The New Fiscal Rules in the Czech Republic: Will They Work?[*]

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Abstract

The Czech Republic adopted a new set of numerical fiscal rules in 2017. The rules include an expenditure rule that links the planned expenditures to cyclically adjusted revenues, a debt brake, and the Fiscal Council has been established. Using a novel real-time fiscal dataset and a simple counterfactual simulation we show that the new expenditure rule will decrease the structural deficit. However, the rule might not deliver sufficient room for countercyclical fiscal policy, since the cyclically adjusted balances are hard to forecast and prone to large prediction errors. Furthermore, most of the countercyclical pattern that appears in counterfactual budget balances is driven by unanticipated growth surprises, not by intentional fiscal policy stance itself. On top of that, the real-time data reveal the rules are not sufficient to prevent from breaching the 3% deficit limit, a result that does not appear when ex-post data are used for evaluation of the rule. Finally, we propose a modification of calculation of cyclically adjusted balance that would improve the performance of the rule, without a need for a change in the legislation.

1. Introduction

In 2017, the Czech Republic adopted a new set of numerical fiscal rules into its legislation, that are consistent with the revised fiscal framework of the EU[1]: An expenditure rule that sets the cap on expenditures of public sector according to the expected cyclically adjusted revenues, allowing for 1% structural deficit that is consistent with a medium-term fiscal objectives. The expenditure rule is completed by a debt brake set to 55% of GDP, a level well above the current indebtedness, hence in the near future, the expenditure rule is supposed to be the most important constraint for the economic policy.

The idea of targeting structural balances is rather appealing. Theoretically, governments should accumulate surpluses and thus decrease debt ratios in good times and thus generate ample fiscal space for stimuli in bad times. Also, the methodologies of cyclical adjustment of fiscal deficits for the impact of the output gap are well established (see Lang and Mareš, 2015). However, it is known that the real-time predictions and estimates of output gap are prone to substantial revisions. Naturally, these revisions of output gap translate into revisions of cyclically adjusted balances as well, and the ex-post evaluation of fiscal policy often differs from their real-time assessment, as discussed in Forni and Modigliano (2005), Larch and Turrini (2010) and Cimadomo (2014). Hence, the possibilities to use cyclically adjusted balances as a guidance of fiscal policy are somewhat limited. When used as a benchmark instrument in fiscal policy rules, they can even deliver counterintuitive results, which is illustrated in a simulation by Masten and Gnip (2016).

Additionally, there is some evidence that the fiscal policy in the Czech Republic has not been stabilizing in the past, rather the opposite (Ambriško et al., 2012). Nevertheless, this failure is usually interpreted as an illustration of an inefficiency of the previous fiscal framework relying on medium-term fiscal outlooks.

In this paper, we aim to assess to what extent the prediction errors will matter for the future performance of the Czech expenditure rule. To assess the impact of the proposed fiscal framework, we compile a new, real-time dataset of fiscal and macroeconomic variables, and we conduct counterfactual simulation on historical data as if the rule had been adopted in 2004.

Our results suggest that the expenditure rule contributes to a reduction of the deficit bias of the Czech public sector. However, the difficulties to predict the output gap and the cyclically adjusted balance in real-time would have caused somewhat different dynamics of deficits and debt ratio than the ex-post data might suggest. Most importantly, the improvements in budget balances before 2009 would have been lower because the output gaps were consistently underestimated. Furthermore, most of the countercyclical pattern of fiscal policy determined by the new expenditure rule is caused mainly by unanticipated positive or negative growth surprises rather than by the fiscal rule itself.

These results point to a limited efficiency of fiscal rules relying on targeting cyclically adjusted fiscal variables to enforce accumulation of surpluses in good times when the growth surprises are serially correlated and the revisions systematic.

The remaining part of our analysis is structured as follows. The next section summarizes the new fiscal framework and the third section provides an assessment of the real-time forecasts. Section four presents the results. Then, the paper concludes and some policy implications are provided.

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1 The obligation to adopt numerical fiscal rule is embodied in the EC Directive 2011/85/EU and in the Treaty on Stability and Coordination and Governance, often referred as the "Fiscal Compact". Each member state is allowed to adopt a specific fiscal rule that fits their needs independently but overall, the rules have to be consistent with constraints on cyclically adjusted balances in line with country-specific medium-term budgetary objectives.

