-Mongay (2003) allowing for an additional constraint. That is, the fiscal authorities will be also constrained by a fiscal rule keeping the growth of the public expenditure below the growth of the inflation. This special design of the fiscal rule is a novelty in the European context, although the inflation constraint has been successfully implemented in other countries as, for example, Brazil.

Our second methodological contribution would be to explore the outcome of the explicit fiscal policy rule under different scenarios. Thus, we have characterized three different fiscal rules describing three different scenarios depending on the preferences of the fiscal authorities: the austere or disciplined, the symmetric or indifferent,

or the economic growth attitude for promoting a sustainable fiscal adjustment.

The analysis will be done in the EU countries, using data provided by Eurostat, paying special attention to the fiscal performance of the different sets of countries formed by the EU founding members, the Eurozone members, the peripheral EU countries, the Central and Eastern European (CEE) members, and the so-called frugal countries.

As the results we expect to find that before the financial crisis of 2008, the EU public finances keep relatively stable. However, after the crisis, the budget of the member states suffered a significant deterioration. Moreover, in that environment, we will analyze whether the use of proper fiscal rules could help to rationalize fiscal consolidation efforts.

To aim its goal, this study, besides this brief introduction, has three more sections. Section 2 presents, briefly, some considerations of the European Stability and Growth pact. Section 3 shows the performance of fiscal rules during and after the recent crisis. Finally, Section 4 summarizes and concludes.

## 2 The European Stability and Growth Pact (SGP): Some Brief Considerations

According to Arexis and Sawyer (2005, 2017), the main theoretical features of the EU macroeconomic performance can be summarized as follows: (1) Price stability is the monetary policy's long-term primary objective of the common monetary policy (the called *inflation target regime*), (2) the *inflation target regime* is a monetary policy framework whereby public announcement of official inflation targets is required. In this approach, "expected inflation" and the transparency of inflation forecasts are an important element of the policy, (3) fiscal policy is the only independent demand side policy for stabilizing the economy in the member states of the monetary union, and (4) the level of effective demand plays no role in determining the long-term economic activity, and therefore, that adjustment should be determined by the supply side.

Particularly, in the context of the European Monetary Union (EMU), since 1999, the member countries adopted a fiscal policy in accordance with the objectives established by the SGP. In fact, the Maastricht Treaty emphasizes that EMU member states must avoid excessive deficits, and the reference values for the deficit/GDP and debt/GDP ratios have worked in practice as an explicit fiscal rule: a budget

deficit of less than 3.0% of GDP and a government debt, lower than 60.0% of GDP. In addition, the SGP establishes a set of mechanisms for monitoring and supervising the fiscal results, as well as a corrective component for those countries that incur an “excessive deficit,” that is, that did not comply with the implicit fiscal rule.

After the crisis of 2008, each country adopted different tools to stimulate the economy. However, on one hand, the European Central Bank (ECB) launched a series of enhanced credit support measures but on March 2015 changed to a *Quantitative Easing* (QE) policy, which consisted in a large-scale asset purchases to increase liquidity. The expansion of the ECB balance sheet was moderated given the existence of large disparities in the Eurozone countries and in its banking systems, and the lack of a public treasury. On the other hand, the actions of governments focused on the introduction of macroeconomic programs, important structural reforms, and fiscal consolidation (Esteve & Prats, 2015).

As a consequence of the debt crisis in the EMU countries, the SGP has been reformed to promote economic recovery from the supply side, with a strong fiscal restriction leading to a period of austerity (Sawyer, 2015). A new, more restrictive fiscal rule was established, which limits the structural deficit to a maximum of 0.5% of GDP, in the medium term, for countries with debt greater than 60.0% of GDP, and 1.0% for those with debt less than 60.0% of GDP. In addition, countries with the excessive deficit procedure (EDP) must present budget deficit reduction plans and, also, present an economic partnership program, which includes detailed fiscal and structural reforms, such as the pension system, taxes, and social services, to correct their deficits on a lasting basis. These programs will be submitted to the European Commission for their approval and monitoring.

Additional sets of measures have been introduced in the SGP to strengthen the mechanisms of surveillance and supervision, although, above all, the application of the EDP prevails. The so-called Six-Pack (December 2011) is aimed at increasing budgetary surveillance and supervision of the member states and the implementation of the EDP, in addition to a set of specific measures for the countries of the Eurozone (Two Pack, May 2013), with measures aimed to guarantee the correction of excessive deficits and economic and budgetary supervision to the rescued countries.

Besides, the Stability, Coordination and Governance Treaty was signed (January 2013) forcing the countries to introduce in the national legal systems the requirement to have a balanced budget rule (the so-called Fiscal Pact). However, as De Grauwe (2018) analyzes, the fact that the EMU is an incomplete monetary union, without a common financing mechanism, has produced differential interest

rate among the Euro area countries, reflecting the risk differential attributed to the countries.

The dynamic, positive effects of the EMU must be highlighted, reflected in low interest rates in a context of greater inflationary stability and positive expectations. However, in this framework, the fiscal policy of the EMU has been reformed and strengthened by the Stability, Coordination and Governance Treaty. This set of new rules institutionalized the fiscal austerity followed by the countries of the Euro Area after the IFC, making fiscal policy procyclical.

The deepening of the debt crisis in the Euro Area, especially because fiscal austerity has led to the need to bail out Greece, Ireland, Portugal, and Spain, threatening the sustainability of the *euro*. For that reason, the ECB launched in March 2015 a QE monetary policy, with the purchase of public and private assets, acquiring more than 2.6 trillion *euros* until December 2019. That policy was aimed, as emphasized by Arestis & Sawyer (2017), to offer liquidity to the bank sector, to restore confidence to the financial system, and to contain the impact of the crisis on the real economy. Following Arestis (2017), one advantage of the QE is that it makes easier the management of demand policies of the government, in terms of their fiscal policies, because there is a ready buyer of the government debt. Without these facilities, there would be difficulties and may force governments to contain the degree of their fiscal initiatives.<sup>1</sup> Thus, the ECB monetary policy was crucial to reduce financial tensions at the Euro Area level.

In addition, associated with the demands of structural budgetary balance, a series of structural reforms (pensions, collective bargaining, taxes, etc.) were promoted to reduce public spending. In this sense, Eggertsson, Ferrero, & Raffo (2014), Galí (2013) and Krugman (2014) argue that structural reforms (which provoke internal devaluations, as in the case of Spain and other EMU countries) during periods of economic crisis can have a negative effect by increasing real interest rates, further depressing domestic demand and, therefore, production and employment, and especially in countries without the capacity to carry out exchange policy (Galí & Monacelli, 2016). In this line, more recently, Cuestas & Ordóñez (2018) find that the fiscal consolidation in Europe, from 2008 to 2014, contributed to increased unemployment. Some years before, Romer (2012,

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<sup>1</sup> The authors also call the attention to the necessity of a close coordination of monetary and fiscal policies, under the risk of the subordination for monetary policy to fiscal policy and, the ECB independence.

p. 9) had argued “*that immediate severe fiscal austerity is a very bad idea in countries with high unemployment. Even in countries flirting with a crisis, immediately cutting spending and raising taxes in the current situation is very likely to do more harm than good.*”

### 3 The Fiscal Rules and the Responses of the European Countries

In this section, we will follow the approach conducted by Díaz-Roldán, Ferrari-Filho, & Da Silva-Bichara (2019) to analyze the fiscal responses in the EU during the last years. It is important to mention that in the 2019 article, starting from the proposal found in Ballabriga & Martínez-Mongay (2003), it was shown the contribution of fiscal rules to stabilize the Brazilian economy. Thus, Díaz-Roldán *et al.* (2019) proposed a fiscal rule describing how the government deficit objective responds negatively to public debt deviations (in terms of the GDP) respect to its optimal level, to the previous deficit, to the growth rate variations, as well as to the inflation growth rate. The reason to include, in the 2019 article, the inflation growth rate as an argument was to capture the Brazilian government proposal of constraining the growth of government expenditures below the growth of inflation in the new fiscal regime (NFR) of 2016, designed to achieve tight fiscal consolidation. In this fashion, our proposed rule will produce, in a simple way, the deficit that would have been obtained by setting a debt target, as well as establishing a limit (given by the growth of inflation) on public spending.

#### 3.1 The Fiscal Rule

Adapting the methodology of Díaz-Roldán *et al.* (2019) to the European case and assuming the current government deficit adjusts itself with the previous period value, our proposed fiscal rule will be the following:

$$g = -(1 - \rho)\delta(d_{-1} - d^o) + \rho g_{-1} - (1 - \rho)\theta\hat{y}_{-1} + (1 - \rho)\psi\dot{p}_{-1}, \quad (1)$$

where  $g$  is the primary deficit (relative to GDP) that depends on the differential of public debt in the previous period (relative to GDP) in relation to the debt level target,  $(d_{-1} - d^o)$ , on the lagged primary deficit, on the lagged growth rate of GDP,  $\hat{y}$ , and also on the lagged inflation rate,  $\dot{p}$ , that

captures the inertia of the previous period, and allows for a smoothed evolution of the fiscal deficit.

Being  $\rho$  the smoothing parameter that ranks from zero to one,  $0 \leq \rho \leq 1$ , and given that  $(1 - \rho) + \rho = 1$ , therefore  $\rho < 1$ . In addition, where  $\delta$ ,  $\theta$ , and  $\psi$  represent the proportions in which the primary deficit responds to the changes of the variables.

