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Expenditure Rules: Limiting the Level or the Variation of Public Expenditure?

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Abstract: The main goal of the first-generation expenditure rules was to ensure fiscal discipline: preserving a sound fiscal framework and public debt sustainability. Regarding this goal, analytically as well as empirically, limiting the share of public expenditure in GDP would be more appropriate in case of weak potential economic growth or if the public expenditure-to-GDP ratio is high. On the contrary, limiting the variation of public expenditure would be more appropriate for countries with high potential economic growth or with a weak public expenditure-to-GDP ratio. The second goal of expenditure rules is to contribute to sustaining economic activity. Regarding this goal, limiting the level of public expenditure appears as more favorable than limiting the variation of public expenditure. Indeed, a rule in terms of variation could hamper economic growth, especially for countries with a high public expenditure-to-GDP ratio.

Keywords: fiscal rules; expenditure rules; public expenditure; fiscal discipline; economic activity

1. Introduction

Since the 1990s, many countries have adopted one or many fiscal rules, including advanced countries but also increasingly emerging and developing economies. Beyond national rules, supranational rules (for example in the European Union) were also introduced (see Davoodi et al. 2022b). Additionally, the index of the strength of enforcement of these fiscal rules (flexibility and resilience) has continuously improved over time. These fiscal rules can be related to fiscal aggregates such as public deficit, public debt, public expenditure, or (more rarely) fiscal revenue. However, the most common combination of fiscal rules is a debt rule, with as an operational tool an expenditure rule (or a budget balance rule).

Among fiscal rules, Ayuso-i-Casals (2012) mentions that expenditure rules have many advantages. They target the most common origin of excessive deficits: a tendency to spend more than contemplated in initial budget plans. They target the most controllable part of the budget for the governments; their communication to the public is easy and transparent. Additionally, empirical fiscal consolidations that were empirically successful in the 1970s and 1980s were mainly based on expenditures, typically linked to a decrease in current primary expenditure (mainly public wages and transfers). Therefore, recently, and in particular in the context of the revision of European fiscal rules that were suspended in March 2020 because of the large COVID-19 health crisis, the economic literature has underlined the advantages of expenditure-based fiscal rules. The new Stability and Growth Pact, which was reintroduced and reformed in January 2024, is public expenditure-based. Indeed, except for unemployment expenses (largely pro-cyclical) or interest rate payments on public debt, government spending is more independent from the business cycle and manageable by the government than a structural balance. Furthermore, an expenditure rule maintains stabilization properties by enabling automatic stabilizers to operate completely on the revenue side (revenues can fluctuate with the business cycle). Therefore, the current paper is interested in analyzing the respective advantages of various derivatives of public expenditure rules.

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First-generation fiscal rules only aimed at ensuring the long-term sustainability of the public debt by reducing the bias towards excessive increases in public expenditure and deficits. However, since the financial crisis in 2008, second-generation fiscal rules have also aimed at avoiding pro-cyclical effects and protecting long-term economic growth. Indeed, the origin of excessive public deficits often involves spending pressures, which can be addressed through expenditure rules. As mentioned by Cordes et al. (2015), they have the ability to lessen the effect of economic and political cycles; they provide spending control and better fiscal discipline. To ensure public debt sustainability, they are often associated with a balanced budget or public debt rules. They consist of a cap on nominal expenditure growth, a cap on real expenditure growth, a ceiling on the expenditure-to-GDP ratio (mainly in emerging market economies), or a specific nominal ceiling (mainly in advanced economies). Nevertheless, among the large economic literature analyzing public expenditure rules, the respective advantages of fiscal rules in terms of the level or in terms of the variation of public expenditure are usually not studied. The current paper aims to fill this gap in the economic literature.

To contribute to the debate on the respective advantages of fiscal rules in terms of the level or variation of public expenditure, the rest of the paper is organized as follows: Section 2 provides a review of the economic literature on the potential advantages or drawbacks of fiscal rules in terms of the level or variation of public expenditure. In Section 3, we make the research hypothesis that this choice could depend on the specific situation of the countries. One kind of expenditure rule is not universally beneficial for all countries; the choice could depend on economic parameters, such as potential growth or the share of public expenditure in GDP. So, we define an analytical model that deliberately remains simple but allows us to study the respective advantages of fiscal rules limiting the level or the variation of public expenditure to ensure fiscal discipline or to sustain economic activity. This simple model brings out potential theoretical results on the respective advantages and the efficiency of various expenditure rules. Then, Section 4 analyzes empirical data to confirm this potential relation between various expenditure rules and the budget deficit, the public debt, or economic activity. However, the current paper is not an econometric paper; we only try to shed light on economic causalities. We only rely on scatter plots to show how empirical data can confirm and sustain our theoretical results. Section 5 concludes the paper.

2. Review of the Economic Literature

The first goal of expenditure rules was to improve fiscal discipline and public debt sustainability. Regarding this goal, obviously, the economic literature concludes on the efficiency of constraining public expenditure. For example, Wierts (2008) investigates the effect of expenditure rules on fiscal behavior. Empirical econometrical estimations then confirm the hypothesis of his macroeconomic model: such rules can restrain spending biases if the political and institutional costs of non-compliance are sufficiently large. Therefore, according to the author, well-designed expenditure rules have a restraining impact on expenditure outcomes and mitigate the effect of shocks on expenditure developments. Herrero-Alcalde et al. (2024) evaluate how effectively the Spanish expenditure rule, which has been in place since 2012, controls an increase in public expenditure. To avoid endogeneity problems inherent in traditional econometric approaches, they contract a counterfactual unit for the Spanish public sector in a scenario where there are no expenditure rules applied whatsoever. Their findings indicate that the expenditure rule has largely contributed to the improvement of budget sustainability by restricting both current and primary expenditures. These results are reliable across different levels of government.

Eyraud et al. (2018) asserts that a spending rule that is deficit neutral on average will increase the likelihood of the budget staying in balance over the macroeconomic cycle. Indeed, if economic conditions are better than anticipated, there will not be any extra financial resources to spend or tax cuts, and the budgetary bonus is meant to be saved. On the contrary, if there is a recession, a spending rule would permit a budget deficit

through automatic stabilizers, but would not allow any additional discretionary expenditures. By implementing a spending rule, budgetary expectations and budget line funding in a multi-year framework can be more stable. According to Ayuso-i-Casals (2012), the effective promotion of a sound fiscal situation in some Nordic European countries (Netherlands, Sweden, Denmark, and Finland) has been achieved through the implementation of institutional reforms and the introduction of expenditure rules. In contrast, the difficulty in avoiding an uncontrolled increase in public expenditure is largely the reason for the fiscal difficulties in other southern European countries before 2007.

A large set of 29 countries with fiscal rules that were both national and supranational between 1985 and 2013 were examined by Cordes et al. (2015). They find that expenditure rules are connected to controlling spending, implementing a counter-cyclical fiscal policy, and enhancing fiscal discipline (better compliance). Countries with expenditure rules have on average lower primary spending and higher primary balances. With the help of econometric regressions, they show that only in emerging economies does the introduction of expenditure rules lead to a decrease in public investment. Additionally, the use of expenditure rules alleviates the fluctuation of expenditures, thereby granting fiscal policy a high level of predictability and lessening its destabilizing effects. In the same way, Hauptmeier et al. (2011) examine the expenditure patterns of Euro area countries from 1999 to 2009 and compare them to 'alternative' trends that could have prevailed if countries had implemented neutral policies based on expenditure rules since the beginning of the EMU. They find that all sample countries except Germany applied expansionary expenditure policies; this was particularly the case for imbalanced countries (Ireland, Greece, Portugal, and Spain). Primary public expenditure increased before the crisis, in particular public consumption (public wages) and transfers. The policy stance was typically pro-cyclical, whereas strong budgetary institutions could prevent this spending bias.

The effect of expenditure rules on economic activity stabilization is not obvious. Some authors assess that expenditure rules can create fiscal buffer in good times, which can then be used to mitigate the impact of revenue shortfalls in a downturn. With econometric regressions, Grosse-Steffen et al. (2021) show that empirically, between 1970 and 2018, countries with fiscal rules perform better following exogenous shocks (large, random natural disasters) than countries without rules. GDP and private consumption are persistently higher, as fiscal policies can be more expansionary in bad times (more deficit spending) due to more endogenous fiscal space because of tight policies in good times and the existence of escape clauses (as in the case of the COVID-19 crisis). Analyzing stylized facts, and with an econometric estimation over the 1999–2016 period in the European Union, Belu Manescu and Bova (2020) validate that the EU indeed has a pro-cyclical fiscal policy, but this pro-cyclical bias is reduced when there are well-designed and wide coverage expenditure rules. Furthermore, they find that expenditure rules are better complied with for multi-annual expenditure ceilings than for rules specified as growth rates, both ex ante and ex post. They are also associated with lower expenditure volatility and higher investment efficiency.

For a sample of eleven EU countries over the period of 1980–2005, with econometric estimations of fiscal reaction functions and probit regressions, Turrini (2008) finds that the fiscal policy's pro-cyclical bias would mostly be caused by factors that are driven by expenditures, as there is a significant counter-cyclical response of cyclically adjusted revenue. It seems that expenditure increased greatly during good times and only slightly decreased during bad times. However, countries that have strict expenditure rules tend to experience less of an impact on the pro-cyclical dynamic of primary cyclically-adjusted expenditures in good times. In the same way, Holm-Hadulla et al. (2012) investigate the results of governments' actual expenditure policies in comparison to previously formulated plans; they examine how governments adapt to economic news. Then, their econometric estimations demonstrate that numerical expenditure rules reduced the pro-cyclical spending bias for EU countries from 1998 to 2005. Additionally, this bias was higher for spending items with a high degree of budgetary flexibility (subsidies and investment: gross fixed capital formation) than for more rigid expenditures (primary expenditures and interest payments).

In a monetary union, Bruck and Zwiener (2006) use a quarterly macro-econometric model of Germany for the period of 1980–2001 to examine the efficiency of fiscal policy rules for business cycle stabilization. They compare a deficit target and an expenditure target under a range of supply, demand, and fiscal shocks. Then, they show that an expenditure target improves output stabilization and has more beneficial anti-cyclical effects than a deficit target, especially in case of demand shocks. Using a New–Keynesian small open economy model, Buss et al. (2024) find that, in contrast to having only a structural balance rule, having an expenditure growth rule tends to produce more stable macroeconomic outcomes but more volatile public finances. At minimal cost to long-term macroeconomic stability, public debt volatility is contained by strong enough debt correction for both fiscal rules. Furthermore, in contrast to the structural balance rule, an expenditure growth rule tends to delay fiscal consolidations to later periods, resulting in higher near-term growth at the expense of slower future growth.

