European Parliament

Benefits and drawbacks of an "expenditure rule", as well as of a "golden rule", in the EU fiscal framework

Euro Area Scrutiny

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Abstract

Focusing the EU fiscal framework on an expenditure rule could help to increase transparency, compliance and ownership. In various other respects, like estimation errors or counter-cyclicality of prescribed fiscal policy, an expenditure rule is similar to a structural balance rule.

If the EU decides to go beyond the current focus on fiscal aggregates, a two-rule system aimed at safeguarding specific expenditures could be placed at the centre of the EU fiscal framework. The key challenge is to define and measure the protected expenditures.

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LIST OF ABBREVIATIONS

AMECO	European Commission's annual macro-economic database
EDP	Excessive deficit procedure
EU	European Union
EU15	15 Member States of the EU (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Ireland, Luxembourg, Netherlands, Portugal, Spain, Sweden, United Kingdom)
GDP	Gross domestic product
IMF	International Monetary Fund
MTO	Medium-term objective
OECD	Organisation for Economic Co-operation and Development
OG	Output gap
R&D	Research and development
SGP	Stability and Growth Pact

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EXECUTIVE SUMMARY

This paper discusses two possible avenues for reforming the EU fiscal framework: focusing the framework on an expenditure rule to reduce complexity, and introducing a Golden Rule to safeguard specific public expenditures. An overarching challenge when reforming the EU fiscal framework is to increase compliance with its fiscal rules. The best-designed rules are no good if they are not complied with or if the leeway granted by these rules is not used where it would be advisable. A more transparent, more predictable and less complex fiscal framework could make a significant contribution to enhancing compliance and the role of fiscal rules. The most important lever is to increase national governments' ownership as well as the visibility of rules for politicians, the general public and the media.

Expenditure Rule

The benefits of expenditure rules are often discussed in comparison to observed fiscal policy, but not in relation to other possible rules or rule designs. Because fiscal policy is often chosen not purely in line with the limits set by fiscal rules, however, analysing observed fiscal policy to evaluate the current fiscal framework might be misleading. For example, expenditure and structural balance rules *per se* would have both prescribed a more counter-cyclical fiscal policy in the EU over the past few decades. Under the current framework it appears to be not the rule design itself but, rather, political decisions outside the scope of the fiscal rules, non-compliance with these rules, and accompanying regulations like the use of exceptions that tended to foster pro-cyclical fiscal policy.

Expenditure rules are also similar to structural balance rules in various other respects. Like structural balance rules, expenditure rules are associated with significant challenges when forecasting and estimating the variables necessary for their operationalisation. These errors are substantial and biased in the case of variables required to operationalise structural balance rules. They are smaller, although still significant, and less biased, in the case of expenditures. However, the operationalisation of expenditure rules also requires other variables, such as discretionary revenue measures, which involve cumbersome estimates and are associated with a high degree of uncertainty.

The main advantages of expenditure rules are that the constrained variable is more directly controlled by governments, it is more transparent and the ceiling set by the rule for fiscal policy is less volatile.

Golden Rule

This paper discusses options for converting a fiscal rule under the EU fiscal framework into a Golden Rule, which would allow debt issuance to finance specific expenditure categories. There is a concern that needs to be adressed first, which is that such a rule would go beyond the current focus of the EU fiscal framework on fiscal aggregates and distinguishes between different expenditures in Member States.

The main challenge when introducing a Golden Rule is to clearly and narrowly define the deductible expenditures. Ideally, each spending decision involves a cost-benefit analysis and a subsequent decision to engage irrespective of the category it belongs to. One proposed workaround is to identify expenditure categories which on average exhibit certain growth effects or future benefits. This identification, however, can be very difficult in practice. Furthermore, governments need to be prevented from using 'creative accounting' to shift other expenditures into the defined deductible categories.

Addressing the bias of politicians towards too low investment expenditures does not remove the bias towards excessively high deficits in general. Furthermore, long-term fiscal sustainability still implies that there is a limit to the amount of annual debt issuance, which, however, might be higher with a Golden Rule. This suggests that a cap should be set on the amount of expenditures that is deductible, which would result in a system of two rules: one setting a limit on total expenditures (deductible and non-deductible) and a second one setting a lower limit on the non-deductible portion of expenditures.

1. INTRODUCTION

Ever since the European (Monetary) Union was launched, a framework for the surveillance and coordination of its Member States' fiscal policies has been in place. The aim behind the various types of fiscal rules set under this framework is to ensure sustainable public finances of the Member States. This framework has been reformed and amended in various stages over the years. Among academics, policymakers and the general public, there has been an ongoing debate about the need for further reforms to reduce complexity, enhance transparency, increase compliance with the rules, ensure sustainable public finances, while supporting economic growth and stabilisation, and improve the quality of public finances. The EU's economic governance and fiscal framework have been under official review since the beginning of this year.

Fiscal rules are introduced to counteract the deficit bias of politicians and governments. Empirical and theoretical studies have shown that various politico-economic incentives tend to encourage governments to run deficits which are higher than would be optimal (literature surveys e.g. in Feld, 2018; Wyplosz, 2012). These incentives relate, among other things, to various interest groups' access to a common budgetary resource ('common pools'), political budget cycles and asymmetric information. Spillover effects of high debt ratios also play a role in a monetary union. It has empirically been shown that, in general, fiscal rules can curb the deficit bias and reduce deficits (e.g. Badinger and Reuter, 2015, 2017; Eyraud et al., 2018b; Heinemann et al., 2018; Caselli and Reynaud, 2020).

Despite having fiscal rules in place, however, fiscal policy in the EU has been pro-cyclical and debt levels have not sharply decreased across Member States. Furthermore, (net) public investment ratios have not increased considerably and fiscal rules are not complied with in many years. At the same time the fiscal framework has become more comprehensive and complex. Against this background, this paper analyses two prominently discussed reforms. First, the refocusing of the EU fiscal framework on one rule – namely an expenditure rule. Broadly, this rule would set a limit for expenditure growth which is related to medium-term potential GDP growth. And, second, the conversion of an existing or reformed fiscal rule, like an expenditure or structural balance rule, into a Golden Rule, which would allow debt issuance specifically to finance particular expenditures that benefit current and, especially, future generations, such as investment expenditures or expenditures to mitigate climate change.

Section 2 discusses the differences between various types of fiscal rules and the design of Golden Rules. The current EU fiscal framework is presented in Section 3, which also investigates the implementation and challenges associated with it, based on past data. Section 4 compares various proposals for a new expenditure rule and Section 5 the proposals for Golden Rules. Section 6 concludes, and the Annexes provide further details on calculations and methodology as well as additional figures and estimates.

2. TYPES OF FISCAL RULES

2.1. Budget Balance, Structural Balance and Expenditure Rules

2.1.1. Cyclically-Adjusted Expenditures and Revenues

To investigate the relationship between different types of fiscal rules, a distinction based on their properties between different components of public revenues and expenditures is useful. Some sub-components of public expenditures are directly linked to the position in the economic cycle. For example, expenditures related to unemployment tend to be higher if the economy is in a downturn, as there are more people unemployed, and they tend to be lower if the economy is in an upswing. While in some countries other expenditure categories, such as old-age or other social security expenditures, are also sensitive to the economic cycle (Christofzik et al., 2018), unemployment-related expenditures (EU28

average: 3.1 per cent of total expenditures) are the main cyclical component of public expenditures (European Commission, 2019a). Thus, the European Commission estimates cyclically-adjusted expenditures as total public expenditures net of cyclical unemployment-related expenditures, where the latter would be observed if the output gap were fully closed or, more intuitively, that would on average materialise over the medium term, i.e. across the economic cycle.

Public revenues can also be split into sub-components which are sensitive to the economic cycle and those which are not. In comparison with expenditures, a much larger portion of public revenues is sensitive in this way, as tax revenues depend strongly on the level of activity by firms and households. Thus, when estimating cyclically-adjusted revenues, the European Commission assumes only non-tax revenues (EU28 average: 11.4 per cent of total revenues) to be independent of the economic cycle (European Commission, 2019a). Again, cyclically-adjusted revenues correspond to the level of revenues that would be observed if the output gap were fully closed, i.e. when GDP is at its potential.

2.1.2. Budget Balance or Deficit Rules

One of the most common types of fiscal rules worldwide is a budget balance or deficit rule. It sets a limit on the gross budget balance, i.e. the difference between public revenues and public expenditures. Many of the rules introduced at a fairly early stage, e.g. shortly after World War II, were such rules (Eyraud et al., 2018b), with the 3 per cent deficit rule in the Maastricht Treaty being a prominent example. The advantage of such a budget balance rule is that it is very simple and the variable constrained by the rule – the budget balance – is directly observable. No adjustments or estimates are necessary. This is also why forecasting the variables and compliance with the rule is typically easier for budget balance rules than for other types of rule. Apart from the effects of the economic cycle on the cyclical components, governments usually have fairly direct control over revenue and expenditure aggregates.

The main problem with this type of rule, however, is its pro-cyclicality. Governments often do not apply the limit set by a budget balance rule as an upper bound, but rather as some kind of target (Reuter, 2015; Caselli and Wingender, 2018). Rules are not complied with in a significant proportion of years. Consequently, the constrained budget balance is often right at its limit in many years – even those in which economic conditions are benign. This allows no buffers or fiscal headroom for economically challenging times. Applied in this way, budget balance rules can lead to pro-cyclical fiscal policy. Downturns are usually accompanied by a cyclical reduction in revenues and a cyclical increase in unemployment-related expenditures. To comply with such a rule, the government would therefore need to pro-cyclically increase revenues or cut expenditures during downturns. During upturns, on the other hand, the limit set by the rule is complied with more easily because revenues and budget balances tend to increase in such cases. Governments, especially if they perceive rules as targets, are tempted to pro-cyclically loosen fiscal policy at a time when they could build up fiscal buffers.

2.1.3. Cyclically-Adjusted or Structural Balance Rules

To address the pro-cyclicality, newer 'second-generation' fiscal rules set a limit for the cyclically-adjusted budget balance or structural balance (Eyraud et al., 2018b). The former represents the difference between cyclically-adjusted revenues and cyclically-adjusted expenditures. It is the budget balance that would theoretically be observed if the output gap were fully closed. The structural balance is the cyclically-adjusted balance net of temporary one-off measures (European Commission, 2019a).

The advantage here is that – compared with budget balance rules – such a rule automatically permits larger deficits in downturns and restricts fiscal policy more strongly during upturns. The portions of revenues and expenditures that automatically change together with the economic cycle ('automatic stabilisers') are not constrained by the rule and are thus not restricted in supporting the stabilisation of

the economy. The rule only aims to place constraints on government policy with respect to discretionary decisions on revenues and expenditures.

The main problem with such a rule is that the cyclically-adjusted budget balance is not directly observable but, rather, has to be estimated. In addition to the variables necessary to forecast and calculate the budget balance, the output gap and (semi-)elasticities of various revenue and expenditure categories are needed for such estimates (plus one-off measures for the structural balance). The errors in forecast and real-time estimates of the output gap and potential GDP can be quite large (see Section 3.2). As a result, evaluation of rule compliance is very complex and the rule might prescribe different policy stances at different points in time, e.g. in real-time compared with ex-post reassessments. Consequently, this causes difficulties in fiscal planning and the real-time implementation of fiscal policy. In addition, this adversely affects transparent communication with the general public and policymakers.

2.1.4. Expenditure Rules

Reforms focusing on expenditure rules are proposed (see Section 4.1) in an attempt to address the challenges posed by the implementation of cyclically-adjusted budget balance rules. Expenditure rules are in force in different forms across the world, including the EU's current Stability and Growth Pact (SGP). However, the most commonly proposed expenditure rule restricts the growth rate in public expenditures to some limit related to potential GDP growth, net of some cyclical expenditure components and net of discretionary changes in revenues. The latter are subtracted so that countries can choose the size of government in terms of the ratio of expenditures to GDP according to the political preferences of the electorate. This allows governments to permanently increase (cut) expenditures as a share of GDP if the change is offset by permanent tax increases (cuts).

The properties of such an expenditure rule are similar to a rule constraining the cyclically-adjusted budget balance (also discussed e.g. in Cottarelli, 2018). With the latter, aside from the initial starting position, cyclically-adjusted expenditures are allowed to increase as much as cyclically-adjusted revenues to comply with the rule. Growth in cyclically-adjusted expenditures is approximately equal to the growth in expenditures net of (cyclical) unemployment-related expenditures. Because – without any discretionary changes (e.g. in the tax code) – revenues are closely aligned with GDP, cyclically-adjusted revenues are closely related to potential GDP. Thus, growth in cyclically-adjusted revenues net of discretionary revenue changes is approximately equal to growth in potential GDP. Taken together, aside from the initial starting position, both rule types restrict the growth in expenditures net of cyclical unemployment-related expenditures and discretionary revenue measures to potential GDP growth. The EU fiscal framework also recognises the similarity between the two rules, as expenditure rules are used to operationalise adjustment of the structural balance (see Section 3.1).

As far as pro-cyclicality is concerned, expenditure rules work similarly to structural balance rules because cyclical revenue shortfalls do not have to be compensated for by expenditure cuts. With structural balance rules, this is due to the cyclical adjustment of revenues, while in the case of expenditure rules it is because the constrained variable is only affected by discretionary changes in revenues. A difference arises where revenues cyclically rise (fall) more sharply than what is mechanically calculated based on output increases (declines) and elasticities. In that case, a cyclically-adjusted balance rule would restrict fiscal policy too much in a downturn and an expenditure rule would restrict it too little in an upswing.

Despite the similarities, one reason why expenditure rules are currently preferred in the literature is that expenditures net of some expenditure items and their growth rate are directly observable and are mostly directly controlled by the government. Furthermore, the greater part of the constrained variable is easy to communicate and forecast errors for expenditures tend to be smaller. For expenditure rules as well, however, some components need to be estimated and they involve complexity and uncertainty: i) growth

rate of potential GDP; ii) effects and size of discretionary revenue measures; iii) (for some rule proposals) cyclical adjustment of (unemployment-related) expenditures.

Table 1: Differences between types of fiscal rules

	Budget balance	Cyclically-adjusted (or structural) balance	Expenditure growth
Problem	Pro-cyclicality	Measurement/estimation	Measurement/estimation
Dealing with the economic cycle	None	Cyclical adjustment of expenditures and revenues based on the output gap	Cyclical revenue changes not part of rule, (possible) cyclical adjustment of expenditures
Variables necessary to assess rule compliance	Revenues, expenditures	Revenues, expenditures, elasticities, output gap, potential GDP, (one-off measures)	Expenditure growth, discretionary revenue measures, potential GDP growth

Source: own illustration

2.2.   Golden Rules and Exceptions

2.2.1.   Expenditure Categories Worth Protecting

Within the context of reforming fiscal frameworks there is also a debate about the quality of public finances and how the framework can contribute to improving it. Higher quality is typically associated with a larger share of expenditures that are more beneficial to economic growth, development and future generations than others. The European Commission identifies expenditures with growth and value added for the future in its proposals for a multiannual financial framework and its country-specific recommendations for the Member States. Among these are expenditures for infrastructure investment (especially digital infrastructure), public research, research and development (R&D), climate-related investment, regional policy, investment in education and training, and public employment agencies.

Romp and De Haan (2007) and Bom and Ligthart (2014) survey the extensive literature on the effects of public investment on output (growth). Although not all studies find a positive effect, there seems to be a consensus that an increase in public capital increases economic growth in the short run and the effect is stronger in the long run. However, there is a high degree of uncertainty about the estimated size of this impact. It is heterogeneous across countries, regions, sectors and types of investment, and it depends on the level and quality of the public capital stock in place (Romp and De Haan, 2007). Besides the long-term effects, investment expenditures also seem to have a greater impact on demand than other expenditure categories (Auerbach and Gorodnichenko, 2012; Gechert and Will, 2012). Increasing or reducing the former rather than the latter therefore also has an effect on output in the short-term.

Investment expenditures as defined in the national accounts ('gross fixed capital formation by the government') focus on physical capital such as infrastructure, housing and machinery. They also include spending on defence and intangible non-financial assets such as software. However, they do not include maintenance spending or investment by state-owned enterprises (Barbiero and Darvas, 2014). Furthermore, they do not include expenditure categories for example related to mitigating climate change, education, or the accumulation of human capital. However, similar to investment expenditures,

these categories also incur costs today, and their benefits – such as reduced future losses due to climate change and educational benefits – also accrue to future generations.