Moreover, we will also propose different fiscal scenarios depending on the preferences of the fiscal authorities: (1) the “disciplined” or austere scenario that would characterize debt aversion preferences by giving values as  $\delta = \rho = 0.75$  and  $\theta = (1 - \rho) = 0.25$ , (2) the “symmetrical” scenario, in which  $\delta = \rho = \theta = (1 - \rho) = 0.5$ , and (3) the “growth promoting” scenario, in which  $\delta = \rho = 0.25$  and  $\theta = (1 - \rho) = 0.75$ .<sup>2</sup>

As is well known, in EMU the Maastricht Treaty stressed as basic that the member states of EMU should avoid excessive deficits, no more than 3% of GDP, and the government debt should not exceed the 60% of GDP. Those reference values for deficit-to-GDP and debt-to-GDP ratios have worked in practice as an explicit fiscal rule. According to those requirements, we will use the figure of 60%, as the value for the government debt target in our simulations applied to the European countries. Therefore, the fiscal rules for the cases detailed above will be as follows:

(i) “Disciplined” scenario:

$$g = -0.1875(d_{-1} - 60) + 0.75g_{-1} - 0.0625\hat{y}_{-1} + 0.25\dot{p}_{-1}. \quad (2)$$

(ii) “Symmetrical” scenario:

$$g = -0.25(d_{-1} - 60) + 0.5g_{-1} - 0.25\hat{y}_{-1} + 0.5\dot{p}_{-1}. \quad (3)$$

(iii) “Growth promoting” scenario:

$$g = -0.1875(d_{-1} - 60) + 0.25g_{-1} - 0.5625\hat{y}_{-1} + 0.75\dot{p}_{-1}. \quad (4)$$

#### 3.2 The Data Set and the Groups of Countries

To highlight the consequences of the diversity of economic frameworks among EU members, in this study, we will perform our empirical application for six sets of

<sup>2</sup> We have performed the simulation of the proposed rules to obtain qualitative results. Following the Taylor rule, where the weights of each target are 0.5 (the monetary authority is equally concerned about the two goals), in our proposed “symmetrical” rule, the weights are 0.5. For characterizing a “disciplined” scenario, the weight is bigger for the lagged deficit (0.75) than for the lagged growth rate (0.25), and the opposite holds for the “growth promoting” scenario.

European countries. The data have been extracted from Eurostat, and the period covers the years from 1999, the starting of the euro, to 2019, the last in which there are available data. The government deficit (−)/surplus (+) is defined as the difference between the revenue and the expenditure of the general government sector. The debt corresponds to the general government consolidated gross debt as percentage of GDP. The GDP, at market prices is measured as the percentage change on previous period of the chain linked volumes. Finally, the data on inflation correspond to the annual average rate of change of the harmonized index of consumer prices (2015 = 100).

The sets of countries are the following: the whole EU-27, the CORE, the Eurozone, the peripheral, the Eastern countries and the frugal countries. The second group is formed by five of the six founding states of the current EU, namely Belgium, France, Germany, Luxembourg, and the Netherlands. Those countries, known as the CORE of the EU, have shown relatively sustainable macroeconomic results after the recent crisis (Ahlborn & Wortmann, 2017).

The third group will be the Eurozone-19 countries: Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia, and Spain.

Nevertheless, among the current 19 countries of the Eurozone, some of them exhibit both high national budget deficits relative to GDP, and rising government debt levels: namely Greece, Italy, Portugal, and Spain. Those are the southern and peripheral European countries, and they have been grouped as GIPS; although in 2008, it became GIIPS when Ireland was added after her banking crisis. For highlighting the relevance of high government deficits and debt level, for the recovery after the crisis, the peripheral European countries (GIIPS) will be our fourth group of analysis.

Our fifth set of countries will be constituted by the EU countries belonging to the CEE countries. Those countries, grouping the former socialist countries of Europe, experienced significant growth after their accession to the EU, which led to a high potential for convergence with their Western EU partners, although the fiscal consolidation required for recovering would mean a brake on their process of growth and convergence. For a deeper analysis, we have also split the countries according to their belonging to the Eurozone. The CEE countries belonging to Eurozone are as follows: Estonia, Latvia, Lithuania, Slovak Republic, and Slovenia, and the CEE countries not belonging to Eurozone are as follows: Bulgaria, Czech Republic, Hungary, Poland, and Romania.

Finally, we will also consider as the sixth group the one formed by the most fiscally conservative European countries: Austria, Denmark, the Netherlands, and Sweden. They are

called the frugal four as they promote tight fiscal policies, and they are reluctant to a large distributive European budget based on the average debt level (Debomy, 2020).

### 3.3 The Empirical Application

Using these figures, in Table 1, we show the deficit generated by the fiscal rule given by equation (1), according to the proposed scenarios, in the different sets of European countries. Regarding the inflation constraint, we have allowed for a fully indexation of the government deficit, choosing  $\psi = 1$ , which implies that the deficit growth is the maximum allowed by the Brazilian rule of 2016. Figures 1 and 2 show the paths of the actual deficit and the deficit calculated from the proposed rules for the different sets of the EU countries.

Aimed to evaluate the usefulness of the inflation growth rate constraint (as in the Brazilian NFR of 2016) fiscal rule, we have also computed the deficit generated by the equation (1) assuming that there is not an inflation constraint. In other words, we have repeated the previous calculations for  $\psi = 0$ . Results are shown in Table 2, and Figures 1 and 2.

Looking at the tables and the figures, we find that the use of our proposed fiscal rules would not be advisable in all the European countries' sets. For the EU, as whole, the proposed fiscal rules proved to be useful only before the Euro crisis in 2011–2012 (see Figures 1.1 and 2.1). Since the adoption of the SGP, the member states of the EMU had committed themselves to reach a medium-term budgetary position closest to balance avoiding excessive deficits, and the reference values for deficit-to-GDP and debt-to-GDP ratios, stressed in the Maastricht Treaty had worked in practice as an explicit fiscal rule. However, according to our results, any of our proposed rules would have worked better, being the “growth promoting” rule the best one. Furthermore, when the fiscal rule includes an inflation ceiling as the 2016 Brazilian fiscal rule does ( $\psi = 1$  in terms of our fiscal rule), the rule augmented with the inflation constraint contributes to increase the government surplus, improving the net lending position of public accounts (Figure 1.1).

The mentioned above European commitments seemed to work for EU until 2011. However, after that year, EU turned to be net borrowing, and none of the explicit fiscal rules proposed in this study would have contributed to fiscal consolidation. After the crisis, the EU public debt experimented a noticeable increase exceeding the limit of 60%. Moreover, at the European level, after the reform of the SGP, as it is shown before, the new pact for the Euro was signed in 2011, pointed out as an essential need that

**Table 1A:** Government deficit (−)/surplus (+), 2000–2009,  $\psi = 1$ 

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
<b>EU27</b>										
Def	−1.20	−1.90	−2.70	−3.10	−2.70	−2.30	−1.40	−0.50	−2.00	−6.00
FR <sub>d</sub>	0.82	1.30	0.94	0.43	0.07	0.38	0.90	1.90	2.99	1.92
FR <sub>s</sub>	1.56	1.91	2.07	1.73	1.45	1.47	2.05	2.74	3.76	3.95
FR <sub>g</sub>	0.81	0.64	1.49	1.21	1.03	0.56	1.14	1.13	1.82	4.11
<b>CORE</b>										
Def	0.74	0.18	−1.44	−2.48	−2.06	−2.00	−0.38	0.42	−0.16	−4.22
FR <sub>d</sub>	−0.19	1.35	1.39	0.06	−0.93	−0.67	−0.58	0.91	1.79	0.78
FR <sub>s</sub>	−0.77	1.07	1.89	0.94	0.22	0.05	0.28	1.18	1.80	1.59
FR <sub>g</sub>	−1.84	−0.11	1.70	1.19	0.97	0.10	0.58	0.41	0.45	2.28
<b>Euro19</b>										
Def	−1.30	−2.00	−2.70	−3.10	−2.90	−2.60	−1.50	−0.60	−2.20	−6.20
FR <sub>d</sub>	−2.90	−2.01	−2.35	−3.01	−3.57	−3.55	−3.46	−2.28	−1.18	−2.27
FR <sub>s</sub>	−3.29	−2.17	−2.08	−2.70	−3.26	−3.49	−3.52	−2.64	−1.71	−1.22
FR <sub>g</sub>	−2.66	−1.78	−1.20	−1.77	−2.17	−2.72	−2.77	−2.59	−2.17	0.96
<b>GIIPS</b>										
Def	−1.20	−2.60	−2.60	−3.36	−3.46	−2.72	−1.76	−1.74	−5.62	−11.06
FR <sub>d</sub>	−3.83	−2.71	−3.60	−3.20	−3.65	−3.99	−3.57	−2.56	−2.33	−6.03
FR <sub>s</sub>	−4.71	−3.32	−3.50	−2.80	13.01	−3.76	−3.34	−2.65	−2.34	−4.49
FR <sub>g</sub>	−4.31	−3.01	−2.31	−1.41	−1.42	−2.76	−2.03	−2.02	−1.77	−1.01

Source: Own elaboration based on data taken from Eurostat.