The design and effectiveness of expenditure rules can also be affected, beyond economic factors, by political stability, governance quality, and institutional strength. For example, Schuknecht (2004) underlines the advantages of strong fiscal institutions; by putting limits to governments' behavior and making policy decisions more transparent to the public and financial markets, they aid in containing political pressures on tax and spending decisions. The author also emphasizes the significance of clear and simple rules in anchoring expectations for fiscal discipline; a well-designed law can increase incentives for the regulations to become 'self-enforcing'. Furthermore, expenditure rules can help coalition governments with various and sometimes opposite preferences to agree on given economic policies by allowing them to fix goals and targets. Indeed, Hallerberg et al. (2007) underline that in EU countries, between 1985 and 2004, the centralization of budgeting procedures was useful for fiscal discipline. Additionally, in countries with ideologically dispersed coalitions, fiscal contracts with multi-year targets can be a good means to increase this fiscal discipline, whereas they are less useful in countries with one-party governments or when parties are closely aligned. Finally, with strict expenditure rules, the danger is that they crowd out productive but electorally unappealing projects (Cordes et al. 2015). Belu Manescu and Bova (2020) also recall that expenditure rules can imply a change in expenditure composition to the detriment of growth-friendly public investment if the latter is not excluded from the ceiling by a kind of golden rule. They can favor public consumption, which is politically harder to cut (wages and transfers). Moreover, they reduce incentives for revenue mobilization, as only public expenditure is taken into account, and not the value of the budget deficit. Therefore, the efficiency of expenditure rules mainly depends on the institutional framework, the statutory basis, and the enforcement mechanisms surrounding them; but if they are misused, they can endanger economic activity.

Nevertheless, fiscal rules' potential to increase public expenditure efficiency is investigated by Apeti et al. (2023). Then, after 159 countries' efficiency scores were computed between 1990 and 2017, the implementation a fiscal rule was found to have a significant positive impact on expenditure efficiency. Indeed, fiscal rules could promote better output, as more outcomes could be achieved with the same or less amount of public resources. The decline in resources by limiting the opportunity for debt financing under fiscal rules leads governments to reallocate spending to more productive sectors. For example, Afonso and Jalles (2013) study the relevance of fiscal rules for growth in a panel of 25 EU countries for the period of 1990–2008. Econometric estimations show that they foster growth, while stricter fiscal rules mitigate the adverse impact on growth from such rules in the biggest governments. Cordes et al. (2015) also find that expenditure rules are associated with higher public investment efficiency; the global size of the government is then reduced with benefits.

Additionally, according to Ayuso-i-Casals (2012, p. 29), an expenditure rule at the EU level runs the risk of forcing homogeneous (or quasi-homogeneous) social preferences on all EU member states. The significant variations and oscillations in the expenditure-to-GDP ratio among the member states are a clear indication of the existence of diverse social

preferences among EU countries. Regarding the role, the proper size of the government, and the composition of public spending, the EU member states generally have differing and sometimes conflicting preferences. For example, regarding social security expenditure, the situation strongly varies between European countries. The social security budget is included in the budget of the central government in the Netherlands. In France, the government oversees a portion of social security, but social partners manage a large and more decentralized portion of it (unemployment insurance). On the contrary, in Spain, health services are highly decentralized and under the responsibility of regional governments.

However, regarding public expenditure rules, the abovementioned papers do not study the respective advantages of fiscal rules in terms of level or terms of variation of public expenditure for fiscal discipline or economic activity. The current paper aims to fill this gap in the economic literature. Ayuso-i-Casals (2012, p. 30) assesses that the public expenditure target should be set in levels or growth rates; indeed, a target in percentage of GDP may entail pro-cyclical policies. A rule of public expenditure in the percentage of GDP risks encouraging higher expenditure at times of economic expansion and lower expenditure during contractions. So, it cannot avoid a pro-cyclical bias. On the contrary, the reference to a growth rate would be less pro-cyclical. Differently, our paper highlights, analytically (Section 3) as well as empirically (Section 4) the advantages of a rule in terms of level of public expenditure to ensure fiscal discipline, as well as to sustain economic activity, especially for countries with a high share of public expenditure in GDP. We will show that the choice of the best expenditure rule is not straightforward and always in the same direction, but it depends on two main parameters: the potential growth and public expenditure-to-GDP ratio. To our knowledge, there are many papers in the economic literature underlying the advantages of fiscal rules. However, there is no paper really comparing the respective advantages of limiting the level or the variation of public expenditure. Additionally, our paper has the advantage of providing a theoretical analysis of this comparison, as well as an empirical verification of this theoretical link, with data for various countries with specific and different public expenditure rules.

3. Analytical Model

To evaluate the respective advantages and drawbacks of a fiscal rule in terms of the variation or level of public expenditure, we use a simple analytical model of the budget equilibrium for a given country. In this section, capital letters indicate levels of the variables, lowercase letters indicate variables in percentage of GDP, and a dot indicates a change in time.

3.1. Budget Deficit and Public Debt

The primary budget surplus of a country in a given period (t) is as follows:

$$PS_t = T_t - G_t \tag{1}$$

and in the percentage of GDP it is as follows:

$$ps_t = \tau_t - g_t \tag{2}$$

where (T_t) is fiscal resources; (G_t) is the primary public expenditure; (PS_t) is the primary budget surplus; (Y_t) is the economic activity; and variables are presented in nominal terms.

If we use (ε_T), the cyclical sensitivity of revenue, and (ε_G), the cyclical sensitivity of public expenditure, to calculate the output gap, we obtain the following:

$$T_t = T_t^s \left(\frac{Y_t}{Y_t^p} \right)^{\varepsilon_T} \tag{3}$$

$$G_t = G_t^s \left(\frac{Y_t}{Y_t^p} \right)^{\varepsilon_G} \tag{4}$$

where the superscript 's' indicates structural values of revenue and expenditure; and (Y_t^p) is the potential economic activity.

Since revenues and the cycle are almost exactly correlated, most countries have revenue elasticity that is near unity. In contrast, the cycle has very little effect on expenditures, and expenditure elasticity is almost zero. However, these elasticities can be affected by the complexity of real-world constraints; fiscal revenues and expenditures may not react linearly to economic cycles. Therefore, by combining Equations (1), (3) and (4), the primary budget surplus is as follows:

$$PS_t = (T_t^s - G_t^s) + T_t^s \left[\left(\frac{Y_t}{Y_t^p} \right)^{\varepsilon_T} - 1 \right] - G_t^s \left[\left(\frac{Y_t}{Y_t^p} \right)^{\varepsilon_G} - 1 \right] \tag{5}$$

In Equation (5), the first term $(T_t^s - G_t^s)$ is the structural primary surplus, whereas the second and third terms are the conjectural primary surplus. So, the primary budget surplus as percentage of GDP is

$$ps_t = \frac{(T_t^s - G_t^s)}{Y_t^p} + \frac{T_t^s}{Y_t^p} \left[\left(\frac{Y_t^p}{Y_t} \right)^{1-\varepsilon_T} - 1 \right] + \frac{G_t^s}{Y_t^p} \left[1 - \left(\frac{Y_t^p}{Y_t} \right)^{1-\varepsilon_G} \right] \tag{6}$$

Under these conditions, the variation of the structural primary budget surplus as a percentage of GDP is

$$\dot{ps_t^s} = \left(\frac{\dot{T_t^s}}{T_t^s} - \frac{\dot{Y_t^p}}{Y_t^p} \right) \frac{T_t^s}{Y_t^p} - \left(\frac{\dot{G_t^s}}{G_t^s} - \frac{\dot{Y_t^p}}{Y_t^p} \right) \frac{G_t^s}{Y_t^p} \tag{7}$$

Fiscal resources and the potential GDP vary nearly in phase. According to Equation (7), the potential output and public expenditure should therefore rise at the same rate in conjunction with an expenditure rule intended to stabilize the variation of the structural portion of the budget deficit. Indeed, with a higher potential output, higher fiscal resources and thus higher public expenditure are allowed. Then, while revenues vary based on economic activity, spending growth is evaluated in tandem with a reference GDP growth rate. However, an expansionary fiscal policy is being implemented if public spending increases more quickly than the growth of the economy over the medium term. Conversely, a contractionary fiscal policy is being carried out if the rate of increase in public spending is lower than the rate of growth in the economy.

The global budget surplus (S_t) is calculated as the primary budget surplus minus interest rates on the former public debt. So, we obtain

$$S_t = PS_t - r_t B_{t-1} \tag{8}$$

where (r_t) is the interest rate on the public debt and (B_t) is the public debt in period (t).

Therefore, in the percentage of GDP, Equations (6) and (8) imply

$$s_t = \frac{T_t^s}{Y_t^p} \left(\frac{Y_t^p}{Y_t} \right)^{1-\varepsilon_T} - \frac{G_t^s}{Y_t^p} \left(\frac{Y_t^p}{Y_t} \right)^{1-\varepsilon_G} - \frac{r_t}{(1+\gamma_t)} b_{t-1} \tag{9}$$

where $(\gamma_t = \frac{Y_t - Y_{t-1}}{Y_{t-1}})$ is the nominal GDP growth rate.