While studies seem to confirm the generally positive impact of some expenditure categories, it appears that the main challenge is to clearly and narrowly define which expenditure categories are identified as beneficial or worth protecting and which expenditures belong to each category. Furthermore, not every project or expenditure within an identified category has a positive effect. And not every expenditure category that is not listed above does not contain expenditures with positive longer-term effects. Ideally, each spending decision involves a cost-benefit analysis and a subsequent decision to engage irrespective of the expenditure category it belongs to. In addition, there are most probably strong interdependencies. As an example, expenditures on the implementation of the rule of law do not form part of the categories above, but they enable the other categories to have a positive effect. It is not always possible to differentiate between productive and unproductive expenditures as, in many cases, both will be needed.

A proposed workaround is to identify expenditure categories which on average exhibit certain growth effects or future benefits and accept the inaccuracy when it comes to each single expenditure item. In general, however, it can be very difficult to identify the growth effects or future benefits of specific categories over time and across countries, especially if politicians reallocate expenditures. Furthermore, the identification of specific expenditures is usually made non-specifically and without reference to the level of expenditures already implemented in that particular category. Consequently, the underlying assumption is that spending in the respective category will always be associated with positive growth contributions of equal size, irrespective of how and for what specific purpose the relevant expenditures are made. However, this is not necessarily the case.

Even after categories have been identified, the issue of measurement is challenging. In many cases data on the stock of public capital is not available and needs to be constructed based on historical series of flow figures (Eurostat and OECD, 2014; Christofzik et al., 2019). While the latter are currently available for physical capital, they might be more difficult to obtain for other categories, like mitigation of climate change or human capital. In addition, replacement investment does not automatically increase the assets available. Usage and time depreciate capital. Only if investment expenditure is higher than the depreciation of existing assets are additional assets created for future generations. Depreciation has to be estimated in order to obtain net investment figures, which is even more difficult than measuring gross investment (Barbiero and Darvas, 2014). International comparisons of net investment figures are especially difficult as various necessary assumptions differ across countries, such as the institutional division of labour, frameworks and assumed usage periods (Christofzik et al., 2019). In the absence of any double accounting systems for governments, reliable workarounds would need to be found.

2.2.2. Relationship with Fiscal Rules

The question is whether fiscal rules cause policymakers to put less emphasis on the expenditures discussed above than would be optimal. The reasons given can broadly be grouped into two categories. First, some of the expenditures identified above might be easier to cut than others. Thus, if compliance with fiscal rules requires some expenditures to be reduced, these categories are cut not because they are the lowest priority but because it is easier timewise and politically to do so. While it may be easy to postpone the start of a new investment project today, for example, it might be hard to reduce public-sector employment and wages or social benefits, which tend to be fixed for years ahead. Given the various effects on demand, moreover, a reduction based on investment expenditure would tend to have a stronger negative impact on economic growth than a similar reduction based on other expenditures.

Second, expenditures in the categories above either partially or mainly benefit future generations. This means that, in one sense, they should also bear a share of the costs. This can be achieved by financing

them through debt issuance. If they are not financed by debt, all of the costs are borne by the current generation, which has to pay for them in the form of higher taxes or lower spending in other areas. This can lead to less investment than would be ideal. A low-interest-rate environment makes it cheaper to shift costs into the future. On the other hand, however, future generations are not able to fully participate in the current political process. Thus although they cannot choose which investments are implemented, their fiscal headroom is reduced. For example, while the current generation might choose to build roads, which count as investment, future generations might want to reduce the scope for individual mobility. Furthermore, policymakers might attach less importance to the future side-effects of higher debt and might therefore opt for a higher level of debt than is ideal in order to gain some of the short-term benefits.

Some would argue that specific expenditures should be safeguarded through the design of fiscal rules. This could be achieved by setting different limits to different expenditure aggregates. The most prominent example would be a Golden Rule, which sets a limit to expenditures excluding investment expenditures and allows borrowing to finance the latter. More generally, it sets a limit on a fiscal aggregate net of a measure of deductible expenditures. Golden Rules have been implemented in various countries and can come in different forms with respect to the rule type and the expenditures excluded. A Golden Rule can essentially be designed based on any rule type, which means that there could be a Golden expenditure rule or a Golden structural balance rule. Another option for safeguarding expenditures is to add exceptions to fiscal rules, which either temporarily or permanently allow exceptional and limited breaches of the fiscal rules and permit specific expenditures. The current EU rules have exceptions added to them (see Section 3.3). Any rule containing an exception that permanently allows non-compliance with the fiscal rule to the extent of specific expenditures would be equivalent to a Golden Rule as described above.

One of the most serious challenges in implementing Golden Rules is associated with adverse incentives for governments to engage in 'creative accounting'. In cases where an exception in the form of a Golden Rule is granted too casually, this could provide incentives to relabel public expenditures or to use accounting tricks in order to (over-) exploit the leeway provided by the rule (Milesi-Ferretti, 2004). Burret and Feld (2018) show how Swiss cantons, where a debt brake is in force, shift expenditures from constrained parts of the budget to unconstrained parts for investment expenditure purposes. Von Hagen and Wolff (2006) and Buti et al. (2006) provide empirical evidence that stock-flow adjustments have been used in the EU to hide deficits from the SGP rules. Koen and Noord (2005) show for the EU Member States that budgetary gimmickry is more likely the more binding fiscal rules become. Governments somehow need to be prevented from shifting expenditures into the defined deductible categories. In addition, categories need to be defined so as to minimise the incentives to increase one type of expenditure benefiting future generations in favour of other expenditures that also benefit future generations. If, for example, investment in physical capital is deductible but education expenditures are not, governments might opt to invest a higher proportion of the total in physical capital rather than investing in human capital.

3. EXPERIENCE WITH THE CURRENT EU FISCAL FRAMEWORK

3.1. Current Fiscal Rules at the European Level

Fiscal rules have been part of the European governance framework since the Treaty of Maastricht in 1992. However, the framework has gradually evolved as a result of major reforms and has been augmented considerably over time. These changes introduced 'second-generation fiscal rules', increased the flexibility of the framework and amended institutional monitoring and governance. Whereas the framework started out with just two simple fiscal rules – the 3 per cent deficit rule and the 60 per cent

debt-to-GDP rule – it has evolved into a complex web of rules and regulations today. Various rules coexist with a multitude of exceptions and escape clauses as well as comprehensive provisions for assessing compliance with the rules. In addition to the EU fiscal framework, policymakers also face fiscal rules at the national and subnational levels when taking fiscal policy decisions.

In 2005, a rule restricting the structural balance and, in 2011, a rule on expenditure growth were introduced in the preventive arm of the SGP. The former rule states that the structural balance should be larger than or equal to a medium-term objective (MTO), which each country sets in its Stability or Convergence Programme (European Commission, 2019b). The MTO for countries which signed the Fiscal Compact must be larger than -0.5 per cent of GDP, unless their debt ratio is significantly below 60 per cent of GDP and their sustainability risks are low, in which case the MTO needs to be larger than -1 per cent of GDP. Furthermore, the European Commission calculates a minimum MTO for each country.

The two rules in the EU framework are connected, as the expenditure rule basically implements the path towards the MTO set by the structural balance rule: i) In the case of a country which complies with the latter rule, i.e. for which the structural balance is higher than or equal to their MTO, the expenditure rule states that the growth in net expenditures should be less than or equal to the medium-term growth rate of potential GDP (European Commission, 2019b). As described in Section 2.1.4, this is equivalent to a rule which states that the structural balance should be improving or remaining constant. ii) If the country does not comply, net expenditure growth should be less than the medium-term growth in potential GDP by a 'convergence margin', which means that the structural balance should improve by a specific margin.

The expenditure rule in the EU fiscal framework defines net expenditures as total expenditures net of the following items: i) discretionary revenue measures, ii) interest expenditures, iii) expenditures on EU programmes matched by EU funds and iv) cyclical unemployment-related expenditures. By excluding some investment expenditures, the expenditure rule in its current form already resembles a very limited form of Golden Rule. Investment expenditures not matched by EU funds are smoothed over a four-year period. The medium-term growth rate of potential GDP, which serves as the limit on expenditure growth, is calculated for each country as the average of potential GDP over the past five years, the current year and the forecasts for the next four years.

3.2.   Forecast and Real-Time Errors

A series of variables are necessary to evaluate compliance with EU fiscal rules. When deciding on fiscal policy ex-ante or in real-time, policymakers need to rely on forecasts and estimates of those variables. Forecast errors can lead to incorrect policy prescriptions which were not originally intended by the fiscal rules. Furthermore, most variables are also revised considerably ex-post such that any assessment of compliance – even without changes in policy – can change over time. Figure 1 depicts the main variables needed in the EU fiscal framework and their relationships. The latter are still underrepresented though, as, e.g., a forecast of GDP is also necessary to forecast the cyclical parts of expenditures or revenues.

When interpreting the results below it is also important to note that errors in the estimation of variables used to operationalise fiscal rules might also be influencing the ex-post observations of certain variables. For example, an erroneous reduction in potential GDP during a downturn could – as a result of overly restrictive fiscal rules – lead to procyclical policies such as expenditure cuts, which in turn reduce GDP. This could make the error self-fullfilling in the sense that lower GDP also lowers potential GDP estimates (Fatás, 2019). In this case, therefore, the errors calculated from the difference between values published for potential GDP in forecasts and ex-post might seem lower than they actually were.

Figure 1: Main variables necessary for evaluating compliance with EU fiscal rules
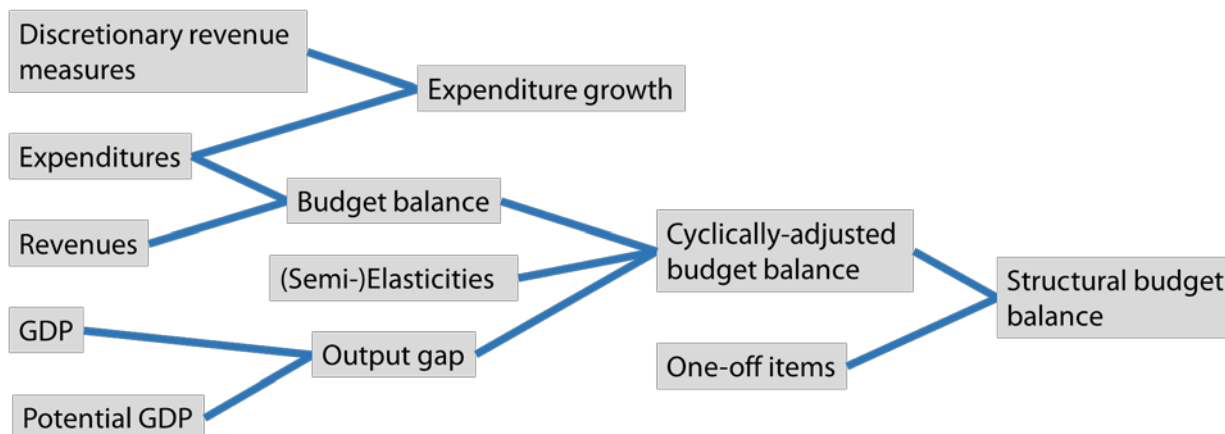
Source: own illustration

In the following, the European Commission's macro-economic database (AMECO) is used to calculate the forecast and real-time errors for some of the main variables. The figures compare the forecast of a variable for a specific year (t) from two years ahead (t-2), one year ahead (t-1) and in real-time (t) with the variable value which was published four years after the specific year (t+4). The mean error is defined as the mean difference between the two points in time across years and countries. As this difference can be positive or negative, however, some of the errors might cancel each other out when a simple mean is taken. Mean absolute errors are therefore also calculated, which take the mean of the absolute values of the differences across countries and years. Annex 6.1 provides a more detailed methodological background.

Figure 2 presents the two measures of errors for the EU15 from 2005 to 2015. The timeframe is chosen to have a consistent dataset which only compares data which is availabe for all countries and years across all variables in forecast and ex-post data. However, Table 5 in Annex 6.5 presents the results for other country and time samples (e.g. for the EU27 or excluding the years of the financial crisis), as well as for the structural balance (for which data is only available for a shorter time period). For the years where data overlaps, errors for the structural and the cyclically-adjusted balance are very similar.

Figure 2: Mean (absolute) errors of forecasts and real-time estimates (EU15, 2005-2015)
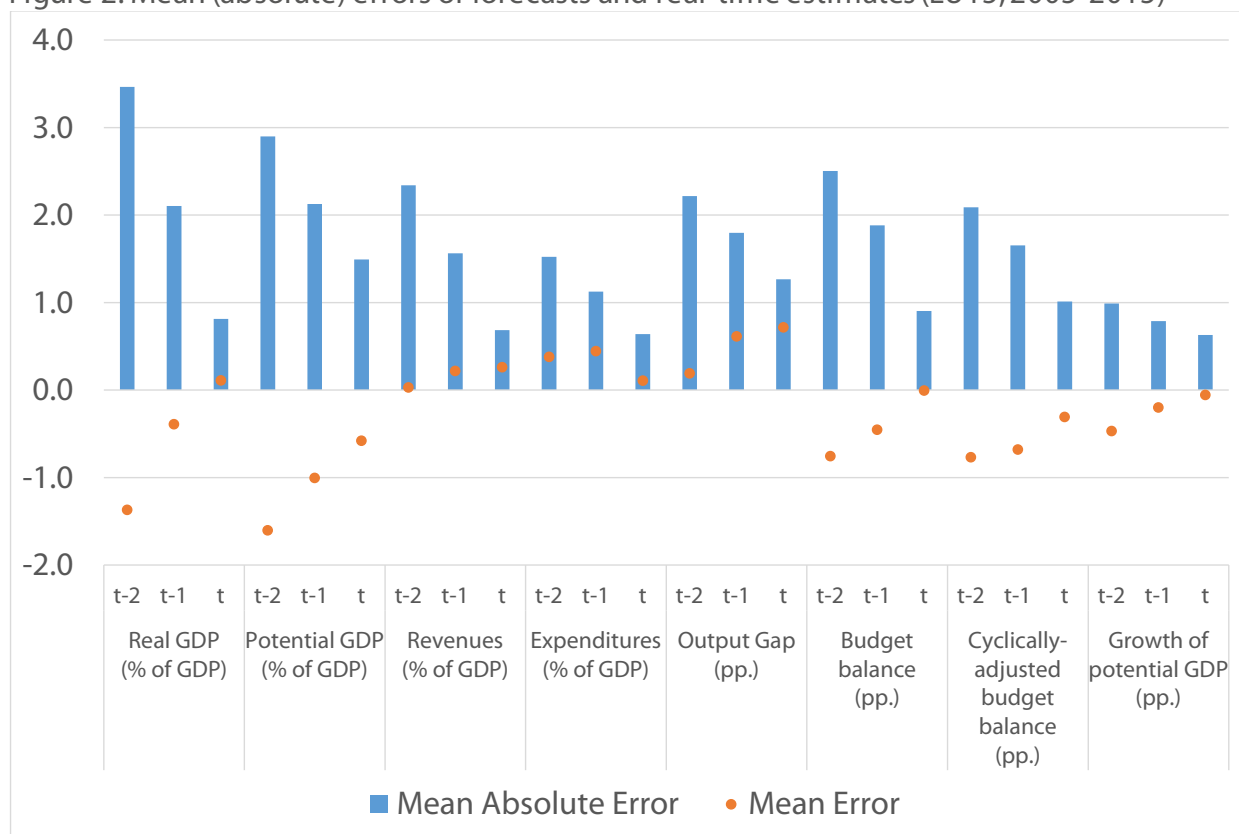
Notes: Calculations are based on 164 observations (no data for Luxembourg in 2002). Mean errors are calculated as mean across countries and time of the difference between values for year t values in autumn vintage of year t+4 and in autumn vintage of year t-2, t-1 and t. Mean absolute errors are the mean of the absolute value of the differences. To make results comparable only years and vintages are included which are available for all variables in all years and countries. More details on calculations can be found in Annex 6.1. Budget balance: net lending or borrowing. pp.: differences in percentage points.