Note: Def refers to government deficit (−) or surplus (+), as percentage of GDP, defined as the difference between the revenue and the expenditure of the general government sector. Moreover, FR<sub>d</sub>, FR<sub>s</sub>, and FR<sub>g</sub> stand for the deficit outcomes of the disciplined, symmetric, and growth promoting fiscal rules, respectively.

member states should implement in national laws the budget rules established in the SGP. In this new scenario, the imposed limits on the structural deficit of 0.5% of GDP

for countries with debt greater than 60.0% of GDP, and 1.0% for those with debt less than 60.0% of GDP have worked better than our proposed rules.

**Table 1B:** Government deficit (−)/surplus (+), 2010–2019,  $\psi = 1$ 

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<b>EU27</b>										
Def	−6.00	−4.10	−3.60	−2.90	−2.40	−1.90	−1.40	−0.80	−0.40	−0.50
FR <sub>d</sub>	−2.99	−4.19	−3.36	−3.63	−4.10	−4.24	−3.67	−3.06	−1.78	−1.05
FR <sub>s</sub>	0.09	−2.52	−2.20	−2.56	−3.84	−4.73	−4.55	−3.79	−2.33	−1.44
FR <sub>g</sub>	3.21	−0.98	−0.64	−0.39	−2.14	−3.86	−4.54	−3.61	−2.44	−1.57
<b>CORE</b>										
Def	−4.18	−2.82	−2.54	−1.84	−1.44	−1.14	−0.58	0.06	0.64	0.14
FR <sub>d</sub>	−3.96	−4.66	−3.48	−3.70	−3.63	−3.62	−3.15	−2.48	−1.34	−0.40
FR <sub>s</sub>	−2.50	−4.34	−3.15	−3.24	−3.82	−4.36	−3.94	−3.32	−1.91	−0.86
FR <sub>g</sub>	0.15	−3.21	−1.82	−1.16	−2.41	−3.66	−3.50	−3.07	−1.64	−0.77
<b>Euro19</b>										
Def	−6.30	−4.20	−3.70	−3.00	−2.50	−2.00	−1.50	−0.90	−0.50	−0.60
FR <sub>d</sub>	−7.86	−9.30	−7.68	−7.83	−8.07	−8.08	−7.54	−6.88	−5.69	−4.99
FR <sub>s</sub>	−6.26	−9.30	−7.91	−8.08	−9.09	−9.83	−9.69	−8.82	−7.48	−6.66
FR <sub>g</sub>	−1.40	−6.31	−4.87	−4.45	−6.07	−7.75	−8.44	−7.31	−6.27	−5.50
<b>GIIPS</b>										
Def	−13.70	−8.86	−7.38	−6.88	−4.70	−3.98	−1.76	−1.60	−0.78	−0.48
FR <sub>d</sub>	−13.54	−17.87	−16.70	−16.89	−18.38	−16.99	−15.41	−13.43	−12.56	−11.85
FR <sub>s</sub>	−11.83	−16.71	−17.00	−17.88	−20.79	−20.73	−19.64	−17.29	−16.35	−15.77
FR <sub>g</sub>	−5.92	−10.20	−9.76	−10.35	−14.11	−15.92	−16.65	−13.33	−12.99	−12.52

Source: see Table 1A.

Note: see Table 1A.

**Table 1C:** Government deficit (−)/surplus (+), 2000–2009,  $\psi = 1$ 

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
<b>CEE</b>										
Def	−3.79	−3.39	−3.75	−2.87	−1.77	−1.84	−1.80	−1.00	−2.71	−6.54
FR <sub>d</sub>	4.78	4.86	4.57	3.62	3.98	5.33	5.39	5.59	6.77	6.25
FR <sub>s</sub>	9.52	9.44	8.51	6.78	6.51	7.82	7.72	7.82	9.21	10.62
FR <sub>g</sub>	10.71	9.95	8.44	5.74	4.73	5.70	5.15	4.89	6.32	10.41
<b>CEEe</b>										
Def	−4.44	−3.38	−2.88	−1.36	−0.88	−0.78	−0.54	−0.16	−2.78	−6.96
FR <sub>d</sub>	5.13	4.66	5.22	5.32	6.52	7.26	7.56	8.03	8.92	8.14
FR <sub>s</sub>	9.39	8.59	8.65	8.14	8.78	9.79	9.82	10.26	11.36	13.68
FR <sub>g</sub>	8.80	7.32	6.92	5.58	5.41	6.70	6.01	6.13	7.18	13.84
<b>CEEne</b>										
Def	−3.14	−3.40	−4.62	−4.38	−2.66	−2.90	−3.06	−1.84	−2.64	−6.12
FR <sub>d</sub>	4.43	5.05	3.92	1.92	1.44	3.40	3.22	3.15	4.62	4.35
FR <sub>s</sub>	9.64	10.30	8.38	5.43	4.25	5.85	5.61	5.39	7.05	7.56
FR <sub>g</sub>	12.62	12.58	9.96	5.91	4.05	4.69	4.29	3.65	5.46	6.97
<b>Frugal</b>										
Def	0.95	0.33	−1.23	−1.55	−1.05	0.98	1.20	1.70	0.95	−3.48
FR <sub>d</sub>	0.01	1.88	2.03	0.83	0.61	0.85	2.63	3.53	4.63	3.59
FR <sub>s</sub>	−0.33	1.71	2.81	1.94	1.75	1.39	2.88	3.73	5.13	4.71
FR <sub>g</sub>	−1.22	0.44	2.69	2.10	1.88	0.58	1.72	1.80	3.20	4.31

Source: see Table 1A.

Note: see Table 1A.

When looking at the CORE countries' fiscal performance (showed in Figures 1.2 and 2.2), we find similar results to those obtained from the EU. Our proposed fiscal rules prove to be useful only before the Euro

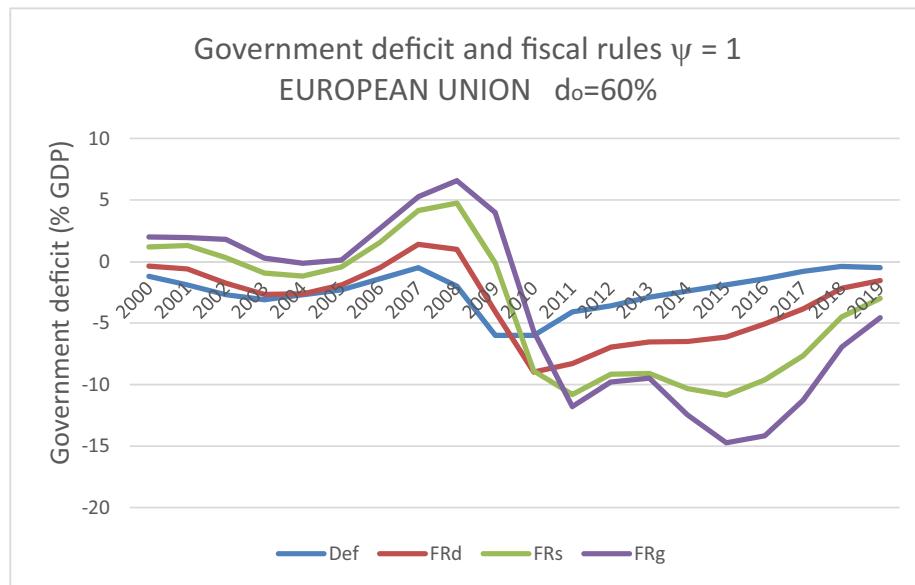
crisis, and the “best” rule is the “growth promoting” one. The reason seems to be again the great increase of the public debt above the 60% and the low GDP growth rates.

**Table 1D:** Government deficit (−)/surplus (+), 2010–2019,  $\psi = 1$ 

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<b>CEE</b>										
Def	−5.44	−4.31	−2.72	−3.18	−2.52	−1.46	−1.05	−0.59	−0.33	−0.61
FR <sub>d</sub>	1.09	0.44	1.25	1.98	0.79	0.56	1.33	1.76	3.00	3.77
FR <sub>s</sub>	6.39	3.51	3.86	4.39	2.66	1.57	1.86	2.37	3.90	4.91
FR <sub>g</sub>	9.36	3.76	3.52	4.49	2.44	0.50	0.13	0.77	2.10	3.11
<b>CEEe</b>										
Def	−5.68	−4.56	−2.64	−4.22	−2.02	−1.42	−0.90	−0.40	−0.20	−0.22
FR <sub>d</sub>	1.85	0.80	1.89	2.56	0.38	1.16	1.52	2.17	3.37	4.02
FR <sub>s</sub>	8.14	3.85	4.66	4.92	2.65	2.18	2.20	2.93	4.44	5.21
FR <sub>g</sub>	11.92	3.47	3.77	4.45	2.58	1.04	0.60	1.37	2.81	3.36
<b>CEEne</b>										
Def	−5.20	−4.06	−2.80	−2.14	−3.02	−1.50	−1.20	−0.78	−0.46	−1.00
FR <sub>d</sub>	0.33	0.09	0.61	1.41	1.19	−0.04	1.13	1.35	2.63	3.51
FR <sub>s</sub>	4.64	3.18	3.05	3.86	2.68	0.95	1.52	1.81	3.36	4.62
FR <sub>g</sub>	6.81	4.06	3.28	4.53	2.30	−0.04	−0.34	0.17	1.38	2.86
<b>Frugal</b>										
Def	−3.08	−2.33	−2.65	−1.88	−1.33	−1.05	−0.10	0.93	0.78	1.68
FR <sub>d</sub>	−1.03	−1.25	−0.66	−0.99	−0.77	−1.00	−0.50	0.65	2.25	2.75
FR <sub>s</sub>	1.24	−0.31	0.34	0.39	0.06	−0.84	−0.47	0.62	2.36	3.16
FR <sub>g</sub>	3.34	−0.25	0.66	1.51	0.62	−0.84	−0.96	−0.21	1.26	2.01

Source: see Table 1A.