Furthermore, the public debt is as follows:

$$B_t = B_{t-1} - S_t = (1 + r_t) B_{t-1} - PS_t \tag{10}$$

Then, as a share of the GDP, the public debt is

$$b_t = \frac{(1+r_t)}{(1+\gamma_t)} b_{t-1} - \frac{T_t^s}{Y_t^p}\left(\frac{Y_t^p}{Y_t}\right)^{1-\varepsilon_T} + \frac{G_t^s}{Y_t^p}\left(\frac{Y_t^p}{Y_t}\right)^{1-\varepsilon_G} \tag{11}$$

3.2. Consequences of Alternative Public Expenditure Rules

The paper aims to analyze the respective advantages of fiscal rules in terms of the level or variation of public expenditure. First, the fiscal authority can put a limit on the absolute level of the public expenditure-to-GDP ratio. The condition is then as follows:

$$\frac{G_t^s}{Y_t^p} \leq \left(\overline{\frac{G_t^s}{Y_t^p}}\right) \tag{12}$$

Otherwise, the fiscal authority can constrain the growth of nominal primary structural public expenditure, as follows:

$$\left(\frac{\dot{G}_t^s}{G_t^s}\right) \leq \left(\overline{\frac{\dot{G}_t^s}{G_t^s}}\right) \tag{13}$$

For example, in the European Union, this limit is the medium-term potential economic growth: $\left(\overline{\frac{\dot{G}_t^s}{G_t^s}}\right) = \left(\frac{\dot{Y}_t^p}{Y_t^p}\right)$. Indeed, net primary expenditure growth is supposed to stay below the potential output growth, according to the Reformed Stability and Growth Pact, which was adopted in January 2024. Equation (13) then implies the following condition:

$$\frac{G_t^s}{Y_t^p} \leq \frac{G_{t-1}^s}{Y_{t-1}^p}\left[1 + \left(\overline{\frac{\dot{G}_t^s}{G_t^s}} - \frac{\dot{Y}_t^p}{Y_t^p}\right)\frac{G_t^s}{Y_t^p}\right] \tag{14}$$

According to Equations (9) and (11), fiscal discipline is then better ensured and the budget deficit and the public debt are weaker if $(\frac{G_t^s}{Y_t^p})$ is small. So, according to Equations (12) and (14), the fiscal discipline is better ensured with a rule in terms of the level of public expenditure if

$$1 - \frac{\left(\overline{\frac{G_t^s}{Y_t^p}}\right)}{\left(\frac{G_{t-1}^s}{Y_{t-1}^p}\right)} + \left[\left(\overline{\frac{\dot{G}_t^s}{G_t^s}}\right) - \left(\frac{\dot{Y}_t^p}{Y_t^p}\right)\right]\frac{G_t^s}{Y_t^p} \geq 0 \tag{15}$$

If the potential GDP growth increases, this growth reduces the absolute value of public expenditure in terms of the GDP, and it increases the structural primary balance according to Equation (9). However, according to Equation (7), with a rule in terms of variation of public expenditure, potential GDP growth should also be higher than the growth of public expenditure to increase the structural primary budget surplus. So, if the potential GDP strongly increases, a rule in terms of the variation of public expenditure could reinforce fiscal discipline. On the contrary, if the potential GDP increases weakly and less than public expenditure, a rule in terms of the level of public expenditure would reinforce fiscal discipline.

If the share of the state in the economy (G/Y) is weak in the previous period (t − 1), limiting the variation of public expenditure is more beneficial to ensure fiscal discipline. Indeed, with a rule in terms of the level of public expenditure, if the public expenditure-to-GDP ratio is initially weak, public expenditure can largely and excessively increase without exceeding the limit. On the contrary, with a rule in terms of the variation of public expenditure, even if the share of public expenditure is initially weak, the constraint is strong on its variation. On the contrary, if the public expenditure-to-GDP ratio (G/Y) is already high, limiting the level of public expenditure is better suited to ensure fiscal discipline.

Indeed, even a small evolution in the percentage of GDP of this public expenditure strongly deteriorates the structural primary surplus and is then harmful to fiscal discipline.

Furthermore, economic activity is obviously higher with a fiscal rule in terms of the level of public expenditure. Indeed, with such a rule, productivity and economic growth are higher as the public expenditure-to-GDP ratio is limited, whereas private consumption and investment are higher. On the contrary, with a rule in terms of variation of public expenditure, if public expenditure increases at the same pace as the potential GDP, the share of public expenditure in GDP remains constant, only allowing stable long-term economic growth. Nevertheless, having both rules at the same time could be detrimental to economic growth. Indeed, constraining public expenditure both in the level and regarding its growth rate could be detrimental, as public expenditure is then fixed by the most binding constraint between Equations (12) and (14). Therefore, if the public expenditure-to-GDP ratio is already high and if Equation (12) is binding, public expenditure grows below the potential GDP, and the restrictive fiscal policy is then detrimental to economic growth. On the contrary, if Equation (14) is binding and if public expenditure grows at the potential GDP growth rate, the public expenditure-to-GDP ratio can remain below the level necessary for an optimal economic activity growth rate.

4. Empirical Results

The list of countries used for our empirical estimations comes from the IMF Database reported by Lledó et al. (2017) and updated by Davoodi et al. (2022a). The sample is made of all countries with various expenditure rules (see Section 4.1). The database for these countries covers all the periods during which they applied an expenditure rule as a fiscal rule. Additionally, the COVID-19 crisis created unprecedented fiscal pressures and disruptions in all countries, and therefore, the fiscal rules in place before the crisis dramatically changed. As mentioned by Davoodi et al. (2022b), many countries activated escape clauses, suspended fiscal rules, or modified their targets to adjust to the huge increase in public expenditure due to the pandemic (see Section 4.1 below). Fiscal rules were widely relaxed during the COVID-19 pandemic, without avoiding increases in public deficits and public debts. Therefore, to compare the 'normal' functioning of expenditure rules in terms of the level or variation, in the empirical part of the paper, we have chosen to stop our database at the year 2019.

4.1. Countries with Expenditure Rules

Canada (1998–2005) has temporarily used an expenditure rule in its debt repayment plan. Although there was a 'balanced budget or better' policy, it was not enacted into federal law. In Georgia, an expenditure rule was temporarily introduced between 2014 and 2018. In Hungary, a rule limiting the variation of public expenditure was temporarily introduced in 2010–2011. In Iceland, an expenditure rule was temporarily introduced between 2004 and 2008, but it was politically abandoned afterward. In Japan, expenditure rules were temporarily introduced between 2006 and 2008, 2010 and 2012, and 2015 and 2018; but the economic situation did not make them sustainable. Between 2006 and 2008, a temporary expenditure rule was implemented in Kosovo; however, it was not followed and, as of 2009, it was only formally applicable to municipalities. In Romania, an expenditure rule (both in terms of the variation and absolute level) was temporarily introduced between 2010 and 2012, and in Serbia, such a rule was introduced between 2016 and 2018; however, they were very short-lived. In Thailand (2018–), the expenditure rule defines the minimal amount of capital expenditure. In the United Kingdom (2014–2019), a ceiling was temporarily imposed on a subset of welfare spending; but due to this limited scope, it cannot be considered a fiscal rule. In Azerbaijan, an expenditure rule has only existed since 2019, in Costa Rica since 2020, and in Uruguay since 2021. Therefore, we will not consider these countries in the database of our empirical results in the current section.

Some countries have national rules both in terms of the variation and absolute level of public expenditure. For example, in Denmark (2007–), in 2007–2008, in addition to

a target on public consumption as a percentage of the cyclically adjusted GDP, a target was set for real growth in public consumption. Between 2009 and 2014, the target was to reduce the share of public consumption in the cyclically adjusted GDP to 26.5% in 2015. Additionally, in 2012, a new fiscal rule suggested that the increase in real public spending could not surpass the potential GDP growth. The Budget Act, which went into effect in 2014, also established legally mandated caps on expenditures for the central government, local governments, and regions, covering a continuous four-year period. Since 2014, Latvia (2012–)'s Fiscal Discipline Law has determined that public spending, excluding the GDP deflator (inflation), cannot rise more quickly than the average potential GDP growth. An expenditure ceiling is also fixed in the Medium Term Budget Framework Law for the next three years as an operational tool for the preparing the Budget Law. A political commitment to a ceiling on the expenditure-to-GDP ratio was temporarily applied in Bulgaria between 2006 and 2009. Since 2012, Bulgaria (2012–) has also combined the two types of expenditure rules. The expenditure-to-GDP ratio should not exceed 40%, whereas the annual expenditure growth should not exceed the potential GDP growth. As members of the European Union, Denmark, Latvia, and Bulgaria must also verify the constraint of the Six Pack limiting public expenditure variation since 2012.

Outside the EU, Armenia has also a national fiscal rule both in terms of the variation and absolute level of public expenditure. Indeed, in 2018, Armenia (2018–) introduced expenditure ceilings to manage the public debt. If the government debt is more than 40% of the GDP, then recurrent spending cannot be higher than the revenue. Furthermore, if the public debt surpasses 50% of the GDP, the government must set a ceiling on the potential increase in recurrent expenditures.

Some European countries have national rules in terms of an absolute level of public expenditure. However, as members of the European Union, since 2012, they must also verify the constraint of the Six Pack in terms of the variation of public expenditure. In Finland (2003–), for the four years that the government is in office, the rule establishes annual spending caps. Real limits are imposed on primary non-cyclical spending (about 75% of all central government spending). In Greece (2011–), spending ceilings exist for line ministries. In Luxembourg (2014–), since July 2014, the multi-annual financial programming law includes for each fiscal year a maximum amount of expenditure for the central government. In the Netherlands (1994–), real expenditure ceilings are set for both total (roughly 90% of general government spending) and sectoral spending for each year of the government's four-year office term. The scope of the coverage was altered in 2007, 2009, and 2010. In Sweden (1997–), nominal expenditure ceilings are set for three years for the central government and pension system, with an annual addition to the outer year; interest expenses are not included.

Some countries have national rules in terms of the variation of public expenditure. In Andorra (2014–), the general government's growth of current primary spending (wages and salaries, goods and services, and current transfers) must remain below the nominal GDP growth if it is positive, or must be zero otherwise. In Argentina (2000–2008; 2018–2019), the primary expenditure should not grow faster than the nominal GDP or, at most, should remain constant during periods of negative nominal GDP growth. However, the rule was never observed, and it was suspended in because of the financial crisis between 2009 and 2017. Since 2018, primary current expenditure cannot grow more than inflation; but the rule was suspended in 2020 and 2021 with the COVID crisis. In Australia (2009–), in case of a budget deficit, once the economy recovered to grow above trend, the annual real growth rate of public expenditure must not exceed 2%, until reaching budget surpluses of at least 1% of the GDP. In Colombia (2000–), a fiscal rule limited the central government's current expenditure growth, but it was suspended in 2020 because of the pandemic. In Grenada (2015–), the central government's and covered parastatal entities' real primary spending growth is limited to 2% annually. In Israel (2005–), the central government's real spending was limited to 1.7% in 2007. Afterward, the rule was relaxed to allow a real growth of public expenditure of 3% in 2009 or 2.6% in 2011. In 2014, the method of calculation of the

real public expenditure growth rate was complicated, taking into account the level of the public debt.