Sources: European Commission's AMECO database, Firstrun project, own calculations

3.2.1.   Mean Absolute Errors

Figure 2 shows that, comparable to findings in other studies[1], mean absolute errors are substantial, especially in the case of forecasts for two years ahead. For real GDP this amounts to about 3.5 per cent of GDP. Even for the variable which shows the lowest mean absolute error, i.e. expenditures, the two-year ahead forecasts are associated with mean absolute errors of 1.5 per cent of GDP. Mean absolute errors in real-time are substantially smaller than in forecasts, but are still quite significant. Whereas in the cases of real GDP, revenues, expenditures and the budget balance the mean absolute errors for real-time estimates are below 1 per cent of GDP, they are still larger than 1 per cent for all measures that involve estimates of potential GDP. The mean absolute errors for the growth rate of potential GDP are only about half the size of the errors for the level of potential GDP. The reason seems to be that errors for potential

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[1]   Merola and Pérez (2013) calculate a mean absolute error for real GDP of around 1.3 per cent of GDP for the one-year ahead forecast and between 0.7 per cent and 1.2 per cent for real-time estimates for 15 European countries (1999 - 2007). De Deus and de Mendonça (2015) find very similar errors in real-time based on data from the IMF, the OECD and the European Commission (1998 - 2011).

GDP are correlated over time[2], i.e. if the value is revised for one year the previous year is very likely to also be revised in the same direction.

The smallest mean absolute errors for forecasts and real-time estimates can be observed for expenditures. Especially in forecasts the mean absolute errors for expenditures are substantially smaller (1.5 per cent for two-year ahead and 1.1 per cent for one-year ahead forecasts) than, for example, the ones for real GDP. In real-time, the mean absolute error for expenditures was equal to 0.6 per cent of GDP. However, when interpreting these numbers one needs to bear in mind that expenditures are only a fraction of GDP. As a percentage of expenditures, therefore, the mean absolute errors for the same sample would be much higher (3.1 per cent in two-year ahead forecasts and 1.3 per cent in real-time).[3] As a percentage of the variable itself, the errors are comparable to the errors for real GDP. Nevertheless, the errors expressed as a percentage of GDP might be more relevant in terms of policy prescriptions.

3.2.2.   Mean Errors

Besides the large size of the mean absolute errors, a bias in the errors can be observed for some of the variables as well. The mean errors for real and potential GDP are strongly negative. This means that GDP forecasts were too optimistic during the time period considered here. While for real GDP, however, the bias vanishes from forecasts to estimates in real-time and the mean error in real-time is close to zero, there remains a bias of -0.6 per cent of GDP for the real-time estimates of potential GDP. So while real GDP in real-time was on average neither too optimistic nor too pessimistic, potential GDP estimates remained too optimistic. This translates into a bias in the estimates of the output gap, which in real-time was on average 0.7 percentage points of GDP too low compared with the estimates of four years later. Put differently, the cyclical position in real-time was on average estimated to be worse than it turned out to be ex-post. This confirms findings in other studies for different countries and time periods.[4]

This pessimistic error in output gap estimates translates into errors in the estimation of the cyclically-adjusted measures of the budget balance, which are based on output gaps. While the real-time mean error for revenues, expenditures and the budget balance is close to zero, it is -0.3 percentage points for the cyclically-adjusted budget balance, and it is -0.8 percentage points in the two-year-ahead forecasts. Thus, the cyclically-adjusted fiscal position looked better in real-time than it did ex-post, and it looked even better in forecasts. This means that cyclically-adjusted or structural balance rules in the time period considered here were on average too lax in forecasts and real-time compared with ex-post estimates.[5]

The estimation of potential GDP is often based on filtering techniques (such as the methods currently used by the European Commission). These are prone to revisions especially because of end-of-sample problems, i.e. they are sensitive to the latest available forecasts or observations of actual GDP (GCEE, 2019). A series of improvements to the currently used methods are discussed, such as using other indicators, different models and estimation methods. However, ultimately, any revision of GDP is likely to be composed of cyclical and structural factors, such that potential GDP also needs to be revised when actual GDP is, although the exact extent of this will remain uncertain. Recognising the uncertain nature

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[2]   The correlation of the value for a specific year (t) and the year before ($t-1$) for the two-year ahead forecasts is 0.69.

[3]   The same applies to revenues, for which Buettner and Kauder (2010), for example, calculate a mean absolute error of 4.5 per cent of revenues in forecasts. This is comparable to the results presented for revenues in this section (error of 2.3 per cent of GDP).

[4]   Some of the studies are surveyed in Navarini and Zoppè (2020). Eyraud and Wu (2015) find a similar mean error for real-time output gap estimates of 1.2 percentage points of GDP for the Eurozone countries between 2003 and 2013 and Kempkes (2012) finds a mean error of 1.0 to 1.3 percentage points for the EU15 between 1996 and 2011.

[5]   Eyraud and Wu (2015) and Claeys et al. (2016) show similar results for the structural balance (-0.5 per cent of GDP for Eurozone countries between 2003 and 2013, and -0.7 per cent of GDP for core EU15 countries from 2003 to 2014 respectively). Frankel and Schreger (2013) also document over-optimism on the part of European countries when forecasting fiscal balances between 1999 and 2011.

of potential GDP estimates, the EU has added a (constrained) judgement component to the implementation of the rules and is trying to mitigate the implications of uncertainty (Buti et al., 2019).

3.2.3. Other Forecast and Estimation Errors

An additional source of uncertainty on top of those discussed in the previous sections is hidden in the estimation of (semi-)elasticities and weights used to translate the cyclical position of GDP measured by the output gap into cyclically-adjusted budget balance figures. Elasticities are revised every nine years and weights are revised every six years (European Commission, 2019a). The currently used elasticities are estimated based on data from 1990 to 2013 (Mourre et al., 2014). Between 2005 and 2014 changes in budgetary semi-elasticities for the EU27 ranged between -0.02 and 0.15, with an average change of 0.05 (Girouard and André, 2005; Price et al., 2014). Given that the average budgetary semi-elasticity is 0.50, these changes have quite significant effects on cyclically-adjusted variables.

To evaluate compliance with an expenditure rule, discretionary revenue measures – and their impact in a specific year, but also in subsequent years – have to be estimated. Estimates of discretionary revenue measures have only very recently been published in the AMECO dataset, starting with the vintages of 2014. It is therefore not yet possible to conduct a comparable analysis to the one above of forecast or real-time errors. However, it appears that they can potentially become quite substantial.[6] A series of assumptions and projections are necessary to estimate e.g. the impact of a change in the tax code (e.g. changes in tax rates or the tax base) on current and future revenues. This involves, among others things, estimating the microeconomic behavioural reactions to tax changes, e.g. changes in labour supply in response to changes in labour taxation. Although the European Commission relies on national estimates of discretionary revenue measures, it defines a procedure and common methodology as to how Member States should assess the budgetary effects (European Commission, 2019b). This bottom-up approach is used to evaluate compliance with the EU expenditure rule. This could be problematic as there is an information asymmetry between Member States and the European Commission, estimations depend on national budgeting practices and there is an incentive for Member States to present biased estimates. Furthermore, as also discussed by Deutsche Bundesbank (2019), it would be desirable to conduct an in-depth and independent ex-post examination of the quality and errors inherent in estimates of discretionary revenue measures, e.g. at the European level.

3.3. Exceptions and Compliance

Many fiscal rules have exceptions and escape clauses added to them. The European rules allow larger deficits or expenditures in the context of an escape clause for unusual events and severe economic downturns (EC Regulations 1466/1997 and 1467/1997). Furthermore, there are exceptions, for example, for public investment, major structural or pension reforms (EC Regulation 1055/2005; EU COM (2015) 12 final) and small and temporary deviations. The activation of such an escape clause or exception allows, to a certain extent, a deviation from limits set by the rules. This does not mean that the rules are not complied with, because the exceptions and escape clauses are essential parts of the rules' design and deviations from the limits in such cases are intended. One of the most important goals of fiscal rules is precisely to build up fiscal buffers so as to be able to spend more than what the rules would allow in extraordinary times for events such as natural disasters and severe economic crises. Nevertheless, poorly designed or excessive numbers of exceptions could undermine the goals of fiscal rules.

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[6] The mean absolute change in the estimate of discretionary revenue measures from one vintage to the next for the years between 2014 and 2019 across the EU15 was 0.09 percentage points of GDP. This number is quite large when one considers that the other errors presented in this section were calculated across several vintages and that the mean absolute value of discretionary revenue measures in the same sample is only 0.33 percentage points of GDP.

The EU's escape clause for severe economic downturns had never been activated until the COVID-19 pandemic (Council of the EU, 2020). As shown in Figure 3, however, the escape clause for unusual events and other exceptions have been used quite extensively in recent years. A total of 18 exceptions were granted in 2016. Nonetheless, the investment clause has only been used five times since 2012 (Bulgaria in 2013 and 2014, Romania and Slovakia in 2014, and Italy in 2016). These exceptions can be quite substantial and have meant that, on average, some countries have been allowed to run deficits in excess of the limits of the rules by 0.46 per cent of GDP due to pension reforms, 0.44 per cent due to structural reforms and 0.30 per cent due to exceptions for investment expenditures between 2012 and 2018.[7]

Figure 3: Number and average size of exceptions granted between 2012 and 2018
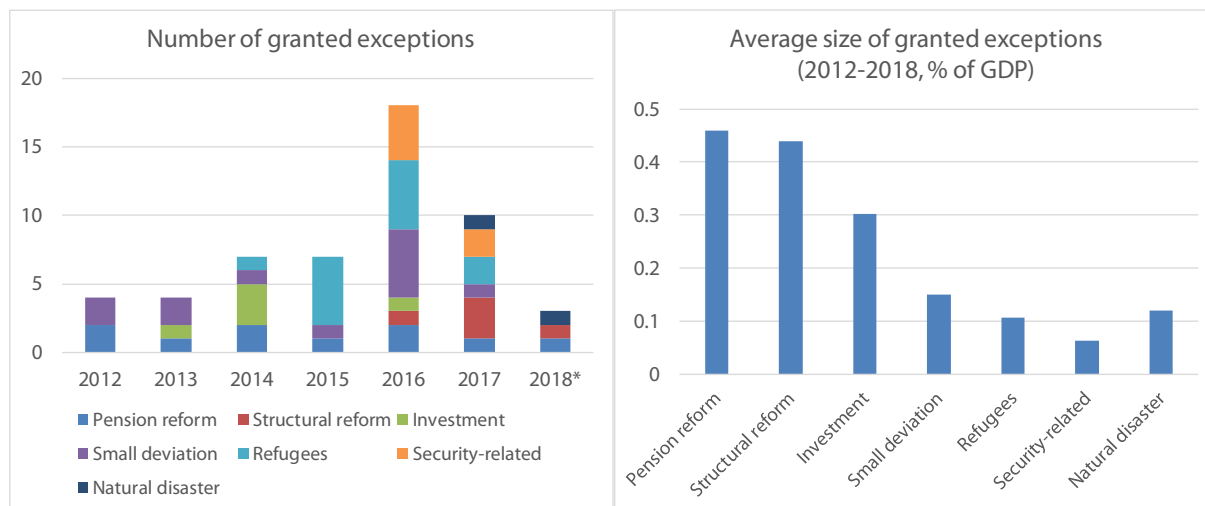
Notes: Numbers are based on figures reported in Assessments of the Stability Programmes by the EU Commission. Preliminary numbers for 2018. Exceptions for refugees, security-related measures and natural disasters constitute exceptions for unusual events. No size figures are reported for exceptions for small deviations.

Sources: Christofzik et al. (2018), EU Commisson assessments of stability programmes of Member States, own compilation

The use of escape clauses and exceptions is intended by the fiscal rules, and exceeding the limit to the extent approved is still in compliance with the rules. In addition to this, however, countries seem to often not comply with the rules, at least in terms of economic not legal compliance. According to calculations by the European Fiscal Board (2019), average economic compliance with EU fiscal rules was only 57 per cent between 1998 and 2018. Studies on fiscal rules at the national level (Reuter, 2019) and worldwide (Lledó and Reuter, 2018) find similar compliance rates of around 50 per cent. Examining the types of fiscal rules, Cordes et al. (2015) and Reuter (2019) find that expenditure rules at the national level tend to be complied with more often than budget or structural balance rules. According to the European Fiscal Board (2019), this seems not to be the case for the EU fiscal rules. Contrary to the general intention behind fiscal rules, countries do not seem to treat rules as ceilings, but rather as targets which are aimed at over the medium term (Reuter, 2015). If rules were designed to be targets from the outset, however, their design and, especially, their calibration would be different. Furthermore, the low level of compliance has to be taken into account when analysing the effects of fiscal rules on observed fiscal policy, e.g. within the context of the pro-cylicallity of fiscal policy.

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[7]   These numbers are close to the maximum amount which can be granted for structural reforms and investment per adjustment period, which is 0.5 per cent of GDP (there is no such cap for the pension reform exception).

3.4. Composition of Public Expenditures

Overall the share of public investment (here represented by 'gross fixed capital formation by the government') and public education expenditures in total expenditures in the EU15 are on average at around the same level in 2019 as in 1995 (Figure 4). The shares increased up until the mid of the 2000s, decreased around the financial crisis and caught up some of the loss since then. Spending on basic research and R&D increased as a percentage of total expenditures between 2001 and 2018 (Figure 10). Annex 6.2 discusses the development of the shares also as a percentage of GDP in more detail. The development was quite heterogenous across countries. For example, the sharpest drops in the share of investment expenditures between 2008 and 2013 were observed in Member States that had financial assistance programmes. Furthermore, many countries in an excessive deficit procedure (EDP) seemed to have reduced their investment shares (European Fiscal Board, 2019). However, any comparison of investment figures across countries – even between the group of EU Member States – is problematic (Christofzik et al., 2019). For example, the reliance on outsourced public services is quite heterogenous across Member States and across time.

Figure 4: Public investment and education expenditures in the EU15 from 1995 to 2019
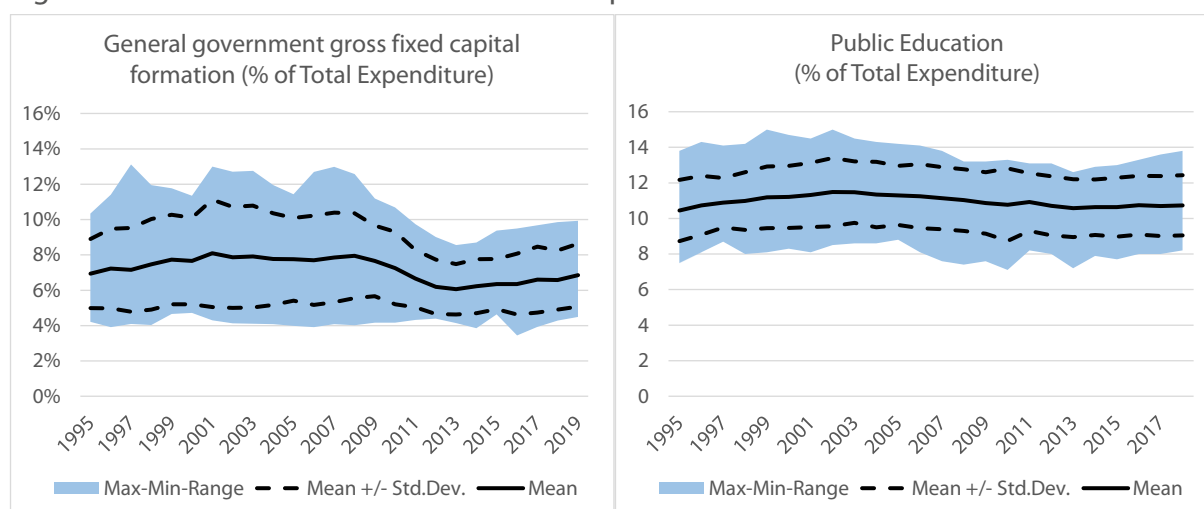
Notes: Investment expenditures are represented by gross fixed capital formation by the government. Education expenditures by the government according to COFOG classification. Blue areas represent the range between the maximum and minimum values in each year. Lines represent the mean and mean plus and minus one standard deviation across Member States.

Sources: European Commission's AMECO database, Eurostat, own calculations

To what extent the EU fiscal rules played a role in the reduction of these investment shares is an open question. So far the rules, especially if they are cyclically-adjusted, do not directly interfere in the composition of public expenditures. Initial studies which try to identify the possible effects of fiscal rules on public investment have not come up with clear-cut findings across the studies (Turrini, 2004; Perée and Välilä, 2005; Bacchiocchi et al., 2011; Dahan and Strawczynski, 2013; Hauptmeier et al., 2015).