Note: see Table 1A.



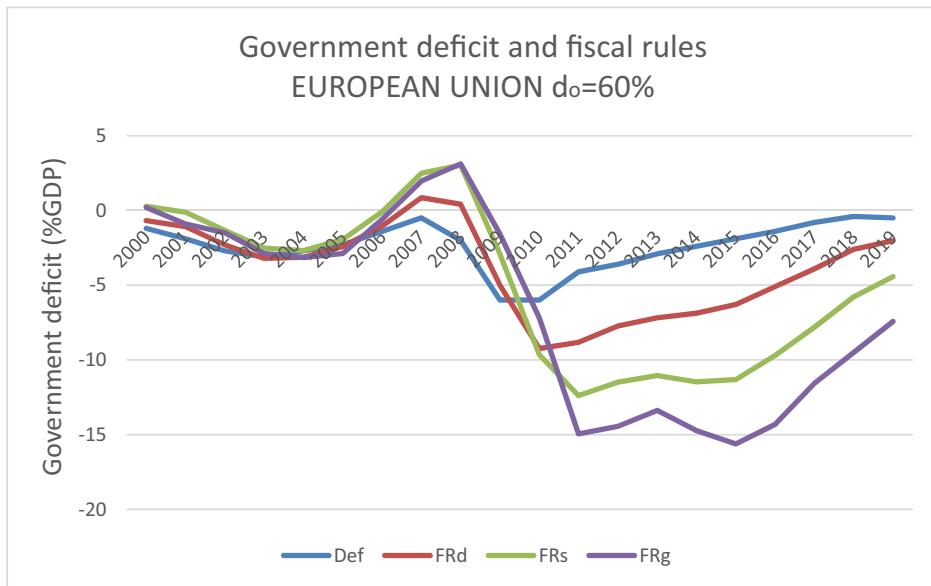
**Figure 1.1:** EU-27 countries government deficit  $\psi = 1$  (Source: Own elaboration from data on Table 1).

For the Eurozone and the GIIPS countries, the explicit proposed fiscal rules are not advisable. In both sets of countries, the public debt shows figures above the 60% along the whole period. And the high debt, strongly difficult fiscal consolidation (see Figures 1.3 and 2.3, as well as 1.4 and 2.4).

On the contrary, for the CEE countries, our proposed fiscal rules prove to be always useful, and the fiscal rule that best behaves is again the “growth promoting” rule,

augmented with the inflation constraint (as can be seen in Figures 1.5 to 1.7 and 2.5 to 2.7).

These results are in line with those found by Díaz-Roldán and Monteagudo-Cuerva (2018). They perform a similar exercise using a fiscal rule without inflation restriction for the CEE countries, from 2001 to 2013, and conclude that for the CEE countries, fiscal rules seem to reduce the public deficit in some cases, or even turn the deficit into a surplus. Moreover, for the EU-27, fiscal rules should



**Figure 2.1:** EU-27 countries government deficit (Source: Own elaboration from data on Table 2).

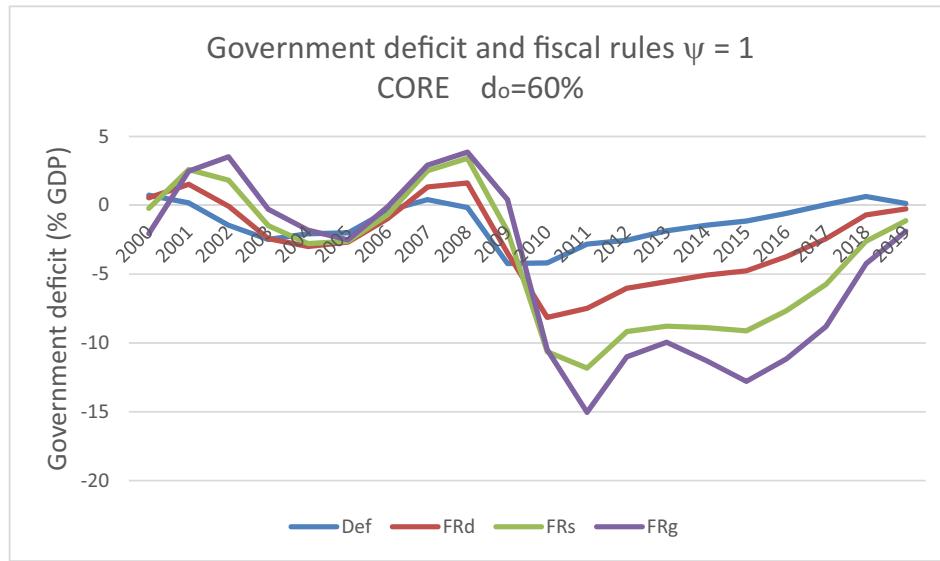


Figure 1.2: CORE countries government deficit  $\psi = 1$  (Source: Own elaboration from data on Table 1).

have been advised only between 2007 and 2010, before the Euro crisis.

A peculiar case is that for the frugal countries, the proposed fiscal rules do not work only between 2015 and 2017, given the increase (above 60%) of the public debt in the two preceding years. For the rest of the period, any of the proposed rules proves to be able to generate a capacity of financing (showed in Figures 1.8 and 2.8).

It should be remembered that the QE policy was implemented in 2015, in an environment of fiscal deficits,

high unemployment, and low economic growth. In the previous years, the reforms of the SGP, in 2011 and 2013, and the Fiscal Pact of 2013 had tried to facilitate the management of demand policies aimed to stabilize the economy of the EU. As can be seen from our results, even in the cases where the fiscal rules seem to be not advisable, an upward trend can be seen in the values of the fiscal deficit from the year 2015. In other words, the proposed fiscal rules behave better after the QE policy adoption. In addition, this result is more noticeable for the “growth promoting” rule. With due

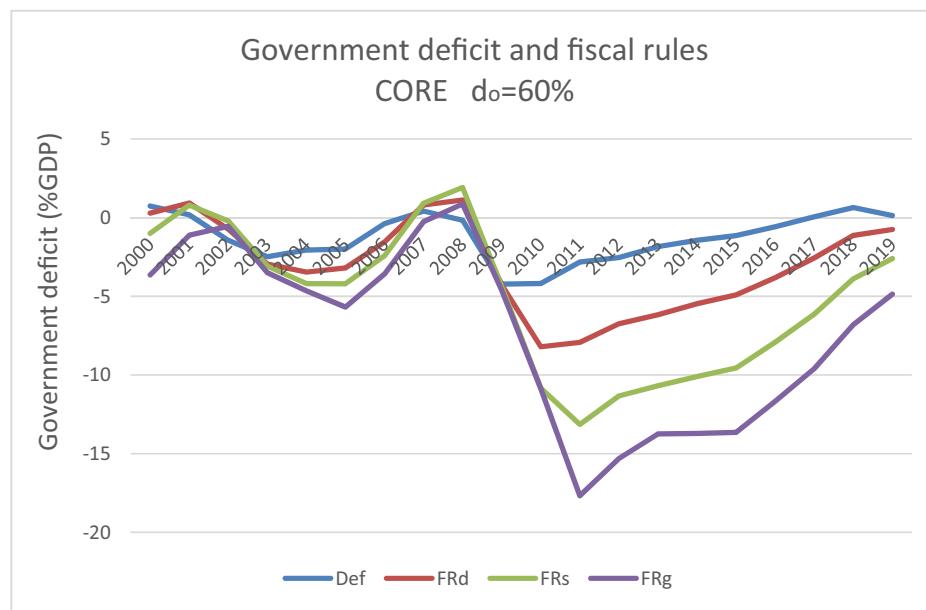


Figure 2.2: CORE countries government deficit (Source: Own elaboration from data on Table 2).

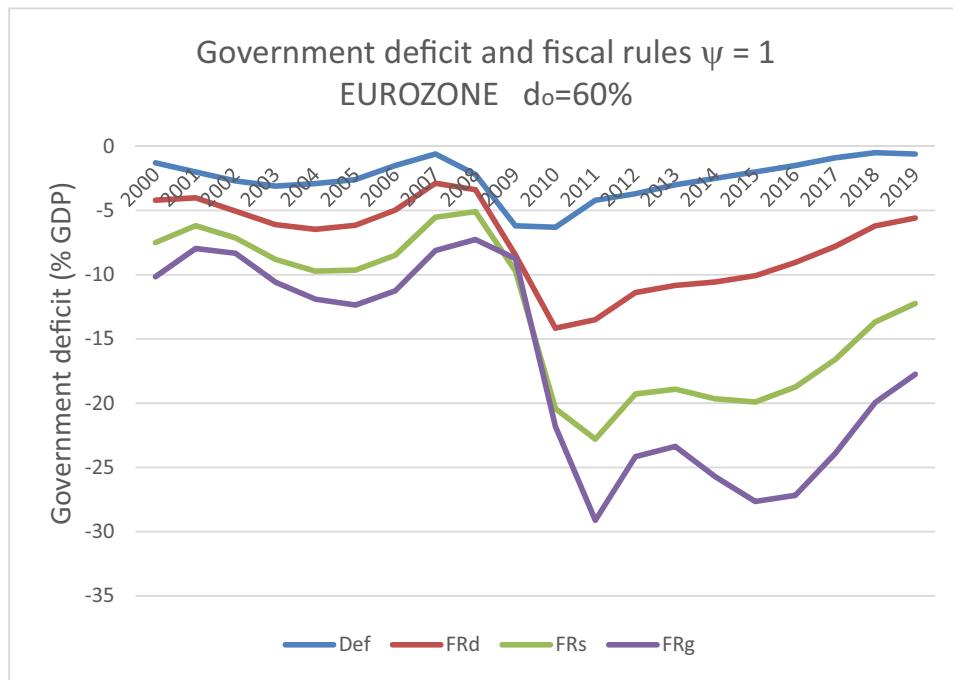


Figure 1.3: Eurozone countries government deficit  $\psi = 1$  (Source: Own elaboration from data on Table 1).

caution, this outcome would reveal the importance of a proper combination of fiscal and monetary policies. As well as that the adoption of a “growth promoting” fiscal rule would have favored growth more efficiently.