2. The New Fiscal Rule[2]

The core of the proposal is the expenditure rule with a cap on expenditures. The cap on the overall expenditures of public sector $\overline{G_{t+1}}$ is given by:

$$\overline{G_{t+1}} \le E_t(R_{t+1})^{CA} - k_{t+1} - E_t(M_{t+1}) + E_t(U_{t+1}) + 0.01 \cdot E_t(Y_{t+1}^N) \quad , \tag{1}$$

where the $E_t(R_{t+1})$ are expected cyclically adjusted revenues. The further elements correct the cap on expenditures for one-off and temporary operations M_{t+1}, expenditures allowed by the escape clauses U_{t+1}, corrective term k_{t+1} to account for prediction errors, and 1% of GDP as an additional buffer consistent with the medium-term budgetary objective of the Czech Republic of 1% structural deficit.

The idea of the corrective term is to decrease expenditures in case of overestimated revenues in the past so that the unintentional deficits would be corrected. More precisely, define the past expenditures consistent with the rule $\widehat{G_{t-1}}$ given by:

$$\widehat{G_{t-1}} \le R_{t-1}^{CA} + - k_{t-1} - M_{t-1} + U_{t-1} + 0.01 \cdot Y_{t-1}^N \quad . \tag{2}$$

The differences between realized expenditures G_{t-1} and expenditures consistent with the rule $\widehat{G_{t-1}}$ are accumulated over time to a corrective fund, and when the size of the fund exceeds 2% of GDP, one third of it has to be repaid in the upcoming budget (k_{t+1}). Note that the corrective term is asymmetric, and only the excessive expenditures are being corrected. Hence, the Government cannot utilize accumulated differences between actual expenditures and their respective caps to finance a fiscal impulse when needed.

The escape clauses allow to set the expenditures above the cap temporarily. These clauses include costs associated with worsening of the state security, natural disasters, fulfilment of international agreements and with the economic downturn if the real GDP is predicted to fall by at least 3% of GDP.[3] This set of escape clauses is rather restrictive, mainly with respect to costs associated with economic downturn and recession, note that even the 2009's recession hasn't been predicted when the respective budget had been passed through the Parliament.

The second component of the proposal is the debt brake that should prevent the debt-to-GDP ratio from exceeding the threshold as 55% of GDP. If the debt-to-GDP ratio increases above 55%, the Government will be obliged to submit a new budget proposal along with the medium-term fiscal outlook to the Parliament, both with the purpose to achieve long-term sustainability of public finances. Only if the debt-to-GDP ratio rises beyond 60%, the Government has to propose measures to bring the debt below that threshold. The debt brake is complemented by several escape clauses as well and these are somewhat equivalent to those applicable for the expenditure rule. Considering the current level of public debt below 40% of GDP, the debt brake is supposed to be an extraordinary measure that shall be effective only in case that the expenditure rule proves to be inefficient to stabilize the debt ratio at lower levels.

Functioning of the fiscal framework shall be further strengthened by establishing an independent fiscal council. The aim of the council is to monitor the development of public finances and regular assessment of compliance with the rules. The main focus of the council's activities is primarily in the area of the expenditure rule, where the council is obliged to evaluate proper accounting of one-off and temporary operations, the impact of business cycle and to assess applications of escape clauses

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2   Note that the description of the rule is slightly simplified here, not accounting for all the details of the correction term, to keep the description concise. More details are provided in the Regulatory and Impact Assessment of the legislative proposal, or in our previous paper „New Fiscal Rules for the Czech Republic: Analysis of the Proposal" (IES FSV UK, Occasional Paper 1/2016), available at http://ies.fsv.cuni.cz/default/file/download/id/30219.

3   Additionally, the corrective term can be decreased by an amount equivalent to other unexpected costs if it was approved by the Fiscal Council. Effectively, this option poses an additional escape clause although neither the proposal nor the Regulatory impact assessment is specific about intended utilization of this clause and it is not clear whether the unexpected decline in economic activity is in line with this clause or not.