In Mexico (2014–), structural current spending, defined as the current primary expenditure, which includes capital transfers to state and local governments but does not include spending subject to automatic regulations (such as pensions, subsidies for electricity, and sub-national revenue-sharing), is limited by a cap. The latter, initially set at 2%, depends on the potential output growth (average of past and projected growth rates). In Mongolia (2013–), the expenditure growth cannot be above the non-mineral GDP growth. In Paraguay (2015–), primary spending real growth is capped at 4% annually. In Peru (2000–), a ceiling was put on the real growth of the current expenditure: 2% (2000–2002), 3% (2003–2008), or 4% after 2009. Since 2013, new expenditure ceilings were introduced on the general government's real (non-interest and current) spending. The ceiling was established by referencing a moving average of annual real GDP growth centered between −15 and +5. In these two last countries, the rules were suspended because of the COVID-19 health crisis.

Some countries have both national and supranational rules limiting the variation of public expenditure, as they are members of the European Union. In Belgium (1993–1998), between 1993 and 1998, the central government's real growth in primary expenditures should be below or equal to 0%. Following a successful budgetary consolidation in a period of relatively high economic growth, once the rule was perceived as having fulfilled its purpose, it was abandoned in 1998. In Denmark (1994–2006), between 1994 and 2001, real public consumption growth was capped at 0.5% of the GDP; it was capped at 1% between 2002 and 2006. In Croatia (2012–), in 2012, the temporary rule stipulated that general government spending must be reduced by 1% of the GDP annually until, at the very least, a nominal primary balance of zero was reached. Since 2014, real growth in public spending cannot surpass potential GDP growth; this national regulation is comparable to the European Six Pack benchmark. In France (1998–), the stricter provision applies between the target for the increase in real public expenditure and the target for nominal expenditure growth, excluding interest payments and pensions. In Germany (1982–2009), expenditures could not grow faster on average than revenue (1% annually on average until 2008) for central and regional governments. This rule was replaced in 2009 by the 'debt brake', limiting structural deficits to 0.35% of the GDP for the federal government.

In Lithuania (2008–), if the general government budgets saw an average deficit over the previous five years, the annual growth of budget appropriations could not exceed half of the average growth rate of budget revenue during that time. This rule was revised in 2015 as follows. If the general government budgets have, on average, shown a deficit over the previous five years, the annual growth rate in percentage of total spending of the state budget, social insurance fund, and health insurance may not exceed half (0.5 times) the average multiannual growth rate of the potential GDP. In Luxembourg (1990–2013), public expenditure growth should remain compatible with quantified medium-term economic growth prospects. New measures were enacted in 2014 (see above). In Poland (2011–), the global increase in central government real discretionary spending and in all newly enacted spending could not exceed 1%. Since 2015, the trajectory of government spending has been determined by long-term GDP growth (or, in the event that the deficit or debt exceed predetermined thresholds, below trend GDP growth). National expenditure rules were put on hold during the pandemic and then changed in 2020. In Spain (2011–), nominal expenditure growth for central and local governments shall not surpass the growth of the nominal medium-term GDP; interest and non-discretional spending on unemployment benefits are excluded from the calculation.

Since 2012, as members of the European Economic and Monetary Union, Austria, Cyprus, the Czech Republic, Estonia, Hungary, Ireland, Italy, Malta, Portugal, Romania, the Slovak Republic, Slovenia, and the United Kingdom (until 2020) are concerned by the supranational fiscal rule of the Six Pack, limiting the variation of public expenditure. When subtracting revenue discretionary increases and excluding unemployment benefits, the annual growth of primary expenditure should not surpass the nominal GDP growth over

the long run. This benchmark only applies when a nation is not in an excessive deficit procedure, and it is used to determine whether a nation has made sufficient progress toward the medium-term goal of a structural budget that is in balance.

Finally, some countries have fiscal rules constraining the absolute level of public expenditure. In Botswana (2003–), the government has set expenditure limits since 2006, capping government spending at 40% of the GDP, and introducing the goal to reduce government spending to 30% of GDP by the end of the 2015–2016 fiscal year. In Brazil (2000–), the cap on personnel expenses is 50% of the net current revenue for the federal government; for states and municipalities, it is 60%. The 2016 rule amendment places restrictions on the federal government's real primary spending and indicates that nominal spending may increase starting in 2016 following inflation. In Ecuador (2010–), even though both are ill-defined, the permanent expenditures cannot exceed the permanent revenue. The rule was revised in 2020; the Ministry of Finance is responsible for defining annual nominal limits for the increase in eligible primary expenditures for the central government. In Namibia (2010–), the cap on government spending was set at 30% of the GDP before being revised to less than 33% of GDP in response to the COVID-19 crisis.

In Russia (2013–), there is an oil-price-based fiscal rule. The rule sets a ceiling on expenditures using oil revenue at the 'base' oil price. The rule was revised in 2017 to integrate a tougher definition of unstable revenues, and it was temporarily suspended because of the COVID-19 crisis. In Singapore (1991–), according to the expenditure rule, the annual budget for spending may include up to 50% of net investment income from the Monetary Authority of Singapore, the Government of Singapore Investment Corporation, and Temasek. The rule was changed in 2008 to take 'expected long-term net real investment returns' into consideration as a benchmark. In Tanzania (2015–), the Oil and Gas Revenue Management Act requires the government to maintain current spending at a constant percentage of the GDP, and it sets a ceiling on government spending at 40% of the GDP. In the United States (1990–2002 and 2011–), between 1990 and 2002, annual appropriations limits were put on discretionary spending. However, the rule was abandoned when the economic boom suggested that an increasing amount of spending was occurring outside of the ceiling through an emergency spending category. Since 2011, discretionary spending caps have been adopted and are associated with additional spending cuts ('sequester'). In Vietnam (2016–), development investment should account for 25% (28% since the revision in 2021) of the total expenditure, and recurrent expenditure should be under 64% (62% in 2021) of the total expenditure.

4.2. Expenditure Rules and Fiscal Discipline

Our database comes from OECD and IMF statistics. Our goal is to compare the situation of countries having various expenditure rules with the average situation in OECD countries for a given year.

Cordes et al. (2015) and Ayuso-i-Casals (2012) underline that according to econometric studies, countries with expenditure rules typically have higher primary balances; they seem effective at controlling politically motivated spending pressures. According to empirical observations extracted from our database, are expenditure rules efficient at ensuring fiscal discipline? Mainly, regarding the goal of our paper, what is the relative efficiency of fiscal rules in terms of the variation or level of public expenditure to ensure this fiscal discipline?

According to our database, budget surpluses are higher (or budget deficits are weaker) by about 2.5 percentage points of the GDP in countries with an expenditure rule in comparison with average OECD values; but the R^2 values are very weak. Additionally, this relationship can be biased, as countries that have a strong commitment to fiscal discipline and restrictive expenditure rules may be more likely to have a weaker budget deficit. However, Figure 1 shows that a rule in terms of level of public expenditure reduces the budget deficit more than a rule in terms of variation. Furthermore, having both rules would still be more efficient, as the budget deficit would then be weaker (or the budget surplus higher), and the relation would be more significant.

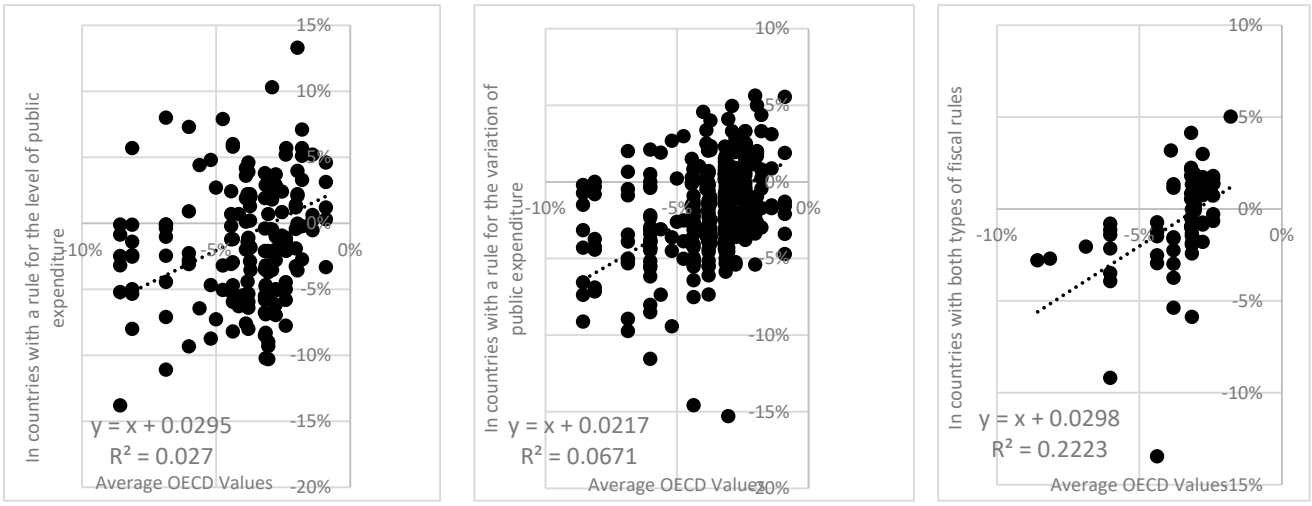


Figure 1. Expenditure rules and budget balances. (**a**) Case of a rule for the level of public expenditure. (**b**) Case of a rule for the variation of public expenditure. (**c**) Case for both types of fiscal rules. Budget balance: general government net lending (+) or borrowing (−) as percentage of the GDP. Source: OECD and IMF database, and the author's own calculations.

Regarding fiscal discipline, we can also study if there is an empirical link between fiscal rules and the public debt-to-GDP ratio. Indeed, the extent to which governments are compelled to meet their expenditure targets by fiscal surveillance and the financial markets may be influenced by this ratio. Then, an expenditure rule seems to imply a smaller increase (or a stronger reduction) in the public debt-to-GDP ratio in comparison with its average increase (reduction) in OECD countries (see Figure 2). Indeed, an expenditure rule can improve fiscal discipline: the public debt decreases on average by 3.9 percentage points of the GDP more than in average OECD countries. Additionally, the public debt would be slightly more reduced with a rule in terms of the level (and the relation is more significant) than with a rule in terms of the variation of public expenditure (see Figure 2).