Our mixed results are in accordance with the findings of Díaz-Roldán (2017) who obtain that in the EMU, the fiscal performance is linked to the initial values of the public debt level. Moreover, this

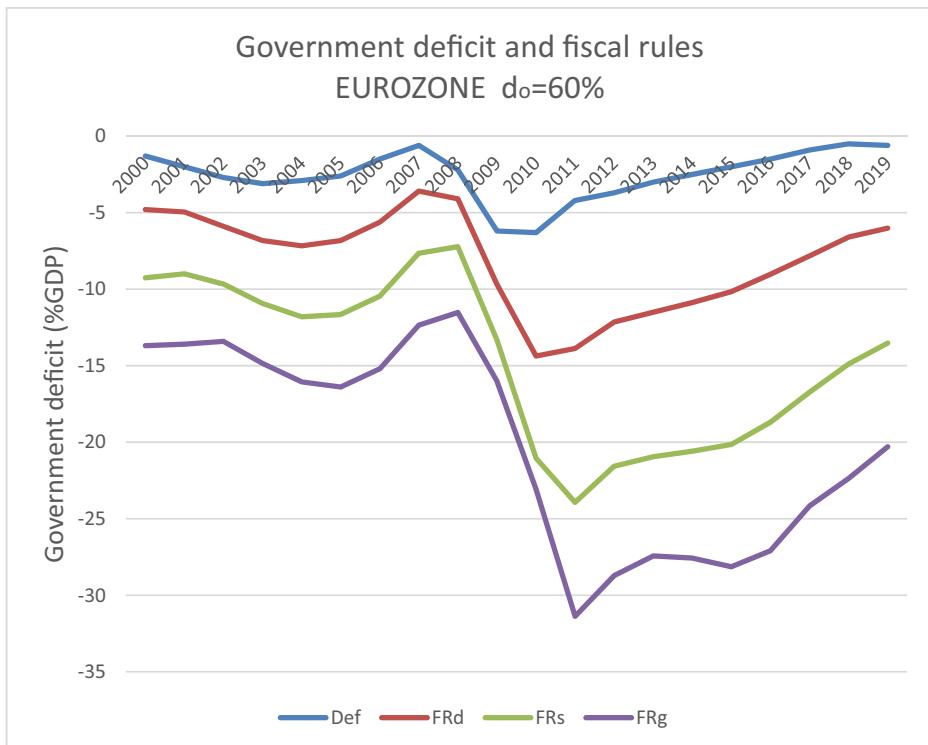


Figure 2.3: Eurozone countries government deficit (Source: Own elaboration from data on Table 2).

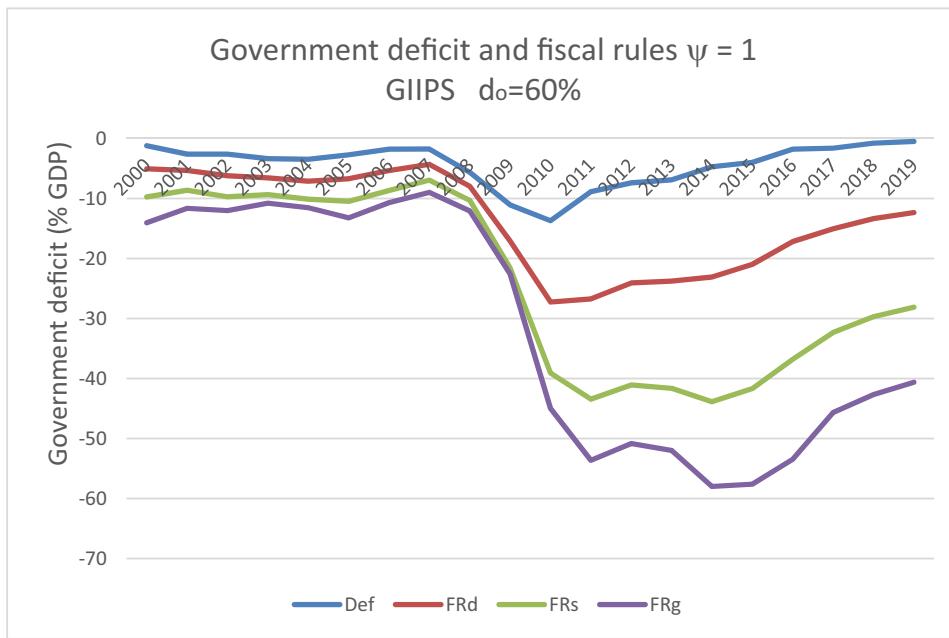


Figure 1.4: GIIPS countries government deficit  $\psi = 1$  (Source: Own elaboration from data on Table 1).

limitation has as consequence that countries showing low debt figures should apply nonaustere fiscal policies, whereas countries with high debt figures should be austere. In other words, countries with low debt can increase the government deficit, whereas countries with higher levels of debt should reduce the government deficit.

In terms of our results, we have seen that the “best” fiscal rule is the “growth promoting” one, but only when the countries show debt levels below the 60%. On the contrary, for countries with debt levels above the 60%, the fiscal rule that behaves better is the “disciplined” or austere one, and the best result is obtained following the limit on the structural deficit of 0.5% of GDP, according to the SGP.

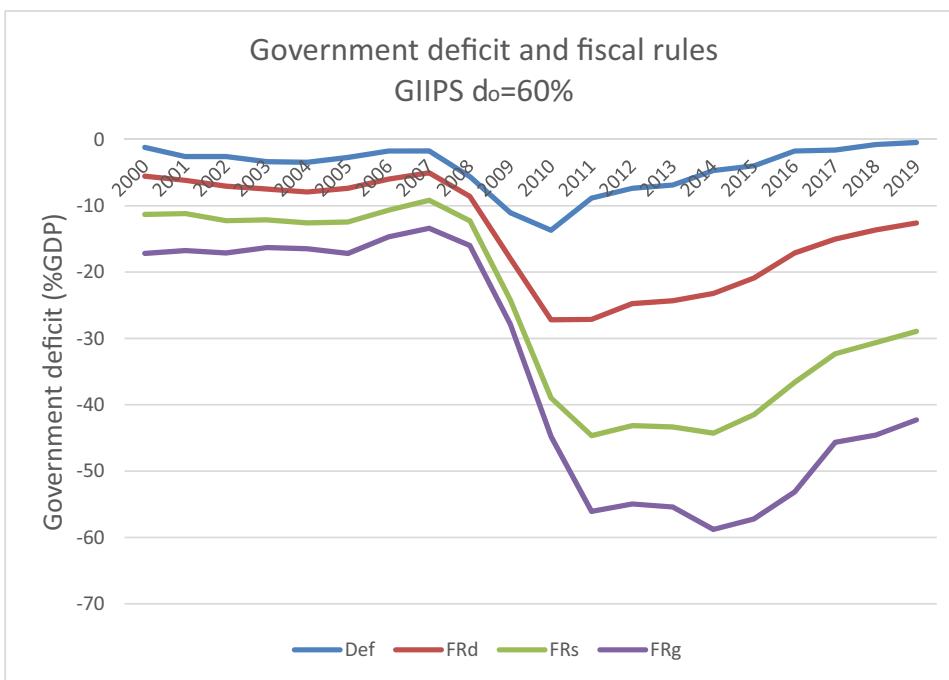
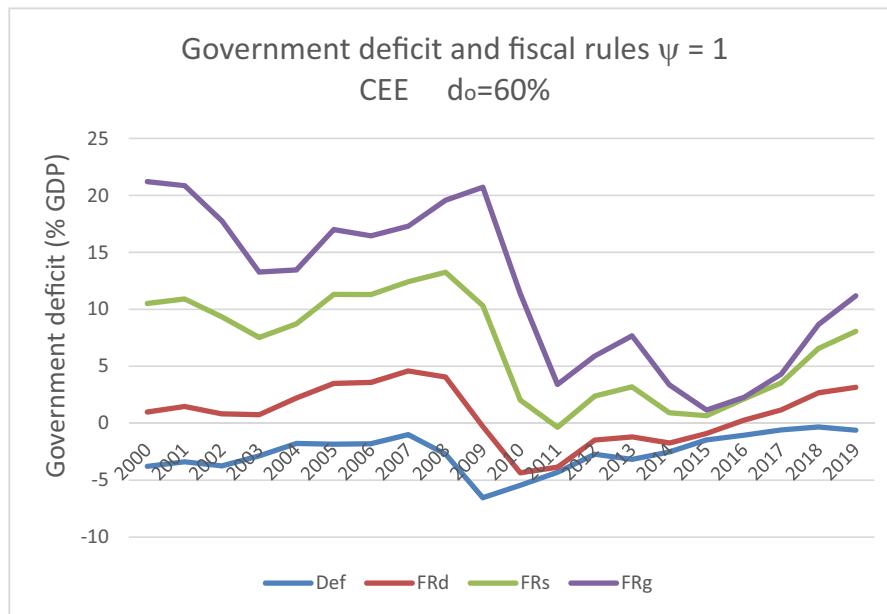


Figure 2.4: GIIPS countries government deficit (Source: Own elaboration from data on Table 2).