The expenditure rule as such does not contain any explicit enforcement mechanism, and it is not clear to what extent a budget that won't be in line with the expenditure rule could be annulled by a court because of violation of the law. On the other hand, regular violations would lead to a deficit bias, increase of the debt ratio and sooner or later sanctions of trespassing the debt brake at 55% of GDP will be activated. Even if the mechanism of bringing the debt ratio below 55% fails, sanctions from the EC directives with automatic penalties will apply after the debt ratio exceeds the threshold of 60%. Hence, the rule implicitly relies on external enforcement, too. Following the experience from Sweden (see Jonung (2014) and Hassler (2015)), the fiscal council can create an additional enforcement mechanism of its own because its soft power to communicate whether the government follows the rules or not to general public or to the parliament.

3. The real-time and the ex-post fiscal data: Assessment of the forecasts

To assess the importance of revisions in real-time budgetary and macroeconomic forecasts and to estimate the impact of the new fiscal framework, we compiled a novel dataset of fiscal data for the period 2004-2015. The year 2004 is quite convenient for our analysis: In 2004, the Czech Republic entered the EU, it revised its fiscal framework and also the structural deficits were close to the current levels. Hence, the year 2004 represents an ideal candidate for experimenting with how the Czech public finances would have evolved with the rule adopted only recently.

Our principal sources were the publications of the Ministry of Finance, in particular the Fiscal Outlook, November edition, that is published since 2007. The older data for 2004-2006 were obtained from Macroeconomic Predictions of the Ministry of Finance (October edition) and Convergence Programmes.

The dataset comprises the following fiscal variables: planned revenues, expenditures and budget deficit, the expected cyclical component, predicted one-time and temporary operation and nominal GDP. Additionally, the dataset was complemented by the actual budget deficit, and the estimates of the cyclical component and the GDP published four quarters after the end of the respective year to obtain the data relevant for the corrective term in the fiscal rule. This dataset mimics the information the Ministry of Finance had had in times relevant for setting the budgets.[4]

First, the data confirm the large and significant correlation of prediction errors in revenues and GDP. On the full sample, the correlation is 84% and since 2010 54%. Hence, the growth surprises do have a significant impact on revenues. As far as budget deficits are concerned, decomposition of prediction errors is provided in Figure 3.1. The actual deficit is decomposed into the structural and cyclical components estimated with the data as of 2015 (solid colours) and predictive errors in the real-time data (light colours).

The differences between predicted and revised values are quantitatively large in almost all years in the sample. Overall, the average ex-post cyclical component is 0.81% of GDP[5] while the average prediction error is just marginally lower, 0.76% of GDP. The fact that the size of the cyclical component is almost the same as its own prediction error makes its utilization in the actual policy-making rather challenging task.

Two periods are important for an illustration of the nature of prediction errors. First, in the years of pre-crisis boom, the prediction errors of the cyclical component are much higher than the predictions itself and the predicted cyclical component it too small to achieve accumulation of surpluses before the crisis. Second, the impact of the Great Recession seen in 2009 suggests much of the deficit had a

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4 To account for the impact of the revision of national account statistics with the introduction of the new ESA 2010 standards that changed the coverage of government expenditures and revenues, we decreased the relevant data by 4.4%, an estimated effect of the revision suggested by the Czech Statistical Office.
5 Note that the averages of absolute values are being compared.

structural nature despite being caused by a cyclical downturn because the 2009's recession led to a substantial revision of the underlying trend. Consequently, the ex-post cyclical component reflects not only a fall in GDP but the revision of the trend as well. Potentially, the rule based on cyclically adjusted balance would enforce fiscal consolidation in 2010 by its construction, unless additional expenditures are permitted by escape clauses or other mechanisms increasing the otherwise limited flexibility of the rule.