However, specific expenditures like investment and the ones discussed in the previous section might be reduced (relative to others) first and most sharply during fiscal consolidations. Annex 6.2 discusses the empirical relationship across the past 23 years in detail. Overall, the results suggest that expenditures on investment and, to a smaller extent, on education as well as basic research and R&D are reduced as a percentage of GDP during periods of fiscal consolidation. However, expenditures on education as well as basic research and R&D are affected less than other expenditure categories, which means that their share of total expenditures increases. Overall, the share in total expenditures accounted for by investment

expenditures does not seem to be systematically related to periods of fiscal consolidation or expansion over the past 23 years.

3.5.   Pro-Cyclicality of the Current Framework

Section 2.1.1 introduced a distinction between cyclical and structural parts of public finances. Any change in the cyclical part has, by definition, a counter-cyclical effect. In a downturn this automatically results in a larger deficit, lower revenues and higher expenditures. Fiscal rules which exclude cyclical components from the variables constrained by the rule – such as cyclically-adjusted or structural budget balance rules as well as expenditure rules which exclude (cyclical) unemployment-related expenditures – theoretically do not prevent these counter-cyclical effects from happening. However, this counter-cyclical effect can be weakened or even reversed if discretionary fiscal measures counteract the automatic stabilisation of the cyclical component. Indeed, Fatas (2019), for example, shows that discretionary policy in the euro area eliminated the benefits of automatic stabilisers between 2010 and 2014 and turned fiscal policy pro-cyclical.

Within the context of fiscal rules, one or several of the following reasons could lead discretionary fiscal policy to counteract the automatic stabilisers and thus turn fiscal policy pro-cyclical:

1. A bias in forecasts of the cyclical part of public finances might force discretionary fiscal policy to take countermeasures to comply with fiscal rules. As seen in Section 3.2, assessments of the position in the economic cycle both in forecasts and real-time have shown a bias and have been too pessimistic over the past few years. Consequently, rules limiting cyclically-adjusted measures have been too loose both in forecasts and real-time relative to ex-post assessments. In this respect, therefore, rules seem to have on average not forced discretionary fiscal policy to counteract automatic stabilisers owing to a bias in forecasts. On the contrary, these rules would have actually made it possible to strengthen cyclical components by pursuing discretionary policy in a downturn. Although the rules have not been restrictive enough during upturns, discretionary policy has not needed to use all of the additional leeway granted by the rules.

2. The limits of fiscal rules might be changed pro-cyclically such that discretionary fiscal policy needs to adjust. There appears to be no sign of any systematic changes in line with the economic cycle to the limits of the EU fiscal rules, e.g. the minimum MTOs which are set for Member States. The six-pack and two-pack reforms under the European fiscal framework tend to provide more fiscal headroom to Member States for economic stabilisation purposes.

3. Exceptions and escape clauses might be applied pro-cyclically. Under the EU fiscal framework the average change in the output gap during the years when the 64 exceptions were granted between 2012 and 2018 (see Section 3.3) was a positive 0.49 percentage points. The average level of the output gap was close to zero (0.08 per cent). 70 per cent of the years in which exceptions were granted to countries saw a positive change in the output gap. It seems that exceptions were granted especially for years in which there was an economic upturn (positive change in the output gap). This would enable policymakers to expand discretionary fiscal policy pro-cyclically. However, exceptions have only very recently been used extensively, which means that this observation is severely limited because it is based on a very short time period.

4. Non-compliance with fiscal rules might be pro-cyclical. The European Fiscal Board (2019) points out that compliance with cyclically-adjusted rules under the EU framework was relatively low before 2008 and in recent years, which are both periods with fairly benign economic conditions. By not complying with the rules, discretionary policy fostered a pro-cyclical fiscal stance, which the rules would not have prescribed. Larch et al. (2020) look at the role of compliance with fiscal

rules as part of a more systematic approach. They find that compliance with fiscal rules would have been associated with a more counter-cyclical fiscal stance, i.e. that non-compliance with the cyclically-adjusted rules increases the likelihood of running pro-cyclical fiscal policies.

5. Aside from fiscal rules, policymakers face a variety of challenges which can lead them to pursue pro-cyclical discretionary policies. Potential reasons could be high debt levels which mean that, even in a downturn and although the rules would allow it, discretionary fiscal policy is used not counter-cyclically but pro-cyclically. The European Fiscal Board (2019) points to the possibility that concerns about fiscal sustainability may have pushed governments to consolidate more than the fiscal rules would prescribe. The failure to build up buffers in the EU by running a pro-cyclically expansionary discretionary fiscal policy in fairly good economic times before the financial crisis was followed by pro-cyclical restrictive discretionary fiscal policy to try to rein in debt increases in 2012 and 2013. In both periods the fiscal rules per se did not force policymakers to act pro-cyclically: on the contrary they would have allowed policy to be counter-cyclical.

In summary: It seems that political decisions outside the scope of the fiscal rules, non-compliance with the rules and the use of exceptions – rather than rule design or forecast errors – tended to foster pro-cyclical fiscal policy in the EU.

4. FOCUSING THE EU FRAMEWORK ON AN EXPENDITURE RULE

4.1. Proposals for Expenditure Rules

Many authors and institutions have suggested reforming the EU fiscal framework by focusing it on an expenditure rule (Ayuso-i-Casals, 2012; Carnot, 2014; Andrle et al., 2015; Christofzik et al., 2018; Cottarelli, 2018; Darvas et al., 2018; Eyraud et al., 2018b; Kopits, 2018). Table 2 presents some of the proposals for which a more detailed description of the proposed rule is available and compares their features with the existing expenditure rule under the EU fiscal framework.

The proposed rules all set a limit on the growth rate of a derivative of gross expenditures, which in most cases is net of interest expenditures, some measure of unemployment-related expenditures and an estimate of discretionary revenue measures. The limit set by the rule is in most cases directly or indirectly related to the growth rate of potential GDP. Furthermore, all proposals combine the expenditure rule with some mechanism related to the debt ratio or debt reduction targets.

Differences between the proposals are only visible in the details, which suggests that there already seems to be a consensus on the broad design of an expenditure rule on which the EU fiscal framework could be focused. The proposals differ, e.g., in the details of how limits are set and in the extent of debt correction, either driven by formulas or by a process involving national governments, fiscal councils or the European Commission. Another dimension in which the proposals differ is the design and usage of an adjustment account, which in some proposals captures deviations between planned and actual expenditures and in others also includes estimation errors or deviations from medium-term targets.

Table 2: Comparison of expenditure rule proposals

	Limit	Excluded items				Debt correction	Adjustment account	Special features
		I	U	R	Other			
Current EU rule	Medium-term potential GDP growth	√	√	√	EU-funded investment	Implicit by relation to MTOs		National investment averaged over four years
European Fiscal Board (2018, 2019)	Trend rate of potential GDP growth (limit fixed for a three-year period)	√	√	√	EU-funded investment	Debt ratio within range of long-run objective within maximum number of years	Deviations of planned expenditure growth; subject to maximum; decumulates in case of windfall gain	Member States with debt ratio below 60% of GDP not subject to net expenditure ceiling
Christofzik et al. (2018)	Medium-term potential GDP growth	√	√	√		Relative to difference between present debt levels and long-term limit	Non-compliance margin with structural balance rule; estimation errors; small deviations in budgetary process	
Claeys et al. (2016)	Medium-term potential GDP growth	√		√	All labour-market-related expenditure; one-off expenditure	0.02 times difference between debt level in previous year and 60 % debt criterion	Difference between actual expenditure growth and the expenditure growth limit	Public investment smoothed over several years and accounted for similarly to corporate investment
Darvas et al. (2018) (very similar to Bénassy-Quéré et al., 2018)	Medium-term debt reduction target set by national government (based on potential GDP growth)	√		√	All unemployment spending (except when due to discretionary changes)	Limit directly takes care of debt correction	Limited deviations between actual and budgeted spending	

I interest payments; U cyclical unemployment-related expenditures; R discretionary revenue measures: Sources: Studies as indicated in first column of table, own compilation

4.2.   Assessment of Rule Performance Based on Past Data

A starting point for investigating the possible performance of the proposed expenditure rules is to compare limits that would have been set by different rule types with actual expenditure growth based on past data. To isolate the effect of the rule type from the exact numerical calibration, both rules considered in this exercise set a limit which would keep the cyclically-adjusted budget balance constant over the medium-term. Policymakers can decide to calibrate the rules such that, for example, they improve the cyclically-adjusted budget balance (e.g. in relation to the debt ratio) or constantly allow some borrowing. However, this is independent of the rule type and is discussed in Section 4.3.

Figure 5 presents the following three variables as published in real-time, i.e. data for year t from the autumn vintage in year t, and ex-post, i.e. data from the autumn vintage in year $t + 4$:

1. Growth rate of primary expenditures, which represents observed fiscal policy. Expenditures net of cyclical unemployment-related expenditures and discretionary revenue measures would be needed for an exact representation of most proposed expenditure rules. However, the latter two variables are only available for a very short time period. Annex 6.2 discusses the differences for the years in which data overlaps. When interpreting the following results it is important to bear in mind the sizeable differences between different expenditure measures.

2. Five-year moving average of potential GDP growth, which represents the limit set by an expenditure rule. The five-year average is just one possible way of calculating the limit in relation to potential GDP. Annex 6.2 discusses other averages proposed for expenditure rules in comparison with annual potential GDP estimates.

3. Growth rate of the sum of cyclically-adjusted revenues and the cyclical component of expenditures, which represents the limit on expenditure growth to keep the cyclically-adjusted balance constant in a specific year. A detailed discussion of this calculation can be found in Annex 6.2. It is important to remember that this measure does not capture the actual limit set by a cyclically-adjusted balanced budget rule. This measure shows by how much expenditures could have grown without the cyclically-adjusted balance deteriorating.

Figure 5: Comparison of limits set for expenditure growth with observed fiscal policy (EU15)
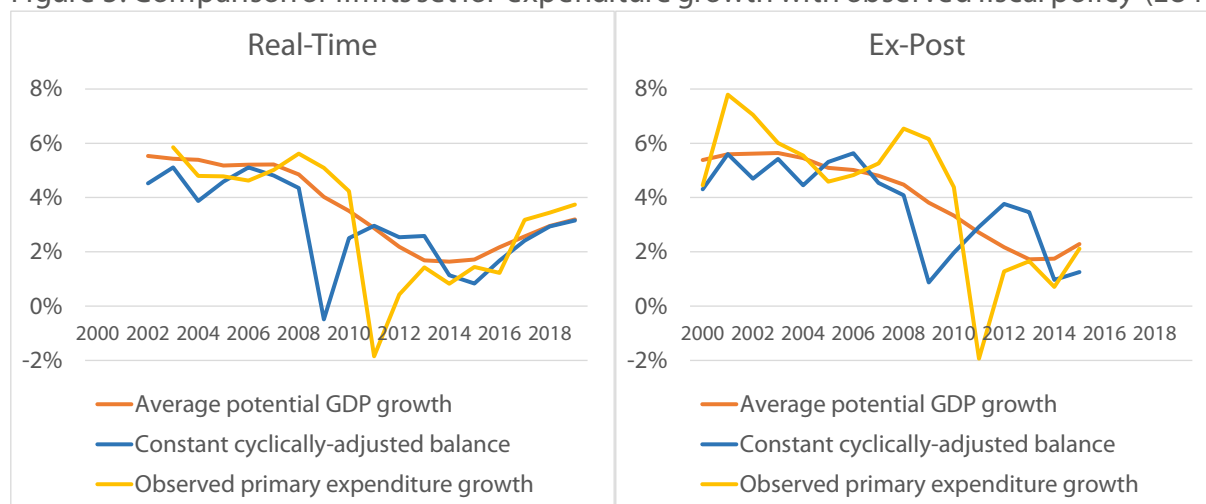
Notes: Average potential GDP refers to backward-looking five-year moving average; calculation details in Annex 6.2.

Sources: European Commission's AMECO database, Firstrun project, own calculations

The values depicted in Figure 5 represent averages across the EU15. Although a country-by-country analysis would be too comprehensive for this paper, it could reveal interesting country-specific insights, which are ignored in the following discussion. Furthermore, the discussion below is based on a single, fairly short time series. More systematic analysis would be necessary to draw more robust conclusions.

The first observation to make here is that average potential GDP growth and the average limit which keeps the cyclically-adjusted balance constant were closely aligned over the medium term (especially in the ex-post data), which confirms the similarity between expenditure and cyclically-adjusted balance rules over the medium term (Section 2.1.4). The latter is, however, more volatile and seems to fluctuate around medium-term potential GDP growth. A clear outlier in this regard is 2009. In that year, much lower expenditure growth would have been necessary to keep the cyclically-adjusted balance constant compared with medium-term potential GDP growth. To a large extent this is a feature of taking the average for potential GDP growth, as annual potential GDP also decreased sharply in 2009 (see Figure 12 in Annex 6.2). As far as rule design is concerned, however, an escape clause was activated anyway in that year, so the limits set by the rules were not applicable. This is also evident in the continuing high level of expenditure growth observed in that year.

Second, both limits would have been lower than the expenditure growth observed before the financial crisis in the early 2000s and in most recent years 2017 and 2018. Furthermore, both would have allowed more expenditure growth between 2010 and 2014. The sharp drop in expenditure growth observed in 2011 and 2012 would not have been necessary to keep the cyclically-adjusted balance constant. Consequently, both limits would have prescribed a more counter-cyclical fiscal policy over the past 18 years if they had been complied with and if the leeway granted by the rules had been used. This general result confirms the findings presented by Andrle et al. (2015), who use model simulations to show that, apart from measurement uncertainty, expenditure and structural balance rules operate similarly in stabilising the economy.

Third, in the years when there was an ex-post negative change in the output gap, the limit based on potential GDP growth would have allowed: i) slightly more expenditure growth in 2001-2003 than necessary to keep the cyclically-adjusted balance constant, ii) much more in 2008 and 2009 when, however, an escape clause would have been applicable to both rules, and iii) less in 2012 and 2013. In years when there were significant positive changes in the output gap (2000, 2006, 2007, 2010, 2015) average potential GDP growth would have set a slightly looser limit than a constant cyclically-adjusted balance in real-time (also for ex-post data except for 2006). This suggests on the whole that, in relative terms, the cyclically-adjusted balance seems to set a more restrictive limit during upturns, while medium-term potential GDP growth sets a more expansionary limit during downturns. However, it should be remembered that this assessment is based on a single, fairly short time series and a more systematic evaluation across countries and settings would therefore be desireable.

4.3. Calibration

The preceding analysis abstracts from the actual calibration of the fiscal rules, i.e. the exact numerical limits and how they are determined. The various calibrations in place and proposed do not alter the basic characteristics of rule types. Consequently, the numerical calibration can be decided independently of the rule type.

The choice of numerical calibration requires a risk assessment and the balancing of various trade-offs and is therefore mainly a political decision. There is a trade-off between overly restrictive limits, which might hamper growth and investment, and overly lax limits, which reduce the fiscal headroom

available during times of crisis and increase vulnerability to shocks (Eyraud et al., 2018a). A key measure here is the public debt-to-GDP ratio to which public debt would converge in the long run if the rule were always complied with. The selection of the respective ratio depends on the maximum debt limit below which it is highly probable that the debt dynamics can be controlled by the government, minus a safety margin. The maximum debt limit is very uncertain and depends on many factors like long-term growth rates, interest rates as well as the country-specific environment and institutions (Ghosh et al., 2013; D'Erasmo et al., 2016). The safety margin is necessary because of the high uncertainty and because negative shocks, such as severe economic crises, can trigger exceptions and increase the ratio by fairly large amounts.

However not only the targeted debt-to-GDP ratio, i.e. the long-run point of convergence, but also the desired speed of convergence play a role in determining the numerical limits for fiscal rules. The process of converging to the long-run ratio can take quite a long time. Given an initial debt ratio of 80 per cent, for example, with a constant government deficit of 0.5 per cent of GDP and a steady nominal growth rate of 3 per cent, the debt-to-GDP ratio would converge to 17 per cent in the long term. However, it will take 53 years for the ratio to fall below 30 per cent, and after twelve years it will still be above 60 per cent.

In order to lower the debt ratio faster for countries with higher debt ratios, all proposals on expenditure rules involve some kind of deduction from the limit set by the rule relative to the level of debt ratio. In choosing this deduction, one is again faced with the above-mentioned trade-off. The feedback mechanism could also take care of medium-term changes in structural public revenues which are not related to discretionary revenue measures.[8] Furthermore, the process of calibrating the speed of convergence would vary depending on whether governments use the limits set by the rules as ceilings or targets, even if they merely misuse them as targets.