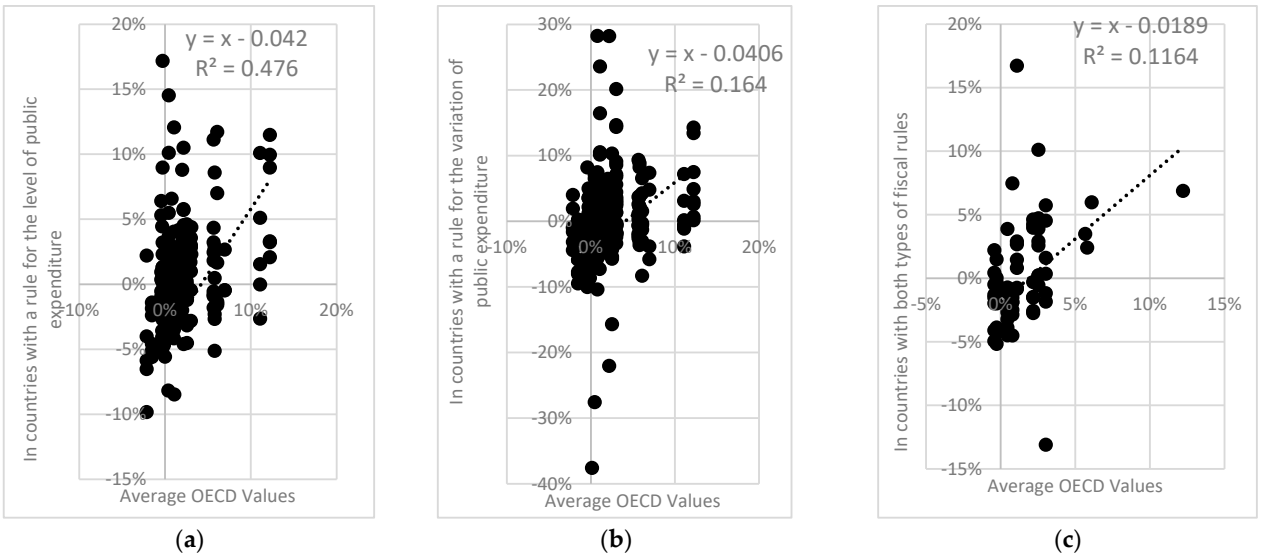


Figure 2. Expenditure rules and variations of public debt. (**a**) Case of a rule for the level of public expenditure. (**b**) Case of a rule for the variation of public expenditure. (**c**) Case for both types of fiscal rules. Public debt: general government public debt as percentage of the GDP; difference between the public debt in a given country and the average public debt in OECD countries in points of GDP. Source: OECD and IMF database, and the author's own calculations.

Therefore, an expenditure rule, in particular in terms of the level of public expenditure, could improve fiscal discipline. Empirically, the relationship between the share of public expenditure in GDP and the fiscal balance (or the variation of the public debt) is very weak. Nevertheless, according to analytical results in Section 3, we can study whether the public expenditure-to-GDP ratio could influence the most appropriate fiscal rule.

Then, in conformity with the results in Section 3, we find that in countries with a weak public expenditure-to-GDP ratio, a rule in terms of the variation of public expenditure would better improve fiscal discipline. Indeed, such a rule would allow the budget deficit to be reduced (or the budget surplus to increase) by 2.63 percentage points of GDP more than in other OECD countries, whereas differences with other OECD countries are not significant (the R^2 is too weak) with a rule in terms of the level of public expenditure (see Appendix B). For example, in 2019, the average budget deficit was 3.18% of the GDP in OECD countries, whereas budget surpluses were 0.12% of the GDP in Estonia, 0.48% in Ireland, 0.49% in Lithuania, 1% in Mongolia, and 5% of the GDP in Grenada. In the same way, a rule in terms of the variation of public expenditure could allow the public debt to decrease (or to increase by a weaker amount) by 4.77 percentage points of the GDP more than in other OECD countries. On the contrary, with a rule in terms of the level of public expenditure, the public debt could only decrease by 2.63 percentage points of the GDP more than in other OECD countries, whereas the decrease was not really significant when both types of expenditure rules were present (see Appendix B). For example, in 2019, in OECD countries, public debts decreased on average by 0.27 percentage points of the GDP, whereas the public debts decreased by 1.18 percentage points of the GDP in Colombia, 6.01 in Ireland, and 9.70 in Mongolia.

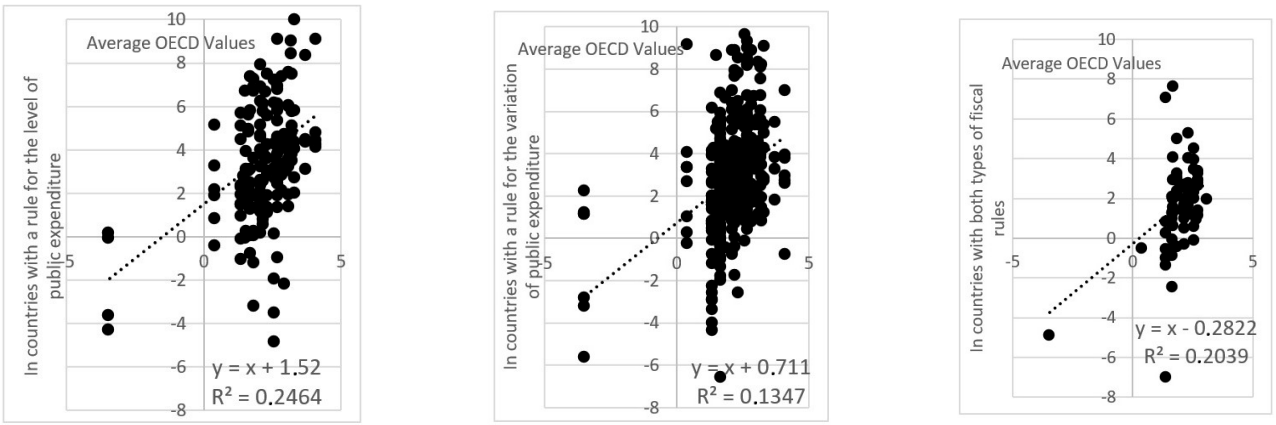
Also in conformity with the results in Section 3, in countries with a high share of public expenditure in GDP, a rule in terms of the level of public expenditure would better improve fiscal discipline. Indeed, such a rule would allow the budget deficit to be reduced (or the budget surplus to increase) by 5.66 percentage points of the GDP more than in other OECD countries, whereas it was only reduced by 2.81 when both rules were present and by 1.41 percentage points of the GDP more than in other OECD countries with a rule in terms of the variation of public expenditure (see Appendix B). For example, in 2011, the average budget deficit was 6.86% of the GDP in OECD countries, whereas it was only 0.36% in Sweden and 1.02% of the GDP in Finland (rule for the level). In the same way, a rule in terms of the level of public expenditure could allow the public debt to decrease (or to increase by a weaker amount) by 5.82 percentage points of the GDP more than in other OECD countries. On the contrary, the public debt could only decrease by 4.69 points with a rule in terms of the variation of public expenditure, and by 4.07 percentage points of the GDP more than in other OECD countries when both types of expenditure rules were present (see Appendix B). For example, in 2019, in OECD countries, public debts decreased on average by 0.27 percentage points of the GDP, whereas the public debts only decreased by 0.36 in France and 0.29 percentage points of the GDP in Italy (rule for the variation).

4.3. Expenditure Rules and Economic Activity

This section analyzes, according to empirical observations, whether expenditure rules are harmful to sustaining a high level of economic activity. Mainly, what is the relative efficiency of fiscal rules in terms of the variation or level of public expenditure to sustain economic activity?

According to our database, economic activity growth is higher by about 0.84 percentage points in countries with an expenditure rule in comparison with average OECD values. However, Figure 3 shows that a rule in terms of the level of public expenditure could increase economic activity by 1.52 percentage points, whereas a rule in terms of the variation could only increase economic activity by 0.71 percentage points. This can be explained by the fact that preserving fiscal margins by sound fiscal policies when economic activity is sufficiently high can allow automatic stabilizers to be afterward more efficient in sustaining economic activity in a recessionary framework. However, having both kinds

of expenditure rules could be detrimental, as economic activity would then be weaker by 0.28 percentage points. Indeed, strongly constraining public consumption has always recessionary consequences because of the fiscal multiplier, even if the latter is weaker in open economies.



(**a**) (**b**) (**c**)

Figure 3. Expenditure rules and economic activity. (**a**) Case of a rule for the level of public expenditure. (**b**) Case of a rule for the variation of public expenditure. (**c**) Case for both types of fiscal rules. Economic activity: annual real GDP growth, percentage change from the previous period. Source: OECD and IMF data, and the author's own calculations.

Therefore, an expenditure rule, in particular in terms of the level of public expenditure, could improve economic activity. Additionally, empirically, we find that a rule in terms of the level of public expenditure is more appropriate to sustain economic activity, especially when the share of public expenditure in GDP is weak (see Appendix C). Indeed, when the public expenditure-to-GDP ratio is weak, this rule would allow economic activity to increase by 2.31 percentage points in comparison with other OECD countries. On the contrary, economic activity would only increase by 1.54 percentage points with a rule in terms of the variation of public expenditure, whereas the relation is not significant with both types of expenditure rules. In the same way, when the public expenditure-to-GDP ratio is high, a rule in terms of the level of public expenditure would increase economic activity by 1.23 percentage points in comparison with other OECD countries. On the contrary, economic activity would decrease by 0.5 percentage points with a rule in terms of the variation of public expenditure, and even by 0.94 percentage points when both types of expenditure rules are present (see Appendix C).

For example, in 2019, the average economic growth was 1.7% in OECD countries, whereas economic growth rates were 3% in Botswana and even 5.8% in Tanzania and 7.4% in Vietnam, where the public expenditure-to-GDP ratio was weak and with a rule in terms of the level of public expenditure. In countries with a rule in terms of the variation of public expenditure and a weak public expenditure-to-GDP ratio, economic growth was high in Estonia (3.7%), Romania (3.9%), Lithuania (4.7%), Ireland (5.3%) and Mongolia (5.6%), but was weak in Argentina (−2%), Paraguay (−0.4%), Australia, and Mexico (−0.3%). Finally, economic growth was weak in countries with a high share of public expenditure in GDP, and with a rule in terms of the variation of public expenditure such as Italy (0.5%), or with both types of public expenditure rules such as Denmark (1.5%) or Finland (1.2%).