Figure 3.1: Budget balance - components; expected a prediction errors
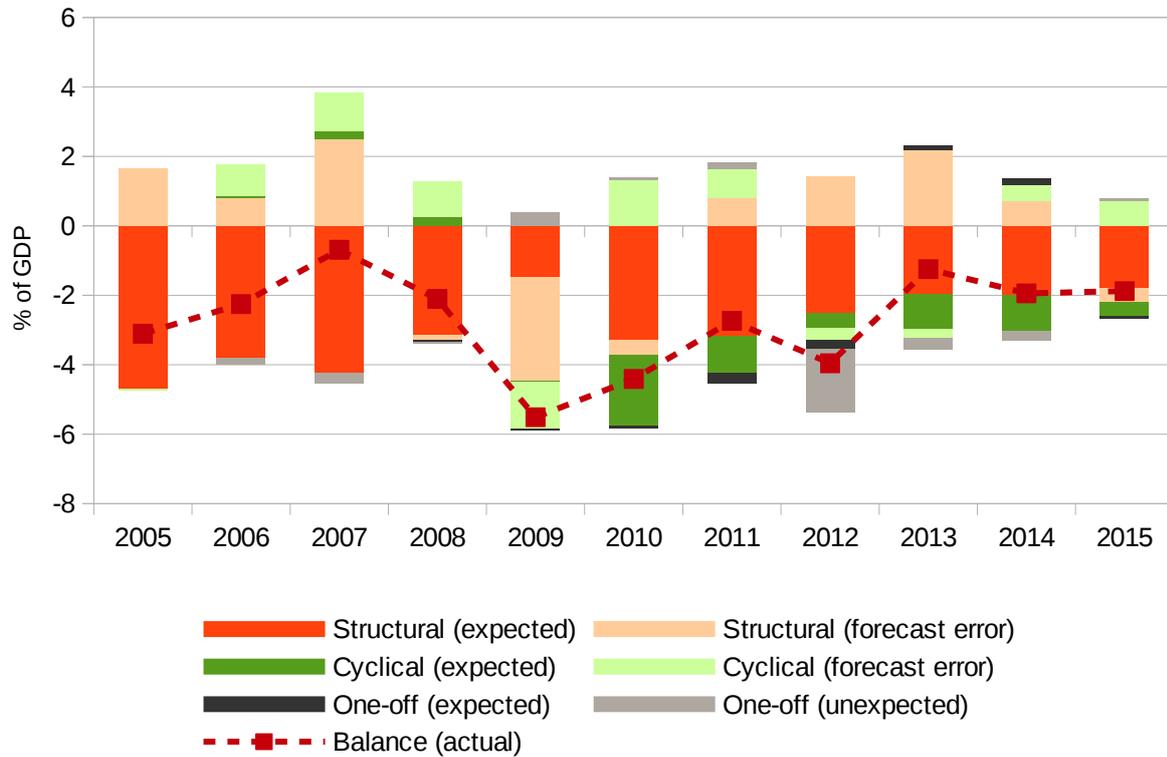
Overall, the analysis of forecast accuracy confirms that the cyclical position of the Czech economy is hard to forecast and that the predictions of cyclically adjusted fiscal variables are prone to large errors. Furthermore, the characteristic of prediction errors is in line with findings by Kempkes (2014) and McMorrow et al. (2015), so that the cyclical components were underestimated in periods of growth and in recessions. Hence, the expected cyclical component might not be enough to assure surpluses in good times and allow for stabilization policy in bad times.
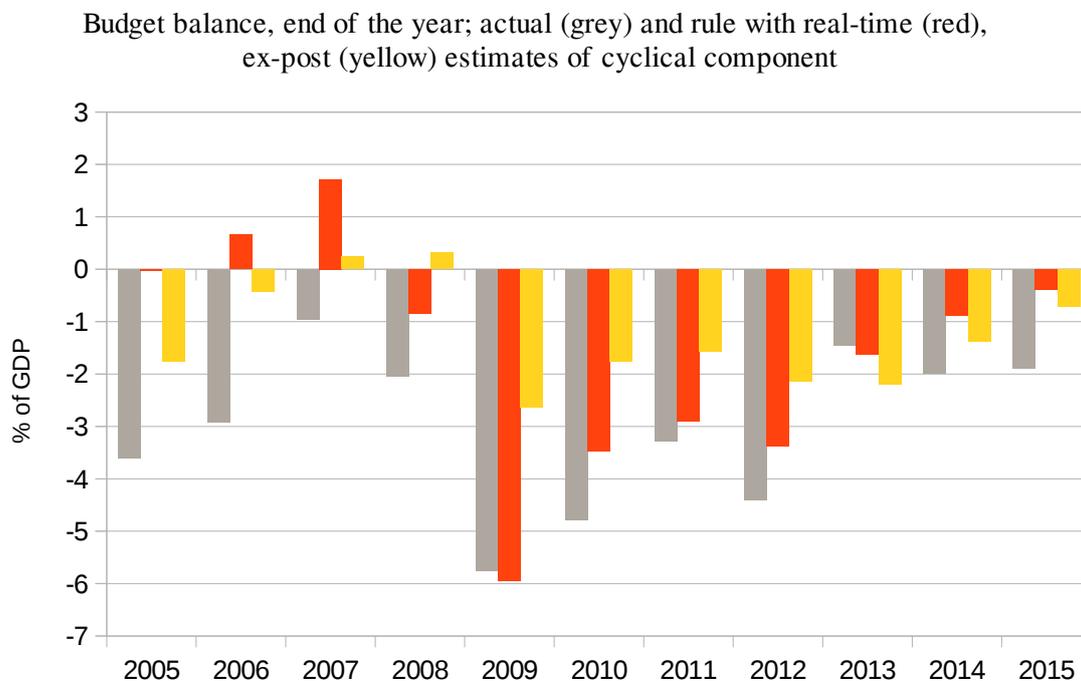
4. The impact of the fiscal rule