When an expenditure rule is introduced, some transitory adjustment mechanism will be necessary, as not all countries will be starting from the same cyclically-adjusted budget balance. A specific limit on expenditure growth could therefore mean very different things to different countries in terms of their medium-term budget balance.

5. CONVERTING AN EU FISCAL RULE INTO A GOLDEN RULE

5.1. Proposals for Safeguarding Specific Expenditure Categories

A wide range of publications propose that specific expenditure categories, such as investment expenditures, should be treated differently in terms of debt financing in the context of the EU fiscal framework (Fitoussi and Creel, 2002; Blanchard and Giavazzi, 2004; Barbiero and Darvas, 2014; Truger, 2015; Claeys, 2019; Deutsche Bundesbank, 2019; European Fiscal Board, 2019). Table 3 presents an overview of some of the more detailed proposals. Such a provision, often referred to as a 'Golden Rule', can be added to the various types of fiscal rules, such as structural balance rules and expenditure rules, and thus does not really represent a new type of rule. As the EU framework already involves different types of rules, the goal of such a reform would be to modify an existing or reformed rule (as shown in Table 3). This could be achieved either by changing the variable constrained by the rule or by reforming the use and extent of exceptions (see Section 2.2.2).

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[8] As Heinemann (2018) describes, such changes could be due to factors such as tax competition, which could give rise to structurally lower revenues despite the fact that the tax code and statutory tax rates remain unchanged.

All proposals focus on some form of investment expenditures. However, the general term conceals differences between what these expenditures actually represent. Whereas the European Fiscal Board (2019), for example, would only count expenditures which top up the co-financing of EU investment projects, others use the investment concept as defined in the internationally harmonised national accounts (some with minor adaptations, such as Truger, 2015), while others still propose a more open approach where some institution or institutional process decides which expenditures are deductible and which are not. Similar to the latter, Pisani-Ferry (2019) argues that the EU should define goals that justify public spending that is temporarily above the limits set by fiscal rules (although this is conditional on the availability of low long-term interest rates and a country not being in a financially precarious situation).

As one of the main arguments in favour of a Golden Rule is that investment expenditures also generate assets which counterbalance debt increases, most proposals focus on net rather than gross investment expenditures (as described in Section 2.2.1). Only the creation of additional assets would thus allow debt financing. Blanchard and Giavazzi (2004) point out that if, under a Golden Rule, debt financing is only allowed for net investment expenditures over time, the level of public debt would approach that of the stock of public capital. Consequently, Deutsche Bundesbank (2019) proposes that such a rule be applied symmetrically so that negative net investment would not only not allow any debt financing but would also require budgetary surpluses in relation to negative net investment. One caveat of using net rather than gross investment figures is that this poses significant methological challenges for estimating the measure (see Section 2.2.1).

Some proposals set a limit (cap) on the amount of expenditures that can be deducted. This is achieved either by choosing a fixed amount of, say, 0.5 per cent of GDP (Deutsche Bundesbank, 2019), or, alternatively, 1 per cent or 1.5 per cent of GDP (Truger, 2015), or by transferring the identification of the cap to other measures such as the 'green investment gap' identified in the European Semester (Claeys, 2019) or projects identified in the EU Budget (European Fiscal Board, 2019).

Most proposals do not mention any changes to the limits of existing rules after allowing the deduction of (net) investment expenditures, which means that these proposals seem to place investment expenditures on top of the existing limits. Consequently, if the current rule sets a limit of 0.5 per cent of GDP on the structural balance, the new rule would set the same limit of 0.5 per cent of GDP on a structural balance from which net investment expenditures are subtracted. In contrast, Deutsche Bundesbank (2019) suggests to reduce previous limits on the residual structural balance by the maximum amount deductible for net investment purposes.

Furthermore, most proposals would implement the deduction of net investment regardless of the economic cycle. In contrast, Barbiero and Darvas (2014) argue in favour of an asymmetric Golden Rule, which provides extra scope for investment only in adverse economic times (and gradually reduces it again in more benign times). However, this approach might be challenging given the estimation errors associated with output gaps (see Section 3.2) and the objective of keeping investment levels relatively stable over the economic cycle.

Table 3: Comparison of proposals related to a 'Golden Rule' in the context of the EU fiscal framework

	Barbiero and Darvas (2014)	Blanchard and Giavazzi (2004)	Claeys (2019)	Deutsche Bundesbank	European Fiscal Board (2019)	Fitoussi and Creel (2002)	Truger (2015)
Type of rule	Structural balance rule in current EU framework	Based on rules in 2004 EU framework (i.e. no structural balance rule yet)	Adapting investment exception clause in current EU framework	Structural balance rule, but limit on non-investment reduced (same MTOs still apply)	New expenditure rule (see Table 2)	Structural balance rule	Deficit or structural balance rule as in current EU framework
Deductible	If negative output gap exceeds a determined threshold, net public investment	Net public investment	Green investment related to level of 'green investment gap' (identified in European Semester)	Net public investment, capped at max of 0.5 % of GDP	Top-up expenditures on national investment projects beyond co-financing	Public investment	Net public investment, max. of 1 % or 1.5 % of GDP
Identification of expenditures	Not specified	Delegated to Eurostat, should especially deal with the incentive to re-define current spending as public investment	Clear accounting rules needed, a.o. taxonomy for sustainable finance and rules for issuance of green bonds	As in national accounts	Projects which are growth-enhancing and adding pan-European value as in EU budget, opinions by independent fiscal institutions	Decision by European Council (based on policy areas that have been highlighted as European priorities)	As in national accounts minus military investment plus investment grants to private firms and non-profit organisations
Special features	If negative output gap is eliminated: transition period during which extra room for deficit is gradually eliminated	Specific investment agencies for transparency and better management	Issuance of green bonds to finance investment expenditures	Higher deficits if net investment is positive, if net investment negative budgetary objectives stricter			

Notes: Net investment figures are broadly defined as gross investment figures net of deprecation.

Sources: Studies as indicated in top row of table, own compilation

5.2.   Limits Set by Golden Rules

In general, cyclically-adjusted budget balance rules or expenditure rules do not prevent policymakers from choosing a composition of public expenditures according to their political priorities. In addition to specific expenditures – such as investment – as a share of total expenditures, these rules do not place limits on the level of specific expenditure categories either, as policymakers can alter the level of total expenditures within the limits of the rules by using discretionary measures on the revenue side. However, the rules do place limits on the amount of expenditures that can be financed by debt issuance rather than annual revenues.[9]

Fiscal rules are introduced because there are various forms of deficit bias on the part of politicians and governments, which means that, without any rules, the amount financed by debt issuance would be higher than is optimal (see Section 1). In addition to this deficit bias, there are various factors that could create a bias towards less-than-optimal levels of specific expenditures, such as the discrepancy between which generation has to bear the costs and who benefits from investment expenditures (see Section 2.2.1). If it were possible to show that politicians are biased in this way when deciding on specific expenditure categories, this could justify a rule which differentiates between expenditure categories. A Golden Rule sets a limit to the amount of non-deductible expenditures that can be financed by debt issuance and either none or a different limit for deductible, like investment, expenditures.

When deciding on the introduction of a Golden Rule, there is a trade-off to be addressed. Governments would still be able to choose any composition and level of expenditures, but not independent of the amount of debt issuance relative to annual revenues. For a given amount of debt issuance and annual revenues, governments would not be able to freely choose a level of expenditures in specific categories anymore. Although the general trade-off between rules and choices for governments is similar for any fiscal rule, a Golden Rule goes beyond the current focus of the EU fiscal framework on constraining fiscal aggregates and distinguishes between different expenditures in Member States.

Under a Golden Rule there is still a maximum total amount of debt financing which is consistent with sustainable public finances. The numerical calibration follows the same considerations as described in Section 4.3. However, the maximum debt limit might be higher if a Golden Rule credibly leads to a better composition of public expenditures which increases long-term growth rates or reduces interest rates, e.g. through higher investors' confidence. For Golden Rules which do not set a limit to the deductible expenditures, the implicit assumption might be that those can only increase within a range, e.g. due to capacity constraints, and are thus constrained also without an explicit limit. However, addressing the bias towards excessively low investment expenditures would not remove the bias towards excessively high deficits in general. The deficit bias is relevant not only for total expenditures but also for specific expenditure categories that are not constrained. If current expenditures are limited by a fiscal rule but investment expenditures are not, it is likely that a bias towards excessively high deficits will remain, except that it will then be based on investment expenditures or might foster the usage of 'creative accounting'. For example, common-pool problems and political budget cycles could then be concentrated on investment expenditures potentially also leading to the realization of less efficient investments and a weakening of their growth contribution.

This suggests setting a cap on the amount of expenditure that is deductible (as also discussed in some proposals). It should be noted that this does not set a limit on the maximum level of expenditures in a

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[9] Depending on the rules' design this amount can also be negative, i.e. require a budgetary surplus, in some or all years.

specific category; it merely sets a limit on the amount which can be deducted. If policymakers want to increase the expenditures in that category beyond what is deductible, they would be able to do so in full compliance with the rule, e.g. by reducing other non-deductible expenditures or increasing revenues.

To guarantee the intended effect of the introduction of a Golden Rule, i.e. to increase the quality of public finances by increasing the share of growth-friendly or future-oriented expenditures, the limit set for the remaining part of the budget, i.e. for the non-deductible expenditures, would most likely need to be reduced in accordance with the change of the maximum amount of total debt issuance. Otherwise, this remaining part would be allowed to increase even without a respective increase in revenues or deductible expenditures. This could lead to a higher structural deficit due to an increase in non-deductible expenditures, without necessarily an improvement of the quality of public expenditures.

A system which allows specific expenditures to be deducted up to a cap and lowers the original rule limit for the remaining expenditures would effectively constitute two fiscal rules: one setting a limit on total expenditures (deductible and non-deductible) and a second one setting a limit on the non-deductible portion of expenditures, with the difference between the two limits being the cap on how much of the safeguarded expenditures can be deducted. This also shows that such a system can be designed in a way that does not jeopardise long-term fiscal sustainability.

6. CONCLUSIONS

This paper, first, discusses the benefits of focusing the European fiscal framework on an expenditure rule. Discussions of reforms often focus on the benefits of expenditure rules in relation to observed fiscal policy rather than other possible rules or rule designs. However, fiscal policy is often chosen not only in accordance with the limits set by fiscal rules, but also because of other considerations, such that analysing observed fiscal policy to evaluate the current fiscal framework might be misleading.

Expenditure rules are similar to structural balance rules in various respects. Although there are minor differences from year to year, both rules *per se* would have prescribed that fiscal policy in the EU should have been more-counter cyclical over the past few years. However, expenditure rules achieve this by imposing a less volatile limit on expenditure growth which, in terms of output stabilisation, can be either a benefit or a drawback depending on the direction in which the economy is heading. Under the current framework, it appears not to be the rule design itself but, rather, political decisions outside the scope of the fiscal rules, non-compliance with these rules, and accompanying regulations like the use of exceptions that tended to foster pro-cyclical fiscal policy. Like structural balance rules, expenditure rules are also associated with significant challenges when forecasting and estimating the variables needed for implementation. These errors are substantial and biased in the case of variables required to operationalise structural balance rules. They are smaller, although still significant, and less biased, in the case of expenditures. However, the operationalisation of expenditure rules also requires other variables, such as discretionary revenue measures, which involve cumbersome estimates and are associated with a high degree of uncertainty.

The main advantage of expenditure rules is that (almost all) expenditures and discretionary revenue measures are directly controlled by policymakers. Governments can therefore ensure compliance with fiscal rules more directly. With the exception of cyclical unemployment-related expenditures and discretionary revenue measures, most of the expenditure measures are easy to communicate and involve less complex explanations. This is especially helpful when communicating rule compliance to

the general public and the media, which in turn is the most promising lever for increasing the accountability of politicians and compliance with fiscal rules.

Second, the paper discusses ways of converting a fiscal rule under the European fiscal framework into a Golden Rule. There is a concern that needs to be adressed first, which is that such a rule would go beyond the current focus of the EU fiscal framework on fiscal aggregates and distinguish between different expenditures in Member States. If a Golden Rule is introduced nonetheless, the main challenge is to clearly and narrowly define the deductible expenditures or expenditure categories (Section 2.2.1). Once these have been identified, a two-rule system could implement the Golden Rule: one rule for total (deductible and non-deductible) expenditures and one rule for non-deductible expenditures only.

One of the main overarching challenges when reforming the EU fiscal framework is to increase compliance with its fiscal rules. The best-designed fiscal rules are no good if they are not complied with or if the leeway granted by these rules is not used where it would be advisable. As has been seen in recent years, discretionary fiscal policy actions – rather than fiscal rule design – have often tended to make fiscal policy more pro-cyclical and less focused on fiscal sustainability. A more transparent, more predictable and less complex framework could make a significant contribution to enhancing compliance and the role of fiscal rules. Furthermore, it is important to have supporting institutions – such as independent and vocal fiscal councils at the national and European level – explaining fiscal policy and rules. The most important lever is to increase ownership of national governments as well as the visibility of rules and their compliance for politicians, the general public and the media. This could give the fiscal rules more impact than any complex system of sanctions or enforcement mechanisms.

REFERENCES

Andrle, M. et al. (2015), Reforming fiscal governance in the European Union, IMF Staff Discussion Note 15/09, International Monetary Fund, Washington, DC.

Auerbach, A.J. and Y. Gorodnichenko (2012), Measuring the Output Responses to Fiscal Policy, American Economic Journal: Economic Policy 4 (2), 1–27.

Ayuso-i-Casals, J. (2012), National Expenditure Rules – Why, How and When, European Economy 473, Directorate General Economic and Financial Affairs (DG ECFIN), European Commission, December.

Bacchiocchi, E., E. Borghi and A. Missale (2011), Public investment under fiscal constraints, Fiscal Studies 32 (1), 11–42.

Badinger, H. and W.H. Reuter (2017), The case for fiscal rules, Economic Modelling 60, 334–343.

Badinger, H. and W.H. Reuter (2015), Measurement of fiscal rules: Introducing the application of partially ordered set (POSET) theory, Journal of Macroeconomics 43, 108–123.

Barbiero, F. and Z. Darvas (2014), In sickness and in health: Protecting and supporting public investment in Europe, Bruegel Policy Contribution 2014/02, Bruegel, Brussels.

Bénassy-Quéré, A. et al. (2018), Reconciling risk sharing with market discipline: a constructive approach to euro area reform, CEPR Policy Insight 91, Centre for Economic Policy Research, London.

Blanchard, O.J. and F. Giavazzi (2004), Improving the SGP through a proper accounting of public investment, CEPR Discussion Paper 4220, Centre for Economic Policy Research, London.

Bom, P.R.D. and J.E. Ligthart (2014), What Have We Learned From Three Decades Of Research On The Productivity Of Public Capital?, Journal of Economic Surveys 28 (5), 889–916.

Buettner, T. and B. Kauder (2010), Revenue Forecasting Practices: Differences across Countries and Consequences for Forecasting Performance, Fiscal Studies 31 (3), 313–340.

Burret, H.T. and L.P. Feld (2018), (Un-)intended effects of fiscal rules, European Journal of Political Economy 52, 166–191.

Buti, M., N. Carnot, A. Hristov, K.M. Morrow, W. Roeger and V. Vandermeulen (2019), Potential output and EU fiscal surveillance, VoxEU.org.

Buti, M., J.N. Martins and A.A. Turrini (2006), From Deficits to Debt and Back: Political Incentives under Numerical Fiscal Rules, CEPR Discussion Papers 5809, Centre for Economic Policy Research, August.

Carnot, N. (2014), Evaluating Fiscal Policy - A Rule of Thumb, European Economy 52, Directorate General Economic and Financial Affairs (DG ECFIN), European Commission.

Caselli, F. and J. Reynaud (2020), Do fiscal rules cause better fiscal balances? A new instrumental variable strategy, European Journal of Political Economy 63, 101873.

Caselli, F. and P. Wingender (2018), Bunching at 3 Percent: The Maastricht Fiscal Criterion and Government Deficits, IMF Working Papers 18/182, International Monetary Fund, August.

Christofzik, D.I., L.P. Feld, W.H. Reuter and M. Yeter (2018), Uniting European fiscal rules: How to strengthen the fiscal framework, Arbeitspapier 04/2018, Sachverständigenrat zur Begutachtung der gesamtwirtschaftlichen Entwicklung, Wiesbaden.