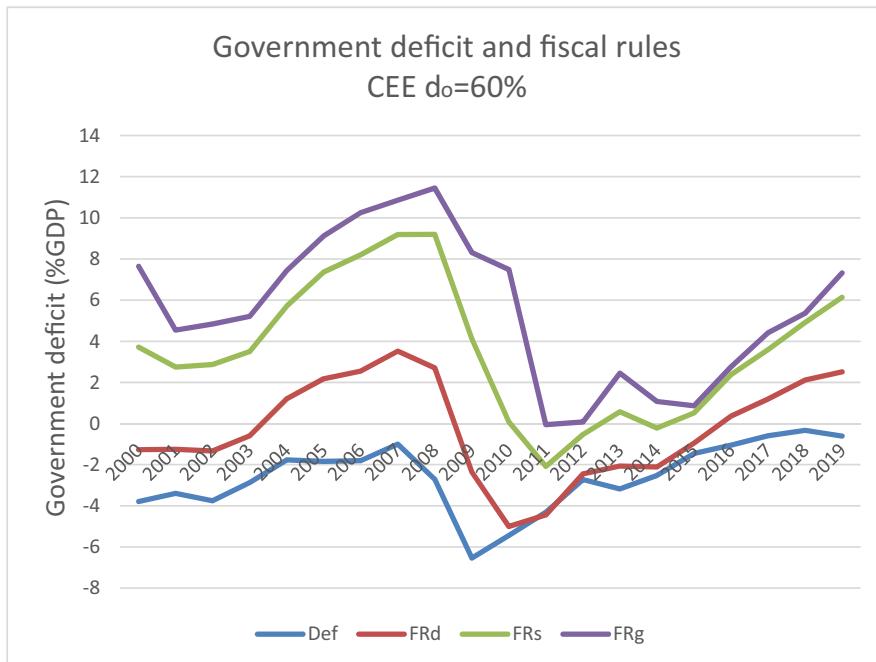


**Figure 1.5:** CEE countries government deficit  $\psi = 1$  (Source: Own elaboration from data on Table 1).

## 4 Concluding Remarks

The economic crises that have hit the economies internationally, since the 1990s, have had different repercussions in different countries. In Europe, the solutions that have been tried to be offered have been based on the SGP and the EU agreements. However, the results have still been mixed.

In this study, we have performed a simulation exercise to investigate whether the use of explicit fiscal rules has improved the macroeconomic performance in the economic framework of the EU, where the fall in income levels occurred very asymmetrically and the objectives established by the SGP have worked in practice as explicit fiscal rules. Those rules set limits on deficit, debt, and public



**Figure 2.5:** CEE countries government deficit (Source: Own elaboration from data on Table 2).

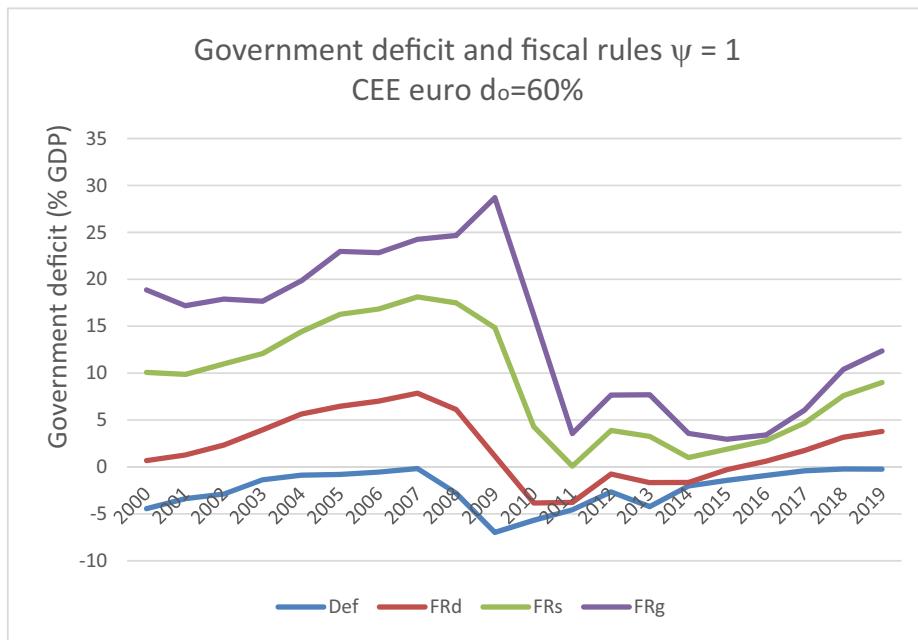


Figure 1.6: CEE € countries government deficit  $\psi = 1$  (Source: Own elaboration from data on Table 1).

spending. In the EU, fiscal policy management is thus conditioned by three constraints. In this study, we have analyzed a simpler fiscal rule linked to the economy and the debt of each country. However, additionally, we have let constraining the growth of government expenditures below the growth of inflation, which allows us to compare the rule with a single restriction (setting a debt target) with that one which also establishes a limit on public spending (the

growth of inflation). This special design of the fiscal rule is a novelty in the European context, although the inflation constraint has been successfully implemented in other countries as, for example, Brazil.

When considering several sets among the European countries, our results are mixed. For the EU, as whole, and the CORE countries the proposed fiscal rules proved to be useful only before the Euro crisis. After 2011, the

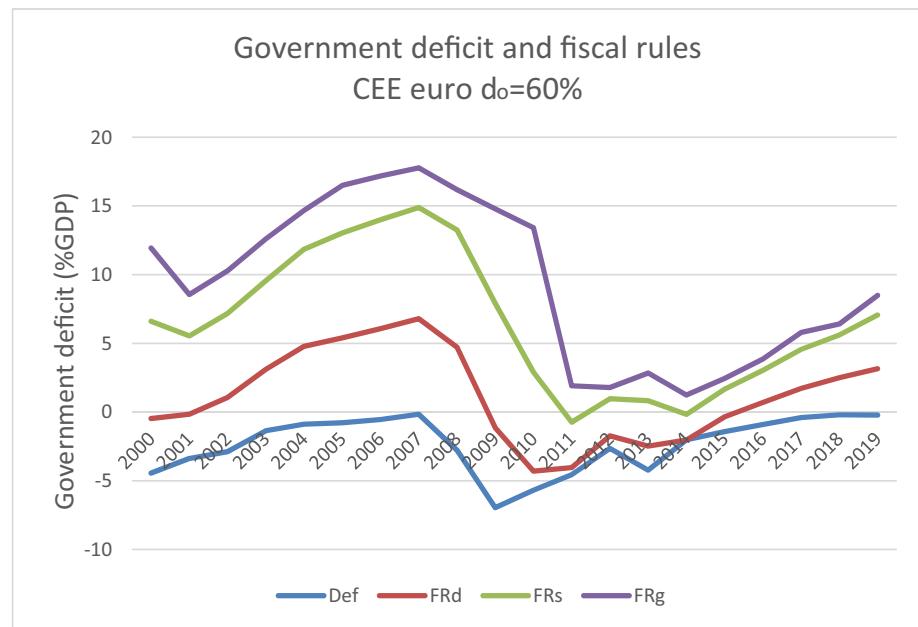


Figure 2.6: CEE € countries government deficit (Source: Own elaboration from data on Table 2).

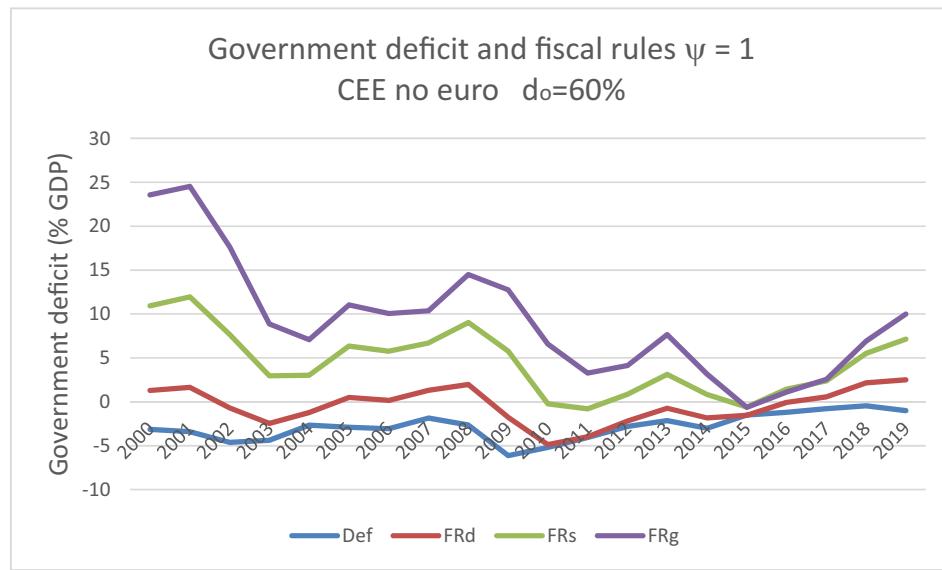


Figure 1.7: CEE no € countries government deficit  $\psi = 1$  (Source: Own elaboration from data on Table 1).

reinforced SGP limits on the structural deficit, related to the levels of debt, have worked better than our proposed rules. Looking at the GIIPS, none of the proposed rules are advisable, given those countries have exhibited high debt levels above 60%, along the analyzed period. On the contrary, for the CEE and the frugal countries, our proposed rules seem to be useful because they have contributed to reduce the public deficit or even turn the deficit into a surplus. Given the low levels of debt of this set of

countries, the rules have contributed not only to fiscal consolidation but also to economic recovery.