To evaluate the impact of the fiscal rule on budget balance, we calculate the cap on expenditures given by the expenditure rule (equations 1 – 2) on historical data starting in 2004, as if the rule had been in place since 2005. Following Claeys et al. (2016), we simulate the impact of the rule on historical data: the cap on expenditures is calculated for each year, taking other variables (GDP, cyclical component) as given. This simplification allows to isolate the direct impact of the new rule on fiscal aggregates, without potential second order effects of changes in fiscal policy on the underlying economic growth, thus effectively restricting multipliers to zero[6].

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6   In our previous work (footnote 2), we allowed for an endogenous response of output growth to changes in fiscal policy as well, and the results were largely consistent with the results presented here. In times of writing this paper, we are working on updated simulations, relying on Bayesian VARs and thus controlling for some prior knowledge about the effects of fiscal policy on output growth. Our very preliminary results suggest there is a non-negligible

Two scenarios are assumed. First, we utilize the real-time fiscal data described in the previous section, this is our baseline. Then, we compare the results with the expenditure rule recalculated with ex-post data on GDP, revenues and cyclical component as if the ex-post data would have been known in times of approval of the budget. By comparing the two scenarios, we can compare the effects of revisions of real-time data on the performance of the fiscal rule.

Figure 4.1: Budget balance with and without the rule

Budget balance, end of the year; actual (grey) and rule with real-time (red), ex-post (yellow) estimates of cyclical component

The resulting budget balances are depicted in Figure 4.1. First of all, an implementation of the expenditure rules already in 2004 would have improved the fiscal balance significantly. While the actual average structural balance has been -2.53% of GDP between 2005-2015, compliance with the rule would have caused an improvement to -1.36%.

With the real-time data, surpluses would have occurred in 2006 and 2007, because once the expenditure cap is achieved, the expenditures are not allowed to rise irrespectively from the developments of revenues. That time, the actual revenues were much higher than predicted. However, the expenditure rule based on ex-post data on cyclical component would have implied both lower surpluses before the Great Recession and lower deficits in 2009 till 2012 in comparison to an assessment based on real-time data.[7]

The effects of revisions of the cyclical component are more pronounced when the budgeted balances are considered (Figure 4.2). The real-time forecasts imply relatively flat profile of budgeted balance, more-less in line with the 1% structural deficit in the medium-term objective (except the year 2010), and with relatively muted reactions to the business cycle, while the ex-post data imply nice countercyclical profile.

From the policy perspective, the differences in the assessment of the rule between ex-post and real-time data on budgeted balances are very important. They show that the macroeconomic stabilization

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probability the rule could be self-defeating in a way that stagnating income would imply lower expenditures that would lead to lower growth. These results are available upon request.

7   The structural balances would have improved as well. While the actual average structural balance has been -2.53% of GDP between 2005-2015, compliance with the rule would have caused an improvement to -1.36%. The ex-post data would suggest improvement up to -1.17% of GDP.

role of fiscal policy is driven by prediction errors and conservative forecasts before 2008, rather than by the rule itself. The differences are also quantitatively important: The highest difference in deficits based on real-time and ex-post data exceeds 3% of GDP. Interestingly, with the real-time data, the rule does not prevent breaching the 3% limit on fiscal deficits from the Maastricht Treaty, one of the goals of the rule was aimed to achieve.