Christofzik, D.I., L.P. Feld and M. Yeter (2019), Öffentliche Investitionen: Wie viel ist zu wenig?, Schweizer Monat – Die Autorenzeitschrift für Politik, Wirtschaft und Kultur 1064 (März).

Claeys, G. (2019), The European Green Deal needs a reformed fiscal framework, Bruegel Blog Post.

Claeys, G., Z.M. Darvas and A. Leandro (2016), A proposal to revive the European fiscal framework, Bruegel Policy Contribution 2016/07, Bruegel, Brussels.

Cordes, T. et al. (2015), Expenditure Rules: Effective Tools for Sound Fiscal Policy?, IMF Working Papers 15 (29).

Cottarelli, C. (2018), How could the Stability and Growth Pact be simplified?, IN-DEPTH ANALYSIS Requested by the ECON committee, Economic Governance Support Unit, Brussels, April.

Council of the EU (2020), Statement of EU ministers of finance on the Stability and Growth Pact in light of the COVID-19 crisis.

Dahan, M. and M. Strawczynski (2013), Fiscal rules and the composition of government expenditures in OECD countries, Journal of Policy Analysis and Management 32 (3), 484–504.

Darvas, Z.M., P. Martin and X. Ragot (2018), European fiscal rules require a major overhaul, Les notes du conseil d'analyse économique No. 47, French Council of Economic Analysis, Paris.

D'Erasmo, P., E.G. Mendoza and J. Zhang (2016), What is a sustainable public debt?, in: Taylor, J. B. and H. Uhlig (eds.), Handbook of Macroeconomics, vol. 2, Amsterdam, 2493–2597.

de Deus, J.D.B.V. and H.F. de Mendonça (2015), Empirical evidence on fiscal forecasting in Eurozone countries, Journal of Economic Studies 42 (5), 838–860.

Deutsche Bundesbank (2019), European Stability and Growth Pact: individual reform options, Monthly Report, April.

European Commission (2019a), Report on Public Finances in EMU 2018, January.

European Commission (2019b), Vade Mecum on the Stability and Growth Pact, Institutional Paper 101, European Commission, Directorate-General for Economic and Financial Affairs, Brussels, April.

European Fiscal Board (2019), Assessment of EU fiscal rules with a focus on the six and two-pack legislation, August.

European Fiscal Board (2018), Annual Report 2018, September.

Eurostat and OECD (2014), EUROSTAT-OECD Survey of National Practices in Estimating Net Stocks of Structures.

Eyraud, L. et al. (2018a), How to Calibrate Fiscal Rules, International Monetary Fund, Washington, D.C.

Eyraud, L., X. Debrun, A. Hodge, V.D. Lledo and C. Pattillo (2018b), Second-generation fiscal rules: Balancing simplicity, flexibility, and enforceability, IMF Staff Discussion Note SDN/18/04, Internationaler Währungsfonds, Washington, DC.

Eyraud, L. and T. Wu (2015), Playing by the Rules: Reforming Fiscal Governance in Europe, IMF Working Paper WP/15/67, IMF Working Paper WP/15/67, March.

Fatás, A. (2019), Fiscal Policy, Potential Output, and the Shifting Goalposts, IMF Economic Review 67 (3), 684–702.

Fatas, A. (2019), Are the current "automatic stabilisers" in the Euro Area Member States sufficient to smooth economic cycles?, IN-DEPTH ANALYSIS Requested by the ECON committee, Economic Governance Support Unit, Brussels, May.

Fatás, A. and L.H. Summers (2018), The permanent effects of fiscal consolidations, Journal of International Economics 112, 238–250.

Feld, L.P. (2018), The quest for fiscal rules, Freiburg Discussion Papers on Constitutional Economics 18/9, Walter Eucken Institut, Freiburg.

Fitoussi, J.-P. and J. Creel (2002), How to reform the European Central Bank, Centre for European Reform, London.

Frankel, J. and J. Schreger (2013), Over-optimistic official forecasts and fiscal rules in the eurozone, Review of World Economics 149 (2), 247–272.

GCEE, 'German Council of Economic Experts' (2019), Dealing with Structural Change, Annual Report 2019/20.

Gechert, S. and H. Will (2012), Fiscal Multipliers: A Meta Regression Analysis, IMK Working Paper 97, 36.

Ghosh, A.R., J.I. Kim, E.G. Mendoza, J.D. Ostry and M.S. Qureshi (2013), Fiscal Fatigue, Fiscal Space and Debt Sustainability in Advanced Economies, The Economic Journal 123 (566), F4–F30.

Girouard, N. and C. André (2005), Measuring Cyclically-adjusted Budget Balances for OECD Countries, OECD Economics Department Working Papers 434, OECD Publishing, Paris, 4. July.

von Hagen, J. and G.B. Wolff (2006), What do deficits tell us about debt? Empirical evidence on creative accounting with fiscal rules in the EU, Journal of Banking & Finance 30 (12), 3259–3279.

Hauptmeier, S., A.J. Sánchez-Fuentes and L. Schuknecht (2015), Spending dynamics in euro area countries: Composition and determinants, Hacienda Pública Española / Review of Public Economics 215 (4/2015), 119–138.

Heinemann, F., M.-D. Moessinger and M. Yeter (2018), Do fiscal rules constrain fiscal policy? A meta-regression-analysis, European Journal of Political Economy 51, 69–92.

Kempkes, G. (2012), Cyclical adjustment in fiscal rules: some evidence on real-time bias for EU-15 countries, Discussion paper 15, Deutsche Bundesbank, Frankfurt am Main.

Koen, V. and P. van den Noord (2005), Fiscal Gimmickry in Europe: One-Off Measures and Creative Accounting, OECD Economics Department Working Papers 417, OECD Publishing, Paris, February.

Kopits, G. (2018), How could the Stability and Growth Pact be simplified?, IN-DEPTH ANALYSIS Requested by the ECON committee, Economic Governance Support Unit, Brussels, April.

Larch, M., E. Orseau and W. van der Wielen (2020), Do EU Fiscal Rules Support or Hinder Counter-Cyclical Fiscal Policy?, JRC Technical Reports.

Lledó, V. and W.H. Reuter (2018), The Dynamics of Fiscal Rule Compliance, Second-Generation Fiscal Rules - Background Papers, IMF Staff Discussion Note, SDN/18/04, International Monetary Fund, Washington, D.C.

Merola, R. and J.J. Pérez (2013), Fiscal forecast errors: Governments versus independent agencies?, European Journal of Political Economy 32, 285–299.

Milesi-Ferretti, G.M. (2004), Good, bad or ugly? On the effects of fiscal rules with creative accounting, Journal of Public Economics 88 (1), 377–394.

Mourre, G., C. Astarita and S. Princen (2014), Adjusting the budget balance for the business cycle: the EU methodology, European Economy - Economic Papers 2008 - 2015 536, Directorate General Economic and Financial Affairs (DG ECFIN), European Commission, Brüssel.

Navarini, L. and A. Zoppè (2020), Potential output estimates and their role in the EU fiscal policy surveillance, Briefing, European Parliament, Economic Governance Support Unit (EGOV), Brussels.

Perée, E. and T. Välilä (2005), Fiscal rules and public investment, Economic and Financial Report 2005/02, Europäische Investitionsbank, Luxemburg.

Pisani-Ferry, J. (2019), When Facts Change, Change the Pact, Project Syndicate Blog.

Price, R., T.-T. Dang and Y. Guillemette (2014), New Tax and Expenditure Elasticity Estimates for EU Budget Surveillance, (1174).

Reuter, W.H. (2019), When and why do countries break their national fiscal rules?, European Journal of Political Economy 57, 125–141.

Reuter, W.H. (2015), National numerical fiscal rules: Not complied with, but still effective?, European Journal of Political Economy 39, 67–81.

Romp, W. and J. De Haan (2007), Public Capital and Economic Growth: A Critical Survey, Perspektiven der Wirtschaftspolitik 8 (S1), 6–52.

Truger, A. (2015), Implementing the Golden Rule for Public Investment in Europe Safeguarding Public Investment and Supporting the Recovery, Materialien zu Wirtschaft und Gesellschaft 138, Working Paper-Reihe der AK-Wien, March.

Turrini, A. (2004), Public investment and the EU fiscal framework, European Economy Economic Paper 202, Europäische Kommission, Brüssel.

Wyplosz, C. (2012), Fiscal Rules: Theoretical Issues and Historical Experiences, Working Paper Series, Working Paper 17884, National Bureau of Economic Research, March.

ANNEX

6.1. Formal Description of Cyclically-Adjusted Balance and Expenditure Rules

The main part of public expenditures (G) which systematically changes with the economic cycle are expenditures related to unemployment (G^{unempl}). Based on estimates of the output gap (OG) the cyclical unemployment-related expenditures ($G^{cyc.unempl}$) can be estimated. Cyclically-adjusted expenditures ($G^{cyc.adj}$), e.g. as calculated by the European Commission, are total expenditures net of cyclical unemployment-related expenditures:

$$G = G^{cyc.adj} + G^{cyc}(OG) \Rightarrow G^{cyc.adj} = G - G^{cyc}(OG) \approx G - G^{cyc.unempl}(OG) \qquad (1)$$

Cyclical revenues $R^{cyc}(OG)$ which depend on the economic cycle make up a much larger part of public revenues (R). The cyclically-adjusted revenues ($R^{cyc.adj}$) are total revenues net of cyclical revenues:

$$R = R^{cyc.adj} + R^{cyc}(OG) \qquad (2)$$

A budget balance or deficit rule sets a limit (α) on the gross budget balance, i.e. the difference between public revenues and public expenditures. Using Equations 1 and 2 this is equivalent to the sum of the difference between the cyclically-adjusted revenues and cyclically-adjusted expenditures and the difference in the cyclical components of revenues and expenditures:

$$\alpha < R - G = R^{cyc.adj} - G^{cyc.adj} + R^{cyc}(OG) - G^{cyc.unemp}(OG) \qquad (3)$$

A cyclically-adjusted balance rule takes the economic cycle into account and sets a limit only to the parts of revenues and expenditures which are independent of the economic cycle, i.e. the level of revenues and expenditures which would be observed if the output gap was exactly closed. Thus, it sets a limit (β) for the difference between cyclically-adjusted revenues and cyclically-adjusted expenditures:

$$\beta < R^{cyc.adj} - G^{cyc.adj} \approx R - G - R^{cyc}(OG) - G^{cyc.unemp}(OG) \qquad (4)$$

A structural balance rule is similar but in addition takes temporary, one-off items into account.

Most proposals of expenditure rules would restrict the growth rate in public expenditures net of (cyclical) unemployment-related expenditures to some limit related to potential GDP growth (ΔY^*).

$$\Delta Y^* > \Delta \left(G - G^{cyc.unemp}(OG) \right) \qquad (5)$$

The growth of revenues over the medium-term (cyclically-adjusted revenues) is closely related to the growth of the tax base, which grows approximately with potential GDP. Rearanging Equation 4 and taking first differences shows the similarity between cyclically-adjusted budget balance and expenditure rules:

$$\Delta Y^* \approx \Delta R^{cyc.adj} > \Delta \left(G - G^{cyc.unemp}(OG) \right) \approx \Delta G^{cyc.adj} \qquad (6)$$

6.2. Additional Details on Composition of Public Expenditures in the EU

6.2.1. Development of Specific Expenditure Categories

The share of public investment expenditures (here represented by gross fixed capital formation by the government) in the EU declined over the long term from 1970 until 1995, which was broadly in line with the decline seen in other advanced economies (Barbiero and Darvas, 2014). Figure 6 shows that this share on average is at the same level in 2019 as in 1995 in the EU15. It was equal to 6.9 per cent of total expenditures in 1995 and 2019. It increased significantly up until the financial crisis and had

compensated for its decline by 2019. As a share of GDP, however, this catch-up was not evident, which is why investment as a percentage of GDP declined over the time horizon from 3.5 per cent in 1995 to 3.1 per cent in 2019.

The sharpest drops between 2008 and 2013 were observed in Member States that had financial assistance programmes, i.e. Ireland (-3.25 pp of GDP), Spain (-2.38 pp), Greece (-2.14 pp) and Portugal (-1.54 pp), where the relevant shares fell from above-average levels of, for example, more than 5 per cent in Greece and Ireland to below-average values of close to 2 per cent of GDP. The European Fiscal Board (2019) points out that this reduction shows how rapid fiscal consolidations can be accompanied by a decline in investment.

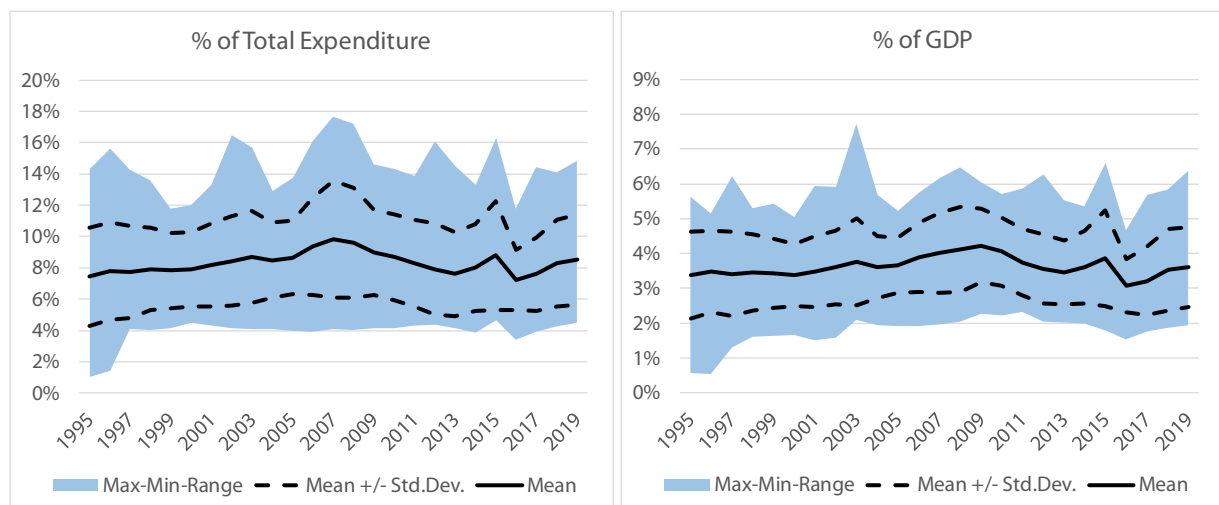Figure 6: Public investment expenditures in the EU15 from 1995 to 2019
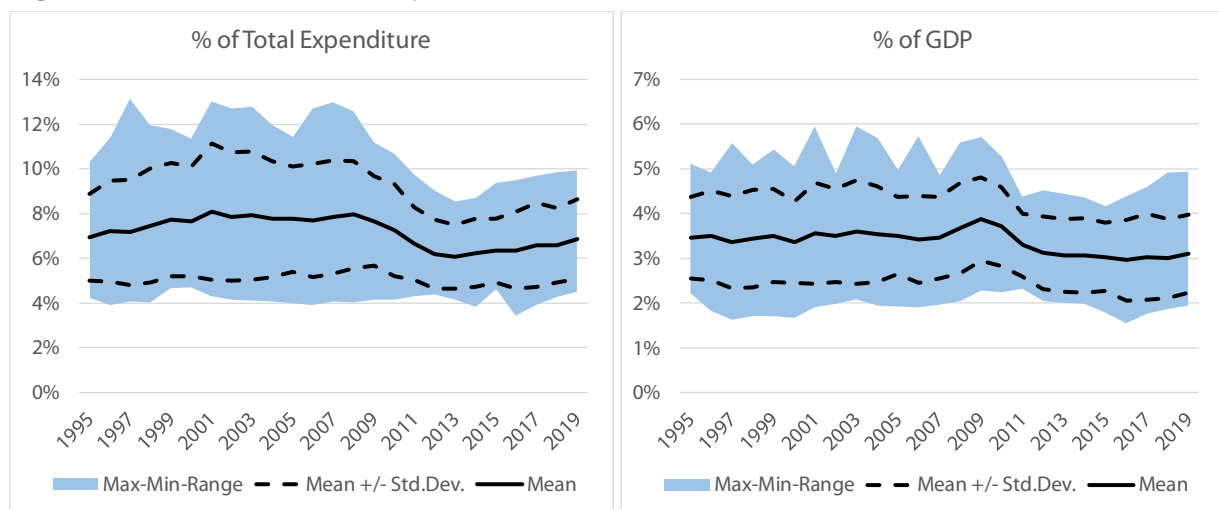
Notes: Investment expenditures are represented by gross fixed capital formation by the government. Blue areas represent the range between the maximum and minimum values in each year. Lines represent the mean and mean plus and minus one standard deviation across Member States.