For all the sets of countries, the “growth promoting” rule is the best one, when our proposed rules are advisable. The “growth promoting” rule would guarantee fiscal consolidation but allowing also for an economic growth trend aimed to the recovery. Moreover, any rule augmented with the inflation constraint contributes better to improve the net lending position of public accounts.

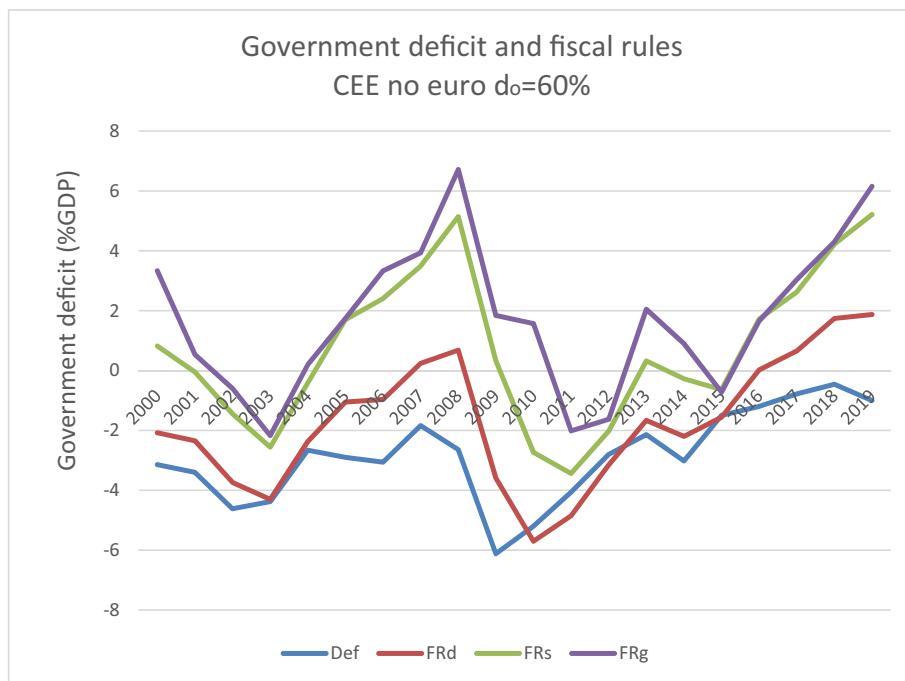
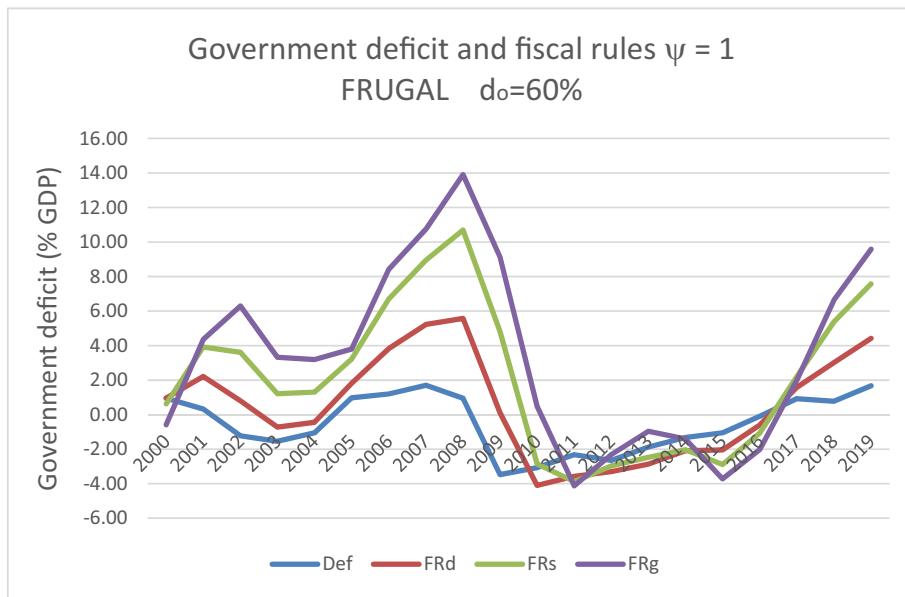


Figure 2.7: CEE no € countries government deficit (Source: Own elaboration from data on Table 2).

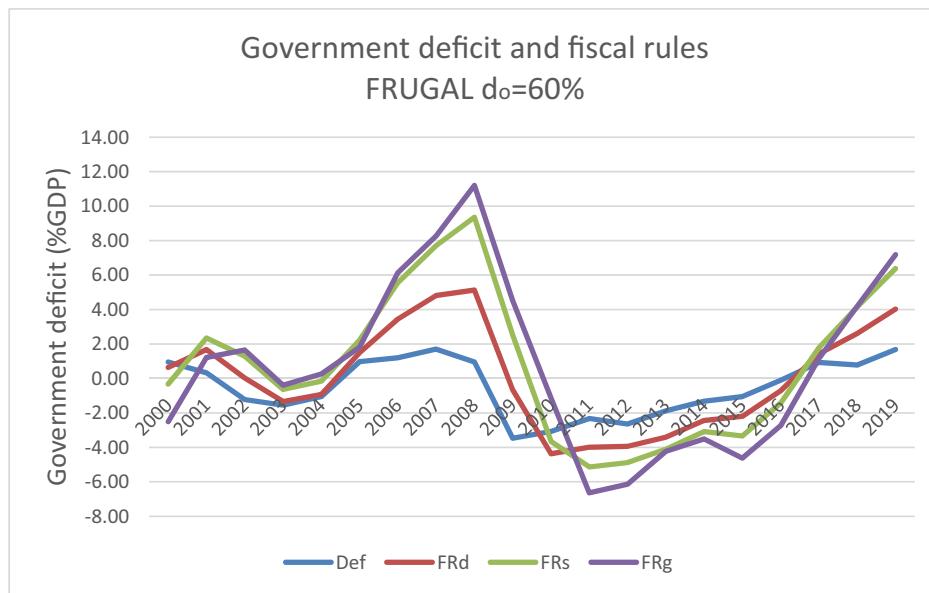


**Figure 1.8:** Frugal countries government deficit  $\psi = 1$  (Source: Own elaboration from data on Table 1).

Summarizing our findings, we could say that the success of fiscal rules is linked to the peculiar economic framework of each country and mainly to the accumulated debt levels relative to the rate of GDP growth.

In any case, the management of public finances has nontrivial consequences in the economy. When it seemed that economies were beginning to recover from the effects of the 2008 financial crisis, at the end of 2019, the health crisis caused by the COVID-19 pandemic once again

shook economies into an unprecedented economic crisis. Moreover, as addressed by Lago, Martínez-Vázquez, & Sacchi (2021), the fiscal and administrative framework of the countries have proved to be significant. For that reason, the fiscal policy has taken a prominent role, arguing its advantages over the limited potential shown by monetary policy in the management of the 2008 crisis. More precisely, in the European context, to face the COVID-19 crisis, have been taken policy measures to



**Figure 2.8:** Frugal countries government deficit (Source: Own elaboration from data on Table 2).

**Table 2A:** Government deficit (–)/surplus (+), 2000–2009,  $\psi = 0$ 

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
<b>EU27</b>										
Def	-1.20	-1.90	-2.70	-3.10	-2.70	-2.30	-1.40	-0.50	-2.00	-6.00
FR <sub>d</sub>	0.52	0.82	0.39	-0.10	-0.43	-0.12	0.35	1.35	2.42	0.99
FR <sub>s</sub>	0.96	0.96	0.97	0.68	0.45	0.47	0.95	1.64	2.61	2.10
FR <sub>g</sub>	-0.09	-0.79	-0.16	-0.36	-0.47	-0.94	-0.51	-0.52	0.09	1.33
<b>CORE</b>										
Def	0.74	0.18	-1.44	-2.48	-2.06	-2.00	-0.38	0.42	-0.16	-4.22
FR <sub>d</sub>	-0.45	0.75	0.71	-0.47	-1.41	-1.20	-1.16	0.38	1.29	-0.06
FR <sub>s</sub>	-1.30	-0.13	0.53	-0.13	-0.73	-1.01	-0.88	0.12	0.80	-0.09
FR <sub>g</sub>	-2.63	-1.91	-0.34	-0.41	-0.45	-1.49	-1.16	-1.18	-1.05	-0.24
<b>Euro19</b>										
Def	-1.30	-2.00	-2.70	-3.10	-2.90	-2.60	-1.50	-0.60	-2.20	-6.20
FR <sub>d</sub>	-3.49	-2.95	-3.19	-3.72	-4.26	-4.22	-4.12	-2.99	-1.89	-3.49
FR <sub>s</sub>	-4.47	-4.05	-3.77	-4.12	-4.65	-4.83	-4.84	-4.06	-3.13	-3.65
FR <sub>g</sub>	-4.43	-4.60	-3.74	-3.91	-4.25	-4.74	-4.75	-4.71	-4.30	-2.68
<b>GIIPS</b>										
Def	-1.20	-2.60	-2.60	-3.36	-3.46	-2.72	-1.76	-1.74	-5.62	-11.06
FR <sub>d</sub>	-4.35	-3.57	-4.45	-4.12	-4.48	-4.65	-4.24	-3.30	-2.99	-6.91
FR <sub>s</sub>	-5.76	-5.03	-5.21	-4.65	-4.66	-5.08	-4.68	-4.13	-3.65	-6.25
FR <sub>g</sub>	-5.88	-5.58	-4.87	-4.18	-3.90	-4.74	-4.04	-4.24	-3.74	-3.65

Source: see Table 1A.