For all countries, whether they have fiscal rules or not, empirical data show a decreasing relation between the share of public expenditure in GDP and real economic activity (see Figure 4). For example, the share of public expenditure in GDP is particularly high (already above 50% of the GDP in 2019) in Belgium, Finland or France, whereas economic growth is mainly weaker than in other countries. On the contrary, the share of public expenditure

in GDP is particularly weak (below 30% of the GDP) in Ireland, India, Paraguay or Peru, whereas economic growth is usually higher than in other countries.

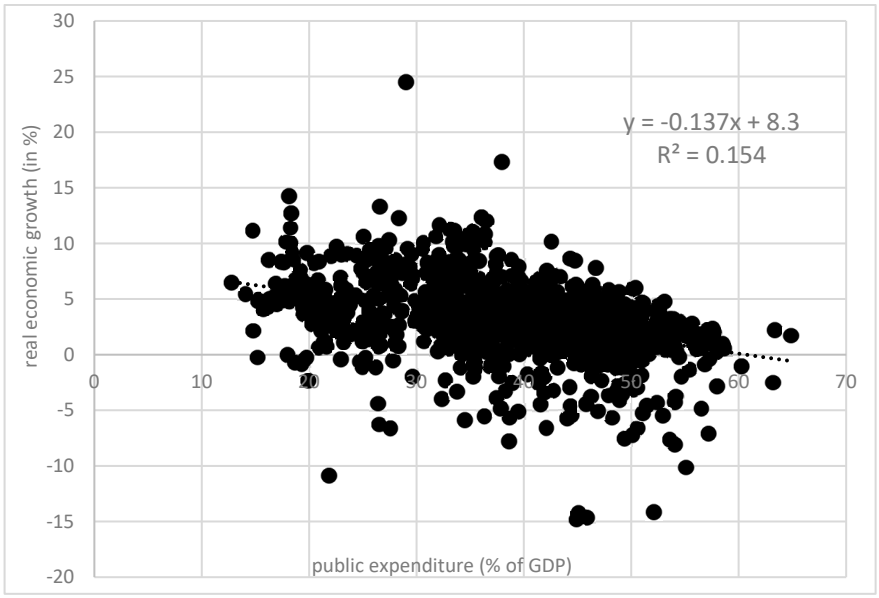


Figure 4. Public expenditure and real economic activity. Government expenditure (% of the GDP) and annual real GDP growth (% change from the previous year). Source: OECD and IMF data between 2000 and 2019, 55 countries, and the author's own calculations.

Moreover, we can study whether this influence of the share of public expenditure in GDP on economic activity is also influenced by the existence and the nature of a potential fiscal rule. Then, the empirical data show that the share of public expenditure in GDP is detrimental to economic growth whatever the existing public expenditure rule. However, it would be less detrimental for countries with limits on the level of public expenditure, and much more detrimental for countries with both types of fiscal rules in terms of the level and also of variation of public expenditure (see Figure A7 in Appendix C).

5. Conclusions

Expenditure rules aim to ensure fiscal discipline, a sound fiscal framework, and public debt sustainability. Regarding this first goal, analytically, we find that to limit the budget deficit and the public debt, a rule in terms of the level of public expenditure is more appropriate if potential economic growth is weak and/or if the public expenditure-to-GDP ratio is high. Therefore, it could be more appropriate for developed countries subject to the danger of a recessionary framework. On the contrary, a rule in terms of the variation of public expenditure would be more appropriate to ensure fiscal discipline for emerging countries with high potential economic growth and a weak public expenditure-to-GDP ratio. Indeed, empirically, it seems that in OECD countries, an expenditure rule improves fiscal discipline: the budget deficit is weaker and the public debt decreases more (or increases less). Furthermore, the empirical results confirm that a rule in terms of the variation of public expenditure could better improve fiscal discipline for countries with a weak public expenditure-to-GDP ratio, whereas a rule in terms of the level of public expenditure could better improve fiscal discipline for countries with a high public expenditure-to-GDP ratio.

In addition, expenditure rules must also avoid being harmful to economic growth and should even contribute to sustaining economic activity. Regarding this second goal, a fiscal rule limiting the level of public expenditure appears more favorable to economic growth than a rule limiting the variation of public expenditure. Indeed, the sustainability of the public debt and preserving fiscal margins by sound fiscal policies and budget surpluses when economic activity is sufficiently high can contribute to allowing automatic stabilizers

to be afterward more efficient at sustaining economic activity in a recessionary context. However, limiting at the same time the variation and the level of public expenditure could be detrimental to economic growth. Indeed, strongly constraining public consumption could have recessionary consequences because of the fiscal multiplier. Empirically, a rule in terms of the level of public expenditure seems more appropriate to sustain economic activity. Indeed, a rule in terms of the variation of public expenditure could hamper economic growth, especially for countries with a high public expenditure-to-GDP ratio.

This paper contributes to the debate about the advantages and drawbacks of fiscal rules by shedding light on economic causalities between fiscal discipline, economic growth, and the share of public expenditure in GDP. The policy implication is that for countries with weak potential economic growth and a high public expenditure-to-GDP ratio, such as European countries, it could have been useful in the new European fiscal framework to limit not only public expenditure growth but also its absolute level as a share of the GDP. Nevertheless, we have only underlined potential causalities, whereas the effectiveness of fiscal rules can dramatically be influenced by the unique institutional, political, and economic context of each country. Another paper could test our hypotheses with a rigorous econometric framework and test the influence of other institutional, political, or economic variables on the relative efficiency of various expenditure rules.

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Informed Consent Statement: Not applicable.

Data Availability Statement: Our database comes from OECD statistics, https://www.oecd.org/en/data/indicators.html?orderBy=mostRelevant&page=0 (accessed on 10 July 2024), and IMF statistics, https://www.imf.org/en/Data (accessed on 10 July 2024).

Conflicts of Interest: The author declares no conflicts of interest.

Appendix A. Database for Empirical Estimations

Our database comes from OECD and IMF statistics.

The share of public expenditure is considered weak if it is below 40% of the GDP and high if it is above 48% of the GDP.

- Countries with an expenditure rule both in terms of the variation and level:

Weak share of public expenditure in GDP—Armenia (2018–2019), Bulgaria (2012–2019), Latvia (2012–2019),

Medium share of public expenditure in GDP—Luxembourg (2014–2019), and the Netherlands (2012–2019).

High share of public expenditure in GDP—Denmark (2007–2019), Finland (2012–2019), Greece (2012–2019), and Sweden (2012–2019).

- Countries with an expenditure rule in terms of the variation:

Weak share of public expenditure in GDP—Andorra (2014–2019), Argentina (2000–2008; 2018–2019), Australia (2009–2019), Colombia (2000–2019), Estonia (2012–2019), Grenada (2015–2019), Ireland (2012–2019), Lithuania (2008–2019), Mexico (2014–2019), Mongolia (2013–2019), Paraguay (2015–2019), Peru (2000–2019), Romania (2012–2019),

Medium share of public expenditure in GDP—Croatia (2012–2019), Cyprus (2012–2019), the Czech Republic (2012–2019), Germany[1] (1991–2019), Israel (2005–2019), Luxembourg (1990–2013), Malta (2012–2019), Poland (2011–2019), Portugal (2012–2019), the Slovak Republic (2012–2019), Slovenia (2012–2019), Spain (2011–2019), and the United Kingdom (2012–2019).

High share of public expenditure in GDP—Austria (2012–2019), Belgium (1993–1998, 2012–2019), Denmark (1994–2006), France (1998–2019), Hungary (2010–2019), and Italy (2012–2019).

- Countries with an expenditure rule in terms of the level:

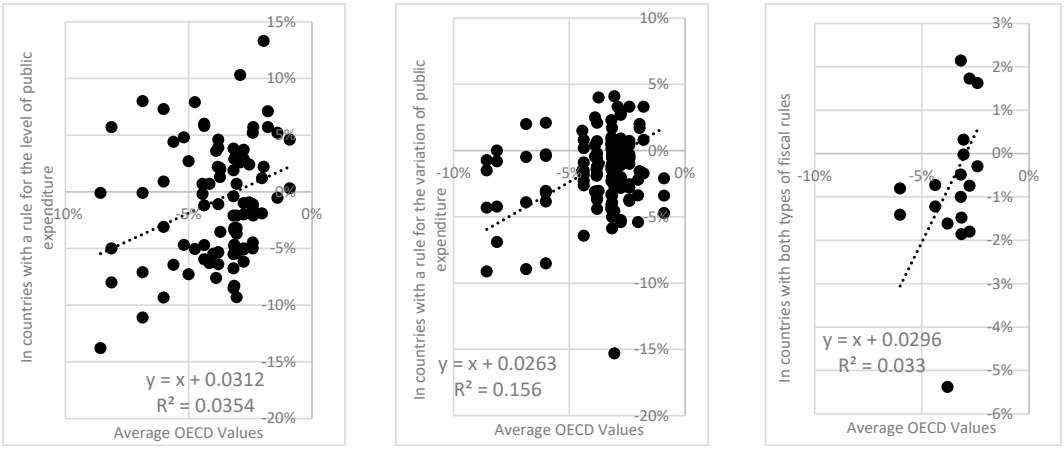
Weak share of public expenditure in GDP—Botswana (2003–2019), Namibia (2010–2019), Russia (2013–2019), Singapore (1991–2019), Tanzania (2015–2019), the United States (1990–2002, 2011–2019), Vietnam (2016–2019).

Medium share of public expenditure in GDP—Brazil (2000–2019), Ecuador (2010–2019), and the Netherlands (1994–2011).

High share of public expenditure in GDP—Finland (2003–2011) and Sweden (1997–2011).