Sources: European Commission's AMECO database, own calculations

Figure 7: Public investment expenditures in EU27 from 1995 to 2019

Notes: Investment expenditures represented by gross fixed capital formation of general government. Blue areas represent range between maximum and mimum value in each year. Lines represent mean and mean plus and minus one standard deviation across Member States.

Sources: European Commission's AMECO database, own calculations

Spending on education has on average also remained stable over the past 22 years in the EU15. The average relevant share of total expenditures was 10.5 per cent in 1995 and 10.7 per cent in 2018 (Figure 8). At the peak of the current sample – in 2002 and 2003 – this share was 11.5 per cent. Since then this share has decreased especially in Portugal (-3.8 pp), the United Kingdom (-2.7 pp) and Finland (-2.3 pp), all three of which had above-average shares in 2003 (Portugal 14.3 per cent, the United Kingdom 14.5 per cent and Finland 12.7 per cent). The countries with the lowest shares in 2018 were Italy (8.2 per cent) and Greece (8.3 per cent), which had already had the lowest shares back in 1996.

Figure 8: Public education expenditures in EU15 from 1995 to 2018
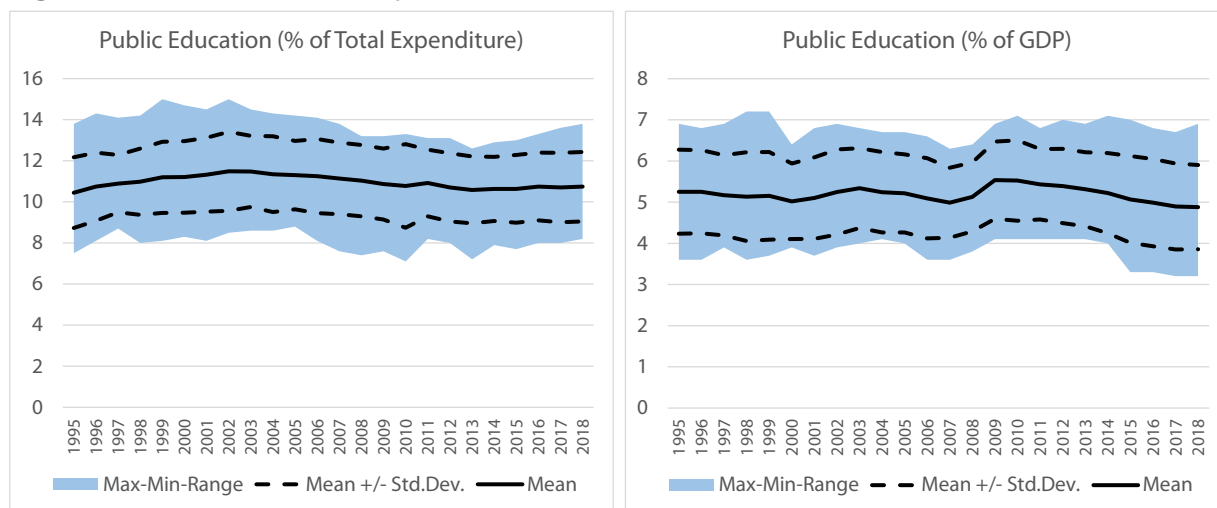
Notes: Education expenditures of general government according to COFOG classification. Blue areas represent range between maximum and mimum value in each year. Lines represent mean and mean plus and minus one standard deviation across Member States.
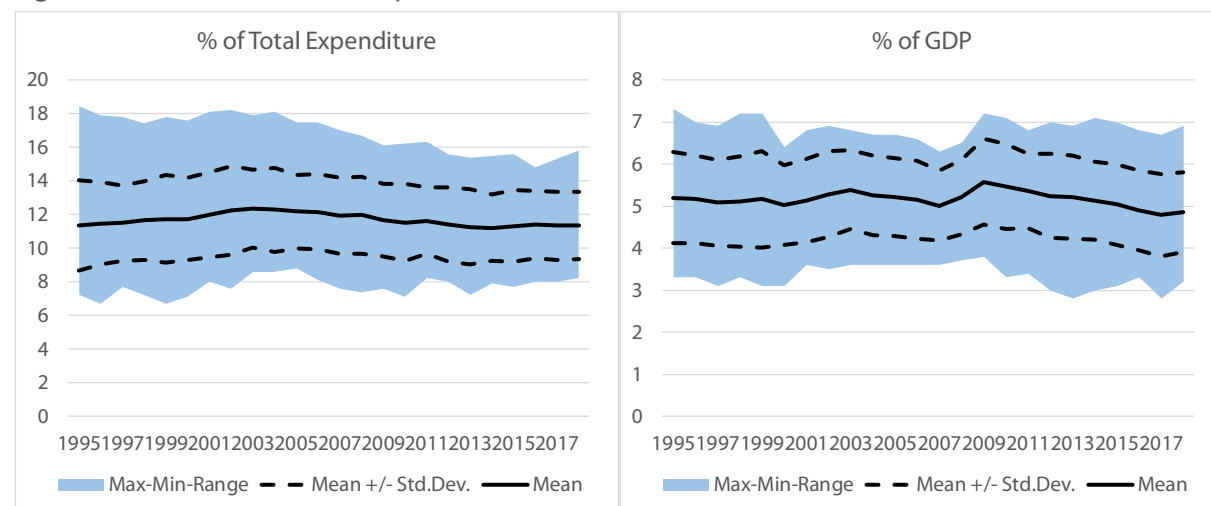
Source: Eurostat, own calculations

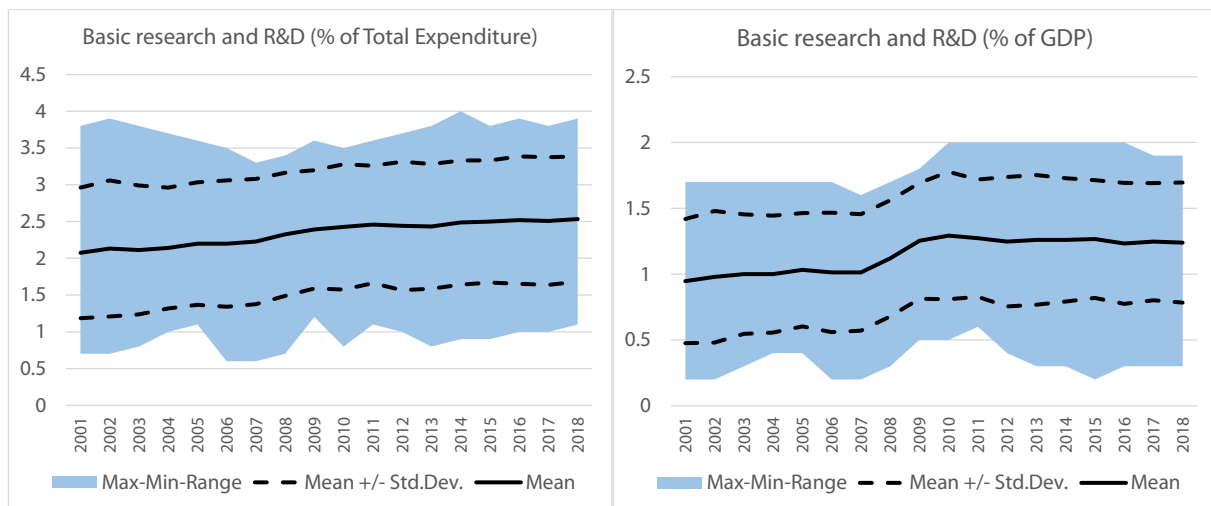Figure 9: Public education expenditures in EU27 from 1995 to 2018

Notes: Education expenditures of general government according to COFOG classification. Blue areas represent range between maximum and mimum value in each year. Lines represent mean and mean plus and minus one standard deviation across Member States.

Source: Eurostat, own calculations

Spending on basic research and R&D as a percentage of total expenditures in the EU15 increased on average by 0.46 percentage points between 2001 and 2018 (Figure 10). In contrast to investment and education expenditures this spending did not drop sharply during the financial crisis. As a percentage of GDP (shown in Figure 10), there was actually a pronounced increase during the financial crisis, i.e. while GDP decreased during these years, R&D expenditures increased or at least remained stable. In Germany, for example, research expenditures formed part of the fiscal stimulus packages introduced in response to the crisis.

Figure 10: Public basic research and R&D expenditures in the EU15 from 2001 to 2018

Notes: Share of the sum of expenditures on basic research and research & development (R&D) by the government in various categories according to COFOG classification. Blue areas represent the range between the maximum and minimum values in each year. Lines represent the mean and mean plus and minus one standard deviation across Member States.

Sources: Eurostat, own calculations

Figure 11: Public basic research and R&D expenditures in EU25 from 2001 to 2018
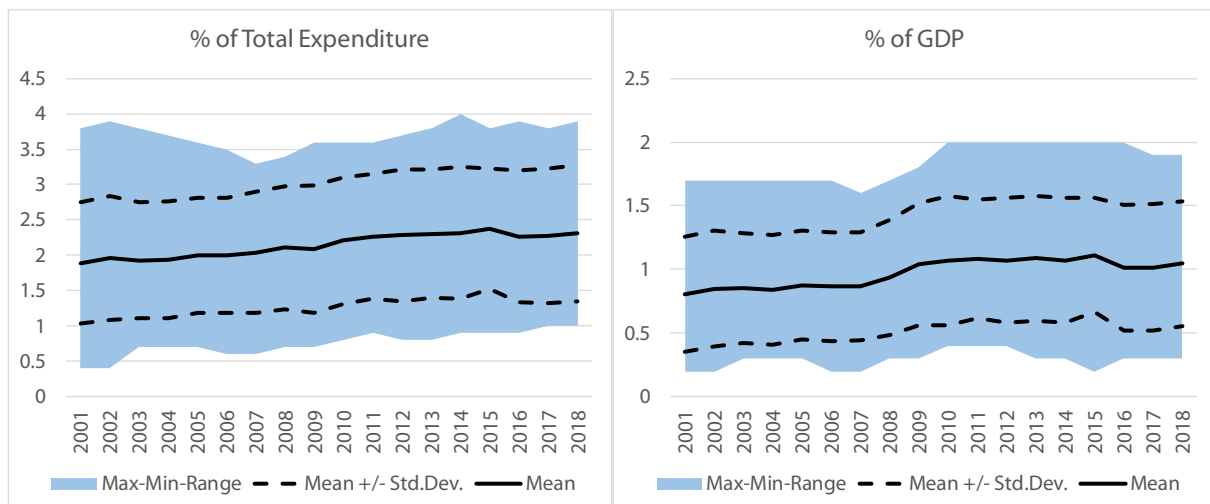
Notes: Share of sum of expenditures on basic research and research and development (R&D) of general government in various categories according to COFOG classification. EU27 without Bulgaria and Lithuania. Blue areas represent range between maximum and mimum value in each year. Lines represent mean and mean plus and minus one standard deviation across Member States.

Source: Eurostat, own calculations

6.2.2. Specific Expenditure Categories during Fiscal Consolidations

Specific expenditures like the ones discussed in the previous section might be reduced (relative to others) first and most sharply during fiscal consolidations. The upper panel of Table 4 presents the correlation of changes in these expenditures with changes in the cyclically-adjusted fiscal balance. If the latter is positive, this is a period of discretionary fiscal consolidation (not due to the economic cycle), while if it is negative it corresponds to periods of discretionary fiscal expansion. The results show that these expenditure categories – when measured as a percentage of GDP – do indeed seem to be negatively correlated. Investment expenditures in particular tend to decrease as a share of GDP in times of consolidation and increase in times of expansion. This also becomes evident in the lower panel of Table 4, which shows that, during fiscal consolidations, investment expenditures have on average decreased by 0.17 percentages points as a share of GDP. In the case of education and R&D expenditures, correlations and average changes in times of fiscal consolidation are very small, which means that the development of these categories seems to be largely independent of phases of consolidation and expansion.

During periods of fiscal consolidation one would usually expect expenditures to grow more slowly or to be reduced, so the observation of decreases in levels or percentages of GDP in expenditure categories is not surprising. However, the question is whether specific expenditure categories are reduced relative to other categories. Looking at expenditure categories as a share of total expenditures reveals that – based on correlations (upper panel) and averages (lower panel) – education and R&D expenditures as a share of total expenditures increased during fiscal consolidations. In other words, these categories were less affected than other categories. The positive correlation is relatively high for education expenditures in particular. The correlation is virtually zero in the case of investment expenditures, so there seems to be no clear relationship between changes in the cyclically-adjusted budget balance and the relevant share of investment expenditures.

Overall, the results suggest that expenditures on investment and, to a smaller extent, on education as well as basic research and R&D are reduced as a percentage of GDP during periods of fiscal consolidation. However, expenditures on education as well as basic research and R&D are affected less than other expenditure categories, which means that their share of total expenditures increases. Overall, the share accounted for by investment expenditures does not seem to be systematically related to periods of fiscal consolidation or expansion.

Table 4: Fiscal consolidations and specific public expenditure categories

		Investment	Education	Basic research, R&D
		1995-2018	1995-2018	2001-2018
Correlation of changes in the cyclically-adjusted fiscal balance (% of potential GDP) with changes in…				
% of total expenditures	EU15	0.003	0.608	0.201
% of GDP	EU27	-0.045	0.467	0.126
	EU15	-0.296	-0.122	-0.094
	EU27	-0.231	-0.102	-0.117
Average change during years of fiscal consolidation (cyc.-adj. fiscal balance improved by more than 0.5 pp)				
% of total expenditures	EU15	-0.148	0.173	0.053
% of GDP	EU27	-0.203	0.180	0.061
	EU15	-0.166	-0.060	0.003
	EU27	-0.185	-0.065	-0.002

Sources: European Commission's AMECO database, Eurostat, own calculations

6.3. Forecast Errors based on AMECO Vintages

The European Commission publishes its macro-economic database AMECO twice a year (in spring and in autumn) including forecasts for the coming years. Each publication is called "vintage" of the AMECO database and currently the vintages from spring 2011 to autumn 2019 can be downloaded from the European Commission's website. For some key variables data from older vintages are available to download at the website of the EU funded Horizon 2020 project "Firstrun". The project publishes data from AMECO vintages starting in spring 2000.

In the context of this paper, the two-year ahead forecast error (FE_2) of variables measured in Euros, like expenditures, revenues or GDP, (X) for a specific year t is defined as the percentage of GDP (Y) difference between the value of the variable in the vintage of autumn four years after that specific year, i.e. in $t + 4$, and the forecast in the vintage of autumn two years ahead of the specific year, i.e. $t − 2$.

$$FE_{2,t}^X = \frac{X_{t+4}^t - X_{t-2}^t}{Y_{t-2}^t}$$

where X_{t+4}^t is the variable X for year t observed in the autumn vintage of year $t +$ 4. The vintage in $t +$ 4 is used as benchmark, instead of e.g. the last currently available vintage, to guarantee that the same time has passed between the forecast and ex-post data for all observations. The largest revisions usually happen within the first four years. Afterwards revisions still occur but in general they are considerably smaller.

When comparing data across vintages data revisions, changes of base years and changes of accounting rules pose a problem. To deal with this, this paper follows Fatás and Summers (2018) and rebases the variables using an adjustment factor. This approach uses the ratio of observations for a year for which the data lies in the past in both vintages, i.e. $t − 3$, to adjust the values in the older vintage.

$$Z_s^{*t} = Z_s^t \cdot \frac{Z_{t+4}^{s-1}}{Z_s^{s-1}}$$

$$FE_{2,t}^{*X} = \frac{X_{t+4}^t - X_{t-2}^{*t}}{Y_{t-2}^{*t}}$$

For potential GDP also data of past years are still an estimation at the time of the publication of a vintage. Therefore, in case of potential GDP the adjustment factor as in Fatás and Summers (2018) is based on past values for actual GDP.