Note: see Table 1A.

promote liquidity to avoid collapse of production, as well as consumption, trying to avoid reaching too high levels of poverty. Besides, the EU the fiscal rules have been suspended with the expected activation date for the end

of 2022. The ultimate reason is to facilitate the unprecedented fiscal support needed to face the COVID-19 crisis, waiting for the Resilience and Recovery Facility program. In the meantime, the way of how restoring from 2023,

**Table 2B:** Government deficit (–)/surplus (+), 2010–2019,  $\psi = 0$ 

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<b>EU27</b>										
Def	-6.00	-4.10	-3.60	-2.90	-2.40	-1.90	-1.40	-0.80	-0.40	-0.50
FR <sub>d</sub>	-3.24	-4.72	-4.13	-4.28	-4.47	-4.39	-3.70	-3.11	-2.20	-1.53
FR <sub>s</sub>	-0.41	-3.57	-3.75	-3.86	-4.59	-5.03	-4.60	-3.89	-3.18	-2.39
FR <sub>g</sub>	2.46	-2.56	-2.96	-2.34	-3.27	-4.31	-4.61	-3.76	-3.72	-3.00
<b>CORE</b>										
Def	-4.18	-2.82	-2.54	-1.84	-1.44	-1.14	-0.58	0.06	0.64	0.14
FR <sub>d</sub>	-4.02	-5.10	-4.20	-4.34	-4.03	-3.77	-3.23	-2.61	-1.77	-0.89
FR <sub>s</sub>	-2.63	-5.22	-4.59	-4.51	-4.63	-4.65	-4.11	-3.58	-2.76	-1.86
FR <sub>g</sub>	-0.04	-4.53	-3.98	-3.07	-3.62	-4.10	-3.75	-3.46	-2.92	-2.25
<b>Euro19</b>										
Def	-6.30	-4.20	-3.70	-3.00	-2.50	-2.00	-1.50	-0.90	-0.50	-0.60
FR <sub>d</sub>	-8.07	-9.68	-8.44	-8.51	-8.38	-8.16	-7.53	-6.93	-6.10	-5.41
FR <sub>s</sub>	-6.68	-10.06	-9.43	-9.44	-9.71	-9.99	-9.66	-8.91	-8.29	-7.51
FR <sub>g</sub>	-2.03	-7.44	-7.15	-6.49	-6.99	-7.99	-8.40	-7.44	-7.48	-6.78
<b>GIIPS</b>										
Def	-13.70	-8.86	-7.38	-6.88	-4.70	-3.98	-1.76	-1.60	-0.78	-0.48
FR <sub>d</sub>	-13.50	-18.28	-17.39	-17.46	-18.52	-16.92	-15.36	-13.43	-12.87	-12.13
FR <sub>s</sub>	-11.76	-17.52	-18.38	-19.02	-21.06	-20.60	-19.53	-17.29	-16.98	-16.33
FR <sub>g</sub>	-5.81	-11.42	-11.83	-12.06	-14.52	-15.72	-16.49	-13.33	-13.93	-13.36

Source: see Table 1A.

Note: see Table 1A.

**Table 2C:** Government deficit (−)/surplus (+), 2000–2009,  $\psi = 0$ 

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
<b>CEE</b>										
Def	−3.79	−3.39	−3.75	−2.87	−1.77	−1.84	−1.80	−1.00	−2.71	−6.54
FR <sub>d</sub>	2.52	2.14	2.41	2.27	2.98	4.02	4.35	4.52	5.41	4.18
FR <sub>s</sub>	4.99	4.00	4.20	4.10	4.51	5.19	5.65	5.67	6.50	6.48
FR <sub>g</sub>	3.92	1.79	1.97	1.71	1.72	1.75	2.05	1.67	2.25	4.20
<b>CEEe</b>										
Def	−4.44	−3.38	−2.88	−1.36	−0.88	−0.78	−0.54	−0.16	−2.78	−6.96
FR <sub>d</sub>	3.97	3.22	3.95	4.47	5.66	6.18	6.61	6.95	7.50	5.82
FR <sub>s</sub>	7.08	5.71	6.11	6.45	7.06	7.63	7.93	8.10	8.53	9.04
FR <sub>g</sub>	5.33	3.00	3.11	3.04	2.83	3.46	3.17	2.89	2.93	6.88
<b>CEEne</b>										
Def	−3.14	−3.40	−4.62	−4.38	−2.66	−2.90	−3.06	−1.84	−2.64	−6.12
FR <sub>d</sub>	1.06	1.05	0.88	0.08	0.29	1.85	2.10	2.08	3.32	2.53
FR <sub>s</sub>	2.90	2.30	2.30	1.75	1.96	2.75	3.37	3.25	4.46	3.92
FR <sub>g</sub>	2.51	0.58	0.84	0.39	0.61	0.04	0.92	0.44	1.57	1.51
<b>Frugal</b>										
Def	0.95	0.33	−1.23	−1.55	−1.05	0.98	1.20	1.70	0.95	−3.48
FR <sub>d</sub>	−0.31	1.36	1.25	0.21	0.12	0.52	2.25	3.11	4.18	2.82
FR <sub>s</sub>	−0.97	0.66	1.26	0.70	0.77	0.73	2.11	2.90	4.23	3.17
FR <sub>g</sub>	−2.17	−1.13	0.36	0.25	0.42	−0.42	0.57	0.56	1.85	2.00

Source: see Table 1A.

Note: see Table 1A.

the former fiscal rules are the subject of a new debate (Nielsen, 2021). In this sense, the simulation developed in this study indicates that the adoption of a more flexible

fiscal rule, such as the growth-promoting one, would allow for a better fiscal adjustment for all countries, combined with less restriction to growth and recovery.

**Table 2D:** Government deficit (−)/surplus (+), 2010–2019,  $\psi = 0$ 

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
<b>CEE</b>										
Def	−5.44	−4.31	−2.72	−3.18	−2.52	−1.46	−1.05	−0.59	−0.33	−0.61
FR <sub>d</sub>	0.44	−0.13	0.28	1.11	0.40	0.51	1.41	1.78	2.45	3.12
FR <sub>s</sub>	5.09	2.36	1.92	2.64	1.90	1.47	2.02	2.40	2.80	3.63
FR <sub>g</sub>	7.41	2.03	0.61	1.87	1.29	0.35	0.38	0.82	0.44	1.18
<b>CEEe</b>										
Def	−5.68	−4.56	−2.64	−4.22	−2.02	−1.42	−0.90	−0.40	−0.20	−0.22
FR <sub>d</sub>	1.38	0.53	0.91	1.75	−0.01	1.08	1.60	2.12	2.70	3.37
FR <sub>s</sub>	7.20	3.30	2.70	3.30	1.87	2.01	2.35	2.84	3.11	3.92
FR <sub>g</sub>	10.51	2.65	0.83	2.02	1.41	0.79	0.83	1.23	0.81	1.42
<b>CEEne</b>										
Def	−5.20	−4.06	−2.80	−2.14	−3.02	−1.50	−1.20	−0.78	−0.46	−1.00
FR <sub>d</sub>	−0.51	−0.79	−0.36	0.48	0.82	−0.06	1.22	1.43	2.20	2.87
FR <sub>s</sub>	2.97	1.42	1.13	1.99	1.93	0.92	1.70	1.97	2.49	3.34
FR <sub>g</sub>	4.31	1.42	0.40	1.73	1.18	−0.09	−0.07	0.41	0.08	0.94
<b>Frugal</b>										
Def	−3.08	−2.33	−2.65	−1.88	−1.33	−1.05	−0.10	0.93	0.78	1.68
FR <sub>d</sub>	−1.30	−1.67	−1.29	−1.54	−1.12	−1.15	−0.62	0.52	1.84	2.35
FR <sub>s</sub>	0.71	−1.14	−0.94	−0.69	−0.64	−1.14	−0.71	0.34	1.54	2.36
FR <sub>g</sub>	2.53	−1.50	−1.26	−0.12	−0.43	−1.29	−1.32	−0.62	0.04	0.81

Source: see Table 1A.

Note: see Table 1A.

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