Figure 4.2 Budgeted balance with and without the rule

Budgeted balance: actual (grey), rule with real-time (red) and ex-post (yellow) data
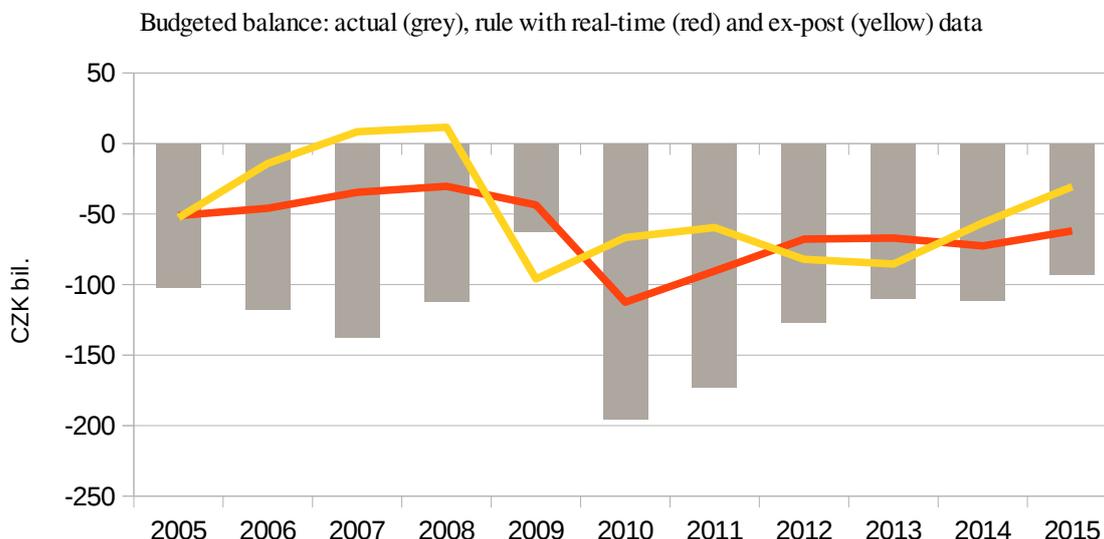
On top of that, we document the risk of premature fiscal consolidation in 2010. Despite allowing for higher deficits, the cap on government expenditures would have called for the decrease of government expenditures by an equivalent of 2% of GDP because of lower expected revenues. We have already noted that the cyclical component of budget balance was expected to be too small to offset the impact of falling revenues during the Great Recession. The escape clauses in the expenditures rule wouldn't have helped to avoid the adjustment because the weak recovery has been projected for 2010.[8]
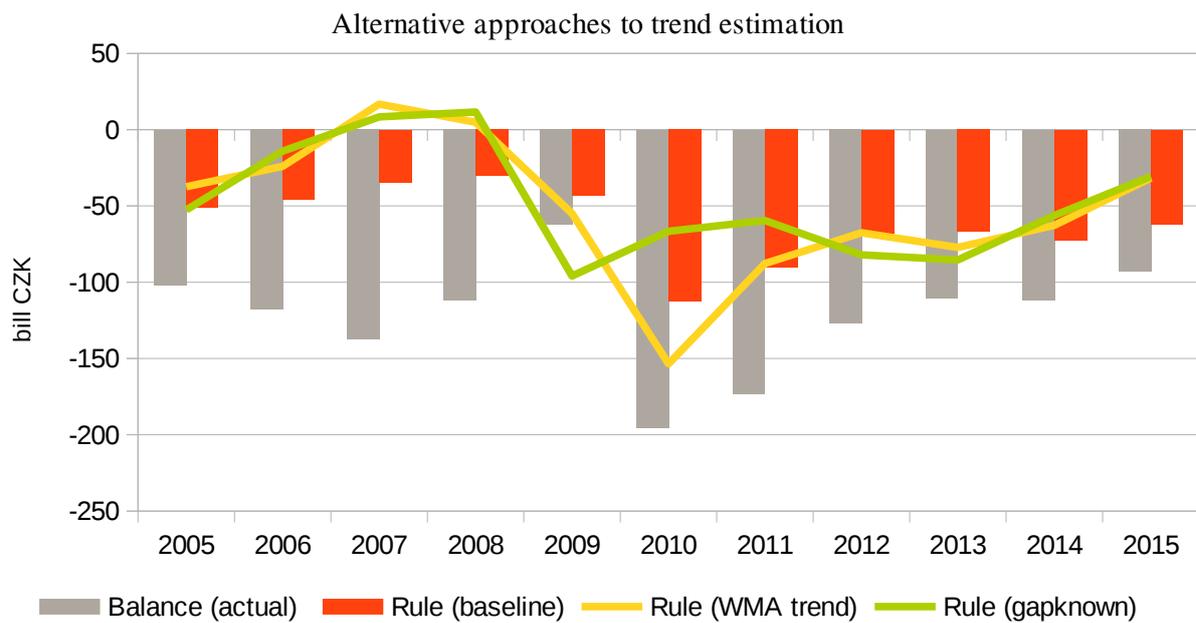
Overall, our results suggest that the new fiscal rules could have different effects than expected and that the expectations connected with the introduction of the rule might not be met in the future, because of the difficulties with estimation of cyclically adjusted balances in real-time. Hence, we investigated several options whether the performance of the rule can be improved, ideally within the scope of the current legislation that allows for improvements in the methodology of calculation of cyclically adjusted revenues and balances.