The exercises in this paper do not only use two-year ahead forecast errors, but also one-year ahead (FE_1) and real-time (FE_0) errors. The latter calculates the error based on the values published in the vintage in autumn of year t for this year t.

$$FE_{0,t}^{*X} = \frac{X_{t+4}^t - X_t^{*t}}{Y_t^{*t}}$$

For variables, which are differences and are expressed in percentage of (potential) GDP, like fiscal balance, growth rates, structural balance or output gap, the approach described above is not feasible. However, as for percentages of GDP the numerator and denominator are both within one vintage, problems of different base years or changes of accounting rules are of less concerns. Thus, for those variables the forecast error is defined as the simple percentage point difference between the value in the autumn vintage of $t+4$ and the forecast of the variable in the autumn vintage of $t-2, t-1$ or t.

6.4. Calculation of past growth rates of cyclically-adjusted revenue, potential GDP and expenditures

The calculations in this section are based on the same dataset as described in Annex 6.3. As cyclically-adjusted revenues and the cyclical component of expenditures are both not part of the Firstrun dataset (i.e. older vintages), a workaround is used to calculate the limit for expenditure growth which would keep the cyclically-adjusted budget balance constant. By summing up total expenditures (*UUTGE*) and the cyclically-adjusted budget balance (*UBLGAP*), which are both available for the longer time period, the sum of cyclically-adjusted revenues and the cyclical component of expenditures is obtained. Expenditures are allowed to increase by the growth rate of this sum to keep the cyclically-adjusted balance constant.

$$BB^{cyc.adj} = R^{cyc.adj} - G^{cyc.adj} = R - G - R^{cyc}(OG) - G^{cyc.unemp}(OG) \Rightarrow$$

$$BB^{cyc.adj} - G = R^{cyc.adj} - G^{cyc.unemp}(OG)$$

The cyclically-adjusted budget balance (*UBLGAP*) is only available in percent of GDP for the longer time series (based on Firstrun data), while total expenditures (*UUTGE*) are measured in nominal terms. Thus, the former is multiplied with nominal GDP (*UVGDH*) to receive the cyclically-adjusted budget balance in nominal terms. As a cross-check for the time period in which data overlaps, the direct sum of cyclically-adjusted revenues (*URTGAP*) and the cyclical component of expenditures (*UUCGCP*) is compared with the measures obtained through above described workaround. The values (except for rounding differences) are identical.

Most expenditure rules discussed in this paper use some measure related to potential GDP growth as limits. If expenditures are measured in nominal terms, so should be potential GDP (*OVGDP*). Thus, for

the calculations in this section it is multiplied with the BIP deflator (*UVGDH / OVGD*). Furthermore, some proposals use contemporaneous potential GDP growth, others some averages across past or future years. Figure 12 first compares nominal potential GDP between forecast, real-time and ex-post for annual data and for a moving average. It seems that forecasted growth rates lag developments seen in ex-post numbers. I.e. while forecast potential GDP growth was (much) higher than ex-post figures between 2008 and 2015, it was lower afterwards. This observeration remains valid when taking averages, but the difference becomes smaller. In contrast to forecasts the difference between real-time and ex-post estimates of potential GDP growth seems small, especially when taking averages it is very small. Figure 12 also compares different averages at various estimation points with the annual potential GDP growth rates. As intended, taking averages over longer time periods smoothens changes in potential GDP growth and if growth rates are lower for more than a few years this lower growth rates become visible in the averages later. Thus, in the period between 2000 and 2019, various averages of growth rates were approximately equal or higher than actual potential GDP growth for most years until 2016. The strong increase in potential GDP in ex-post data in 2014 can be attributed to Ireland, without Ireland the growth rate in 2014 would be 2.1 %.

Figure 12: Comparison of measures of potential GDP growth (forecast, real-time, ex-post)
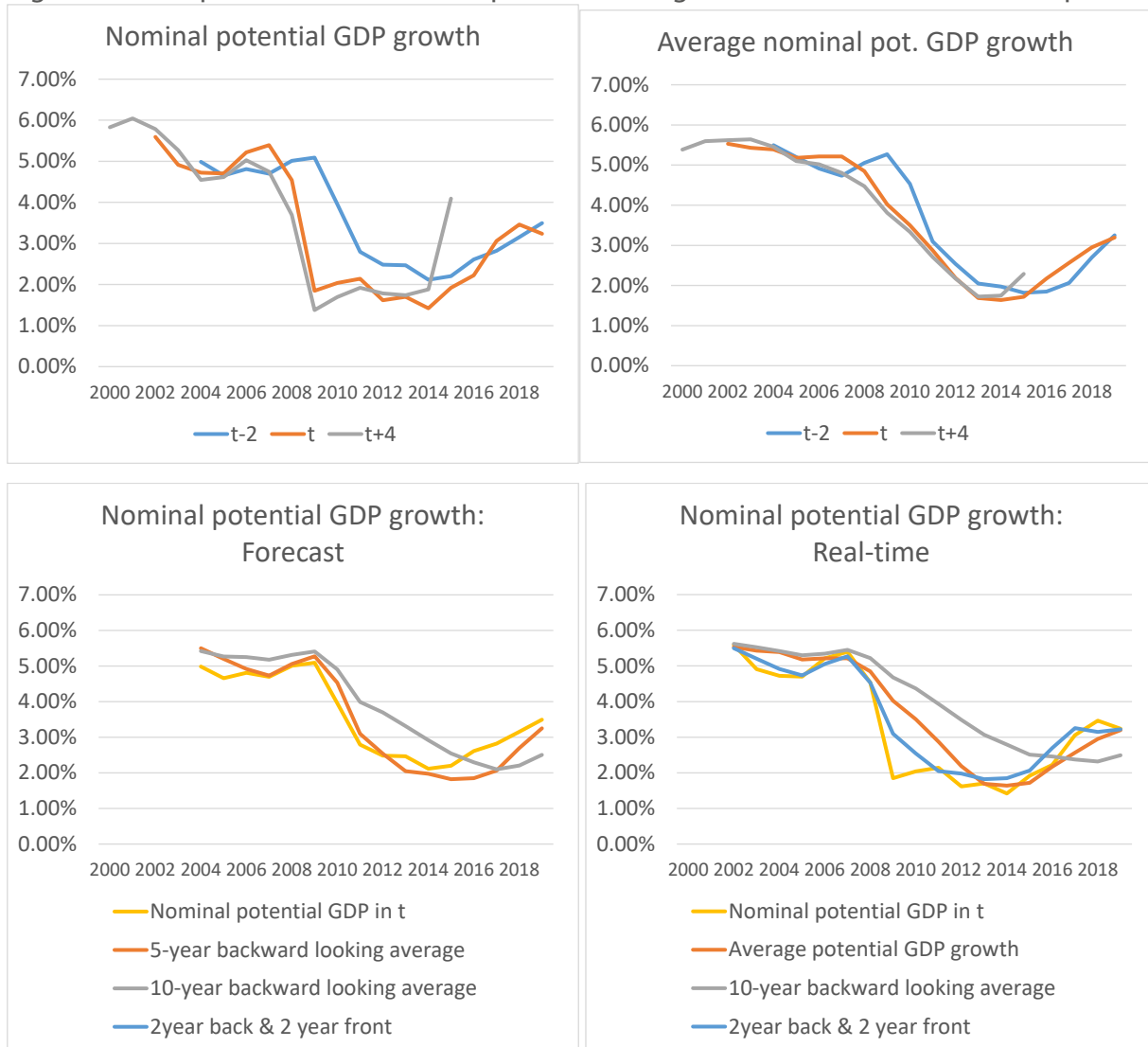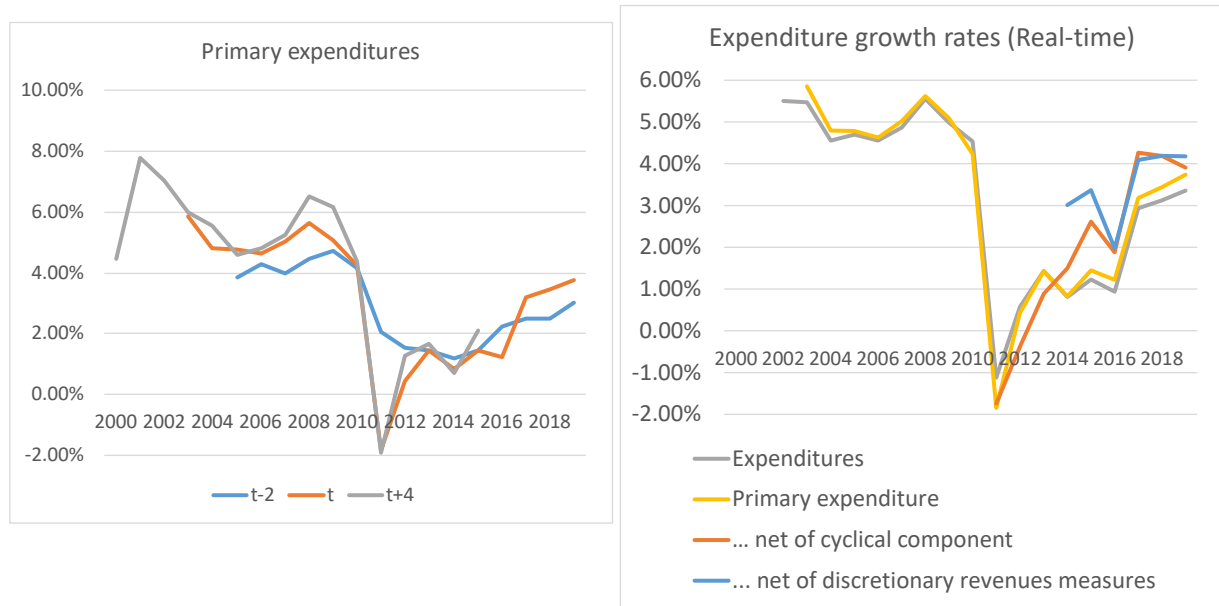

Source: European Commission's AMECO database, Firstrun project, own calculations

Most expenditure rules do not set a limit to gross total public expenditures, but to some adjusted measure subtracting and estimating various parts. Figure 13 compares growth rates of different measures of expenditures. However, some of the more detailed variables are not available over longer time periods. For primary expenditures, i.e. total expenditures net of interest payments, the interest payments are calculated as difference between net lending excluding interest (*UBLGIE*) and net lending (*UBLGE*), which are both available in the longer dataset. Those interest payments are then subtracted from total expenditures (*UUTGE*) to receive primary expenditures. Estimates of the cyclical component of expenditures (*UUCGCP*) are available for vintages since 2011 and estimates of discretionary revenues measures only since 2014. Figure 13 shows that growth rates for primary expenditures in real-time and ex-post seem to be very close, which confirms the findings regarding forecast and real-time errors in Section 3.2. Furthermore, at least in real-time there seems to be almost no difference between total expenditure and primary expenditure growth rates. However, the difference of those to the estimates subtracting the cyclical component and discretionary revenues measures can be quite large, with the

most comprehensive measure showing a growth rate which is on average 1.2 percentage points higher between 2014 and 2019 in real-time than for primary expenditure.

Figure 13: Comparison of growth rates of different measures of public expenditure

Source: European Commission's AMECO database, Firstrun project, own calculations

Only growth rates are compared in the exercises of this section and each growth rate is calculated only within one vintage of the database. Thus, no adjustment is applied to the data. However, it cannot be excluded that changes of accounting rules or changes of base years might still have an effect also on growth rates across different vintages. Nevertheless, the issue should be much less severe than when comparing levels across vintages.

6.5. Additional results regarding forecast and real-time estimation errors

Table 5: Mean absolute errors and mean errors of forecasts and real-time estimates

		EU 15, 2005-2015			EU13 (wo EL, IE), 2005-2015			EU15, without 2007 & 2008			EU27, 2007-2015			Max. obs. for each variable		
		Abs.	Mean	N	Abs.	Mean	N	Abs.	Mean	N	Abs.	Mean	N	Abs.	Mean	N
Real GDP (% of GDP)	t-2	3.46	-1.37	164	2.87	-1.18	142	3.74	-1.76	134	4.74	-1.96	239	4.10	-0.96	379
	t-1	2.10	-0.39	164	1.74	-0.37	142	2.20	-0.33	134	2.72	-0.53	239	2.36	0.10	379
	t	0.81	0.11	164	0.61	0.03	142	0.79	0.25	134	0.91	0.21	239	0.85	0.34	379
Potential GDP (% of GDP)	t-2	2.90	-1.60	164	2.37	-1.62	142	2.94	-1.40	134	3.96	-2.09	239	3.54	-1.81	295
	t-1	2.13	-1.00	164	1.77	-1.09	142	1.90	-0.54	134	2.78	-1.08	239	2.54	-0.98	295
	t	1.49	-0.58	164	1.26	-0.74	142	1.29	-0.17	134	1.75	-0.36	239	1.72	-0.52	295
Revenues (% of GDP)	t-2	2.34	0.03	164	2.13	0.18	142	2.35	-0.33	134				2.29	0.25	219
	t-1	1.56	0.22	164	1.40	0.31	142	1.63	0.21	134				1.65	0.43	219
	t	0.69	0.26	164	0.63	0.29	142	0.70	0.33	134				0.73	0.38	219
Expenditures (% of GDP)	t-2	1.52	0.38	164	1.22	0.23	142	1.47	0.21	134				1.65	0.37	219
	t-1	1.12	0.45	164	0.81	0.18	142	1.11	0.38	134				1.26	0.48	219
	t	0.64	0.11	164	0.56	0.01	142	0.64	0.06	134				0.75	0.24	219
Output Gap (pp.)	t-2	2.22	0.19	164	2.02	0.40	142	2.07	-0.41	134	2.53	0.08	239	2.46	0.40	294
	t-1	1.80	0.61	164	1.69	0.72	142	1.63	0.19	134	2.05	0.58	239	2.06	0.82	294
	t	1.27	0.72	164	1.16	0.78	142	1.11	0.43	134	1.42	0.63	239	1.48	0.82	294
Budget balance (pp.)	t-2	2.50	-0.75	164	2.10	-0.32	142	2.59	-0.97	134	2.56	-0.73	239	2.36	-0.45	300
	t-1	1.88	-0.45	164	1.51	-0.02	142	1.95	-0.44	134	1.87	-0.50	239	1.78	-0.26	300
	t	0.90	0.00	164	0.77	0.18	142	0.89	0.11	134	0.98	-0.10	239	0.97	-0.03	300
Cyclically-adjusted budget balance (pp.)	t-2	2.09	-0.77	164	1.65	-0.46	142	2.12	-0.67	134	2.31	-0.63	239	2.15	-0.62	283
	t-1	1.65	-0.68	164	1.28	-0.32	142	1.58	-0.44	134	1.81	-0.64	239	1.71	-0.57	283
	t	1.01	-0.31	164	0.87	-0.18	142	0.89	-0.03	134	1.16	-0.29	239	1.12	-0.30	283
Growth of potential GDP (p.p.)	t-2	0.99	-0.47	164	0.66	-0.50	142	1.03	-0.39	134	1.42	-0.73	239	1.25	-0.64	295
	t-1	0.79	-0.20	164	0.51	-0.26	142	0.77	-0.04	134	1.08	-0.34	239	0.96	-0.32	295
	t	0.63	-0.05	164	0.39	-0.14	142	0.62	0.08	134	0.74	-0.05	239	0.70	-0.11	295
Structural balance (pp.)	t-2													2.35	-0.30	215
	t-1													1.66	-0.15	215
	t													1.04	0.20	215

Notes: Calculations based on number of observations stated in N. Errors calculated as difference between values for year t in autumn vintage of year t-2, t-1 and t compared to values in autumn vintage of year t+4. Mean errors are calculated as mean across countries and time of the difference between values for year t values in autumn vintage of year t+4 and in autumn vintage of year t-2, t-1 and t. Mean absolute errors are the mean of the absolute values of the differences. To make results comparable only years and vintage are included which are available for all variables (or a specific variable in last column) in all years and countries. More details on calculations can be found in Annex 6.3. Abs.: Mean absolute error. Budget balance: Net lending or borrowing. pp.: differences in percentage points. Sources: European Commission's AMECO database, Firstrun project, own calculations

Focusing the EU fiscal framework on an expenditure rule could help to increase transparency, compliance and ownership. In various other respects, like estimation errors or counter-cyclicality of the prescribed fiscal policy, an expenditure rule is similar to a structural balance rule.

If the EU decides to go beyond the current focus on fiscal aggregates, a two-rule system aimed at safeguarding specific expenditures could be placed at the centre of the EU fiscal framework. The key challenge is to define and measure the protected expenditures.

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