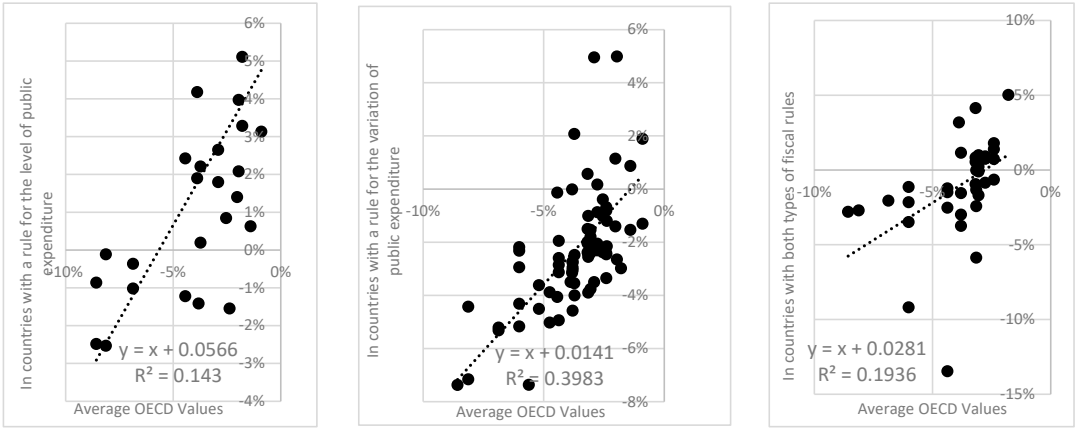
Regarding the share of public expenditure in GDP between 2000 and 2019 shown in Figure 4, countries included in our database are Argentina, Australia, Austria, Belgium, Botswana, Brazil, Bulgaria, Canada, Chile, China, Colombia, Costa Rica, Croatia, Cyprus, the Czech Republic, Denmark, Ecuador, Estonia, Finland, France, Germany, Greece, Grenada, Hungary, Iceland, India, Indonesia, Ireland, Israel, Italy, Japan, Korea, Latvia, Lithuania, Luxembourg, Mexico, Mongolia, Namibia, the Netherlands, New Zealand, Norway, Paraguay, Peru, Poland, Portugal, Romania, Russia, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Türkiye, the United Kingdom, and the United States.

Appendix B. Fiscal Discipline and Public Expenditure-to-GDP Ratio



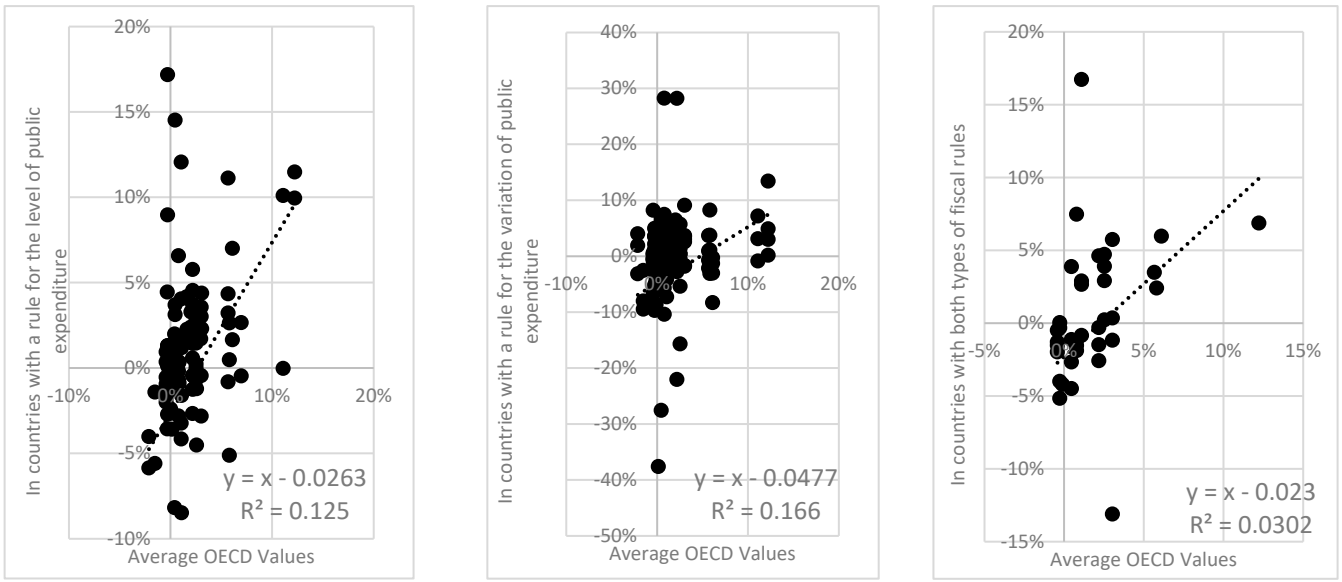
(**a**) (**b**) (**c**)

Figure A1. Expenditure rules and budget balances in countries with a weak public expenditure-to-GDP ratio. (**a**) Case of a rule for the level of public expenditure (**b**) Case of a rule for the variation of public expenditure. (**c**) Case for both types of fiscal rules.



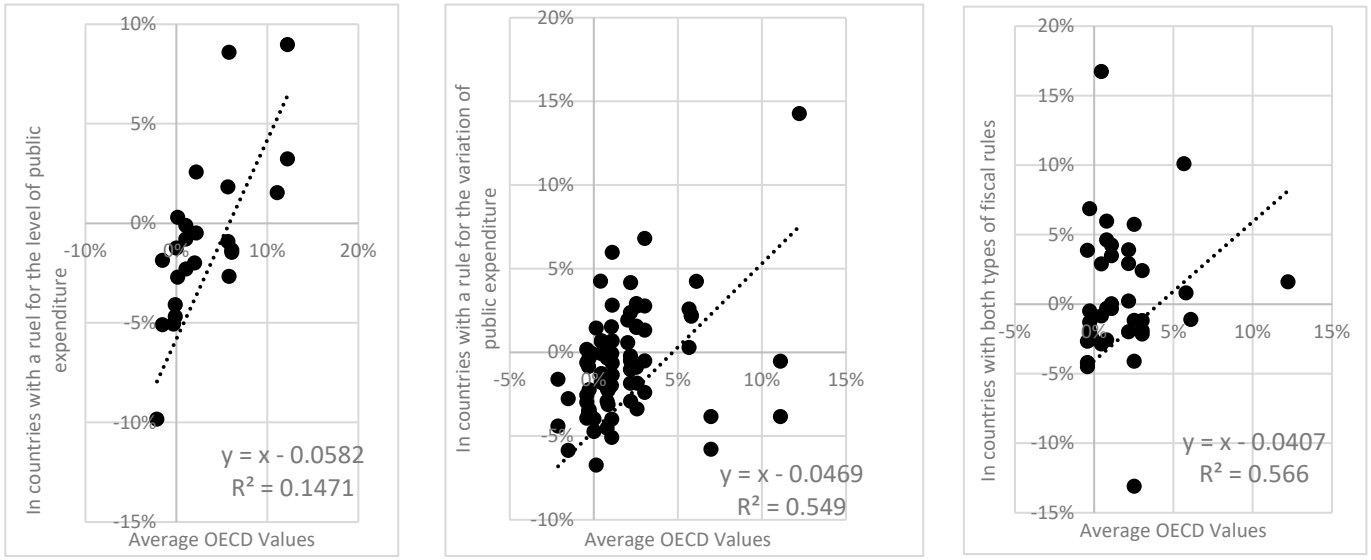
(**a**) (**b**) (**c**)

Figure A2. Expenditure rules and budget balances in countries with a high public expenditure-to-GDP ratio. (**a**) Case of a rule for the level of public expenditure (**b**) Case of a rule for the variation of public expenditure. (**c**) Case for both types of fiscal rules. Budget balance: general government net lending (+) or borrowing (−) as a percentage of the GDP. Source: OECD and IMF database, and the author's own calculations.



(**a**) (**b**) (**c**)

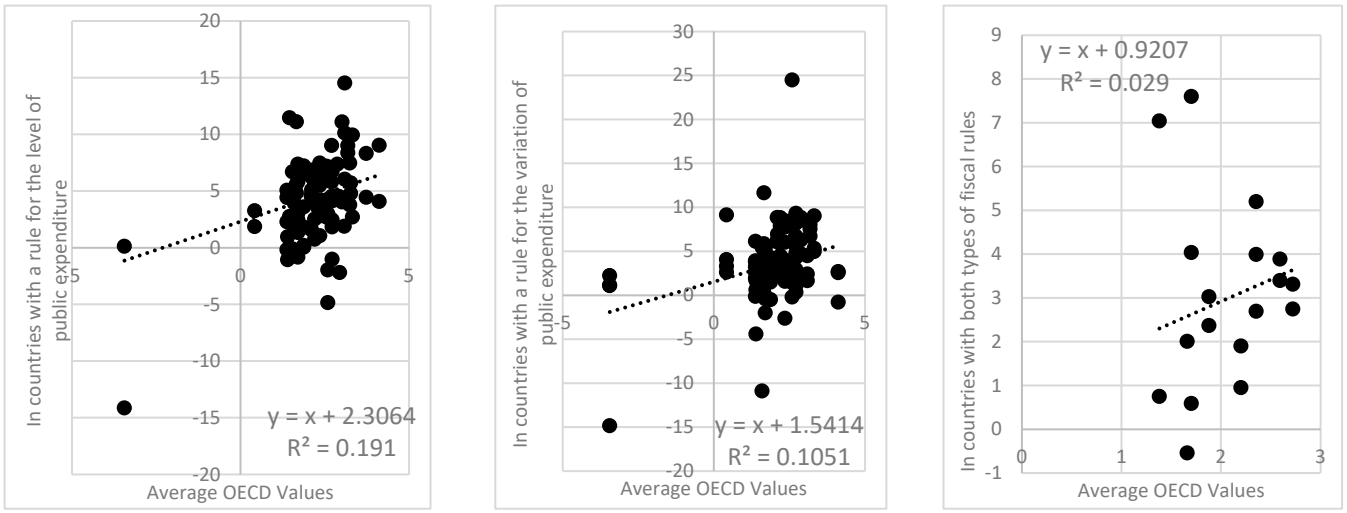
Figure A3. Expenditure rules and variations of public debt in countries with a weak public expenditure-to-GDP ratio. (**a**) Case of a rule for the level of public expenditure (**b**) Case of a rule for the variation of public expenditure. (**c**) Case for both types of fiscal rules.