Our experiments have revealed that utilization of the information contained in the past trends might improve the performance of the rule quite significantly. More precisely, in our experiment, we considered a simple, weighted moving average (WMA) of trends derived from three vintages of past real GDP up to years t-1, t-2 and t-3, with weights set to 1/2, 1/3 and 1/6. The trends were estimated using the HP-filter, and forecasts were derived from a simple ARIMA(1.1.0) model.

Resulting budgeted balances are depicted in Figure 4.3, and it can be seen the budgeted balances based on our WMA-based trend (yellow) are very close to budgeted balances with the ex-post data. However, a deeper investigation of the properties of these gaps is necessary, since the elasticities of revenues to these gaps might be somewhat different to those that are based on estimates of output gap from production function. Nevertheless, our results show that there indeed is a room for improvement of the framework that is compatible with the current legislation.

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8   Note that the escape clauses allow for a temporary increase only if predicted growth of GDP is lower than -3%.

Figure 4.3: Budgeted balances

Alternative approaches to trend estimation

Legend: Balance (actual) — Rule (baseline) — Rule (WMA trend) — Rule (gapknown)

5. Conclusions

This paper has discussed the potential of the new fiscal rules in the Czech Republic to improve the record of the Czech fiscal policy prone to deficit bias and procyclical behaviour in the past. We have estimated the potential impact using a counterfactual analysis based on newly collected ex-post and real-time fiscal data, assuming adoption of the rule back in 2004.

We have found that the proposed fiscal rules shall deliver lower deficits, mainly due to improvements in structural balance. In line with milder deficits, the debt ratio decreases as well, by about 10% of GDP in comparison to the current levels. Efficient monitoring by an independent fiscal council can be helpful as well, while the debt brake will affect the public sector in case of non-compliance of the expenditure rule because the current level of the debt/GDP ratio is fairly below the limit of the 55% of GDP.

However, we have shown that the improvement of budget balances after the adoption of the expenditure rule might not be enough to ensure accumulation of surpluses in periods of robust growth or to create a room for fiscal expansions in recessions. Thus, the potential macro-stabilization role of fiscal policy constrained by the expenditure rule remains rather limited. The main reason is that the rule relies on proper forecasts of the cyclical component in revenues, which is however too small and too hard-to-forecast. As a result, most of the observed countercyclical pattern of fiscal policy is caused mainly by unexpected positive or negative growth surprises rather than being generated by the fiscal rule as such. The restrictive escape clauses create another challenge for policy-makers that would wish to use the budget for stabilization of the economy.

Since the legislative proposal allows later modifications of the methodology of identification of the cyclical component, we have proposed an alternative approach based on a weighted moving average of projections derived from the current and the past trend estimates. This approach leads to a dynamics of budgeted balances that are more closely related to ex-post data than the conventional approach.

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