(**a**) (**b**) (**c**)

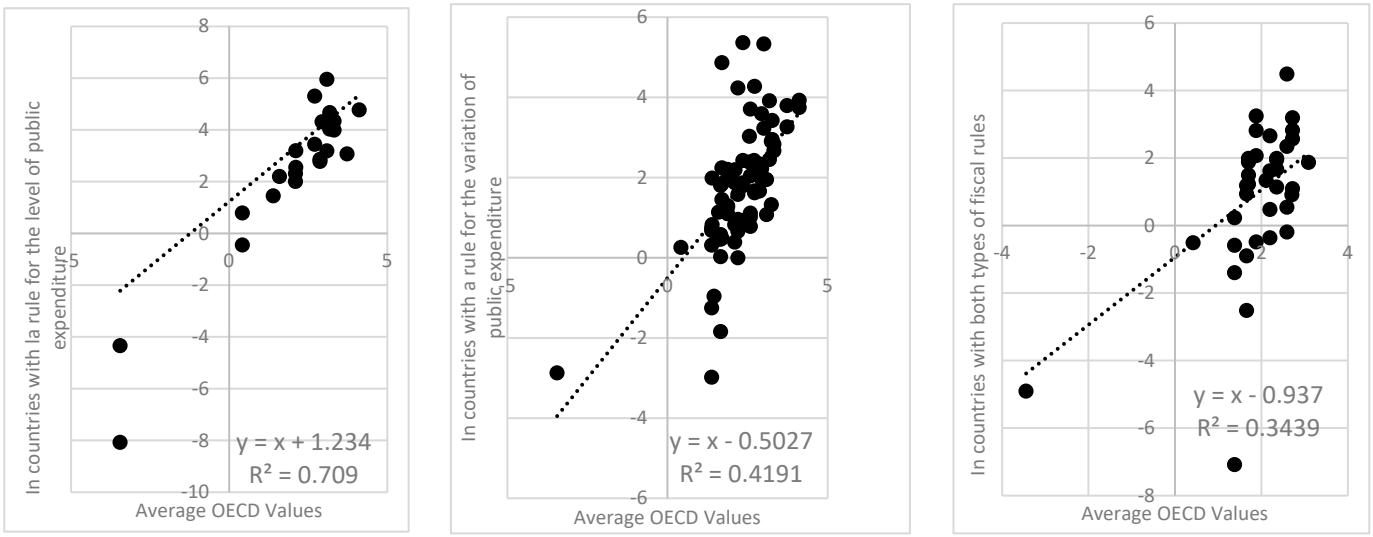
Figure A4. Expenditure rules and variations of public debt in countries with a high public expenditure-to-GDP ratio. (**a**) Case of a rule for the level of public expenditure (**b**) Case of a rule for the variation of public expenditure. (**c**) Case for both types of fiscal rules. Public debt: general government public debt as a percentage of the GDP; difference between the public debt in a given country and the average public debt in OECD countries in points of the GDP. Source: OECD and IMF database, and the author's own calculations.

Appendix C. Economic Activity and Public Expenditure-to-GDP Ratio



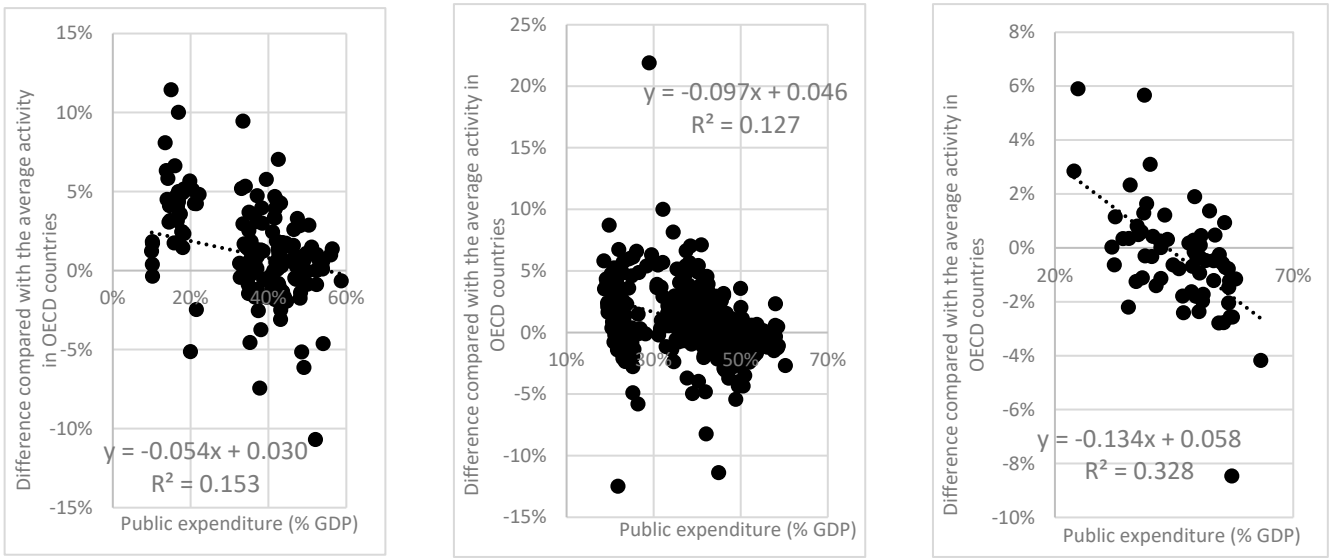
(**a**) (**b**) (**c**)

Figure A5. Expenditure rules and economic activity in countries with a weak public expenditure-to-GDP ratio. (**a**) Case of a rule for the level of public expenditure (**b**) Case of a rule for the variation of public expenditure. (**c**) Case for both types of fiscal rules.



(**a**) (**b**) (**c**)

Figure A6. Expenditure rules and economic activity in countries with a high public expenditure-to-GDP ratio. (**a**) Case of a rule for the level of public expenditure (**b**) Case of a rule for the variation of public expenditure. (**c**) Case for both types of fiscal rules. Economic activity: annual real GDP growth, percentage change from the previous period. Source: OECD and IMF data, and the author's own calculations.



(**a**) (**b**) (**c**)

Figure A7. Public expenditure-to-GDP ratio and economic activity. (**a**) Case of a rule for the level of public expenditure (**b**) Case of a rule for the variation of public expenditure. (**c**) Case for both types of fiscal rules. Government expenditure (% of the GDP). Economic activity: annual real GDP growth, percent change from the previous period; difference between the economic growth in a given country and the average economic growth in OECD countries. Source: OECD and IMF data, and the author's own calculations.

Note

[1] For Germany, we consider data from 1991, after the reunification.

References

Afonso, Antonio, and Joao T. Jalles. 2013. Do fiscal rules matter for growth? *Applied Economics Letters* 20: 34–40. [CrossRef]

Apeti, Ablam Estel, Bambe Bao-We-Wal, and Jean-Louis Combes. 2023. *On the Macroeconomic Effects of Fiscal Reforms: Fiscal Rules and Public Expenditure Efficiency*. Working Paper Series, DR LEO 2022-16. Orléans: Economic Research Department of the University of Orléans (LEO).

Ayuso-i-Casals, Joaquim. 2012. *National Expenditure Rules: Why, How and When*. Economic Papers, 473. Brussels: European Commission.

Belu Manescu, Cristiana, and Elva Bova. 2020. *National Expenditure Rules in the EU: An Analysis of Effectiveness and Compliance*. European Economy Discussion Papers, No. 124. Brussels: European Commission.

Bruck, Tilman, and Rudolf Zwiener. 2006. Fiscal policy rules for stabilisation and growth: A simulation analysis of deficit and expenditure targets in a monetary union. *Journal of Policy Modeling* 28: 357–69. [CrossRef]

Buss, Ginters, Grüning Patrick, and Olegs Tkacevs. 2024. Choosing the European fiscal rule. *Baltic Journal of Economics* 24: 116–44. [CrossRef]

Cordes, Till, Tidiane Kinda, Priscilla S. Muthoora, and Anke Weber. 2015. *Expenditure Rules: Effective Tools for Sound Fiscal Policy?* IMF Working Paper, No. 2015/029. Washington, DC: International Monetary Fund.

Davoodi, Hamid, Paul Elger, Alexandra Fotiou, Daniel Garcia-Macia, Andresa Lagerborg, W. Raphael Lam, and Sharanya Pillai. 2022a. *Fiscal Rules at a Glance: An Update 1985–2021*. Washington, DC: Fiscal Affairs Department, International Monetary Fund.

Davoodi, Hamid, Paul Elger, Alexandra Fotiou, Daniel Garcia-Macia, Xuehui Han, Andresa Lagerborg, and W. Raphael Lam. 2022b. *Fiscal Rules and Fiscal Councils. Recent Trends and Performance During the COVID-19 Pandemic*. IMF Working Paper, WP/22/11. Washington, DC: International Monetary Fund.

Eyraud, Luc, Xavier Debrun, Andrew Hodge, Victor Duarte Lledo, and Catherine A. Pattillo. 2018. *Second-Generation Fiscal Rules: Balancing Simplicity, Flexibility, and Enforceability*. IMF Staff Discussion Notes 18/04. Washington, DC: International Monetary Fund.

Grosse-Steffen, Christoph, Laura Pagenhardt, and Malte Rieth. 2021. *Committed to Flexible Fiscal Rules*. WP 854. Paris: Banque de France, December.

Hallerberg, Mark, Rolf Strauch, and Jürgen Von Hagen. 2007. The design of fiscal rules and forms of governance in European Union countries. *European Journal of Political Economy* 23: 338–59. [CrossRef]

Hauptmeier, Sebastian, Sanchez-Fuentes Jesus A., and Ludger Schuknecht. 2011. Towards expenditure rules and fiscal sanity in the Euro area. *Journal of Policy Modeling* 33: 597–617. [CrossRef]

Herrero-Alcalde, Ana, Javier Martín-Román, José Manuel Tránchez-Martín, and Ignacio Moral-Arce. 2024. Fiscal rules to the test: The impact of the Spanish expenditure rule. *European Journal of Political Economy* 81: 102501. [CrossRef]
Holm-Hadulla, Fédéric, Sebastian Hauptmeier, and Philipp Rother. 2012. The impact of numerical expenditure rules on budgetary discipline over the cycle. *Applied Economics* 44: 3287–96. [CrossRef]
Lledó, Victor, Sungwook Yoon, Xiangming Fang, Samba Mbaye, and Young Kim. 2017. *Fiscal Rules at a Glance*. Washington, DC: Fiscal Affairs Department, International Monetary Fund.
Schuknecht, Ludger. 2004. *EU Fiscal Rules: Issues and Lessons from Political Economy*. Working Paper Series, No. 421. Frankfurt: European Central Bank.
Turrini, Alessandro. 2008. *Fiscal Policy and the Cycle in the Euro Area: The Role of Government Revenue and Expenditure*. Economic Papers, No. 323. Brussels: European Economy.
Wierts, Peter. 2008. *How Do Expenditure Rules Affect Fiscal Behaviour?* Working Paper, 166. Amsterdam: De Nederlandsche Bank.