REPUBLIC OF SLOVENIA
FISCAL COUNCIL

Simulations of government sector debt with regard to the proposed EU economic governance reform

Prepared by: Aleš Delakorda

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Introduction and abstract

In this paper, we show the impact of various assumptions on medium-term projections of public finance aggregates and, in particular, public debt. In addition to sustainable public debt, the setting of fiscal policy orientations based on medium-term budget projections relating to a longer horizon than that usually shown in budget documents should also play an important role in the proposed EU economic governance framework.[1] In order for a Member State to be able to discuss medium-term macroeconomic and public finance projections with the European Commission on an equal footing and thus contribute to acceptable path of net primary expenditure and to a sustainable achievement of the required debt level, these projections will have to be supported by strong arguments. The same applies to independent fiscal institutions, which, among other things, are supposed to assess the appropriateness of expenditure path in medium-term budget plans. Risks arising from the various assumptions used in these projections can also form a part of this argumentation. Simulations show that even minor changes in assumptions can fundamentally change medium-term and long-term projections of the public debt level and dynamics or the assessment of its sustainability.

[1] European Commission Communication setting out orientations for a reformed EU economic governance framework of November 2022. Available at https://economy-finance.ec.europa.eu/system/files/2022-11/com_2022_583_1_en.pdf

1. Debt sustainability analysis and medium-term projections in the proposed EU economic governance framework

According to the EC's proposal, public debt sustainability analysis should take a central role in setting the course of fiscal adjustment. So far, the EC has been preparing and publishing public debt sustainability analysis as part of the medium-term fiscal risk assessment for the EU as a whole and for individual Member States. According to the EC's proposal, this analysis should play a central role in determining sustainable debt level, which should serve as a starting point for calculating the benchmark growth rate of net primary public expenditure. This growth should be determined for a transitional period of four years in such a way that, over a longer period of time (for at least an additional 10 years)[2], under the assumed no-policy-change, it would ensure the gradual achievement of (approaching to) a predetermined medium-term sustainable public debt level, which should be determined by the EC under the existing methodology.[3] In addition to many other assumptions, including ageing costs, the latter also includes an assessment of the initial primary structural balance. In this way, the output gap estimates would indirectly retain an important place in the economic governance framework, although it would not be directly taken into account when determining the net primary expenditure path.

The current assessment of compliance with fiscal rules on an annual basis should be replaced by a medium-term focus on a predetermined level or growth rate of net primary expenditure. This growth rate would be determined in order to enable a gradual reduction in public debt while simultaneously maintaining the fiscal balance above the 3% of GDP deficit limit. This provides for a key role of medium-term fiscal projections. Therefore, the importance of the assumptions included in the sustainable public debt calculations and medium-term macroeconomic and fiscal projections is also expected to increase. Uncertainties related to the assumptions used in the forecasts usually increase as the forecast period lengthens, as is also the case for forecast errors.[4] The simulations performed show that, due to several years of accumulation, even minor changes in the assumptions made can have a large impact on the projections and, within the proposed EU economic governance framework, also on the requirements for adjusting the fiscal policy in the initial or transitional period. As a rule, budget documents do not reflect the sensitivity of fiscal aggregates to modified assumptions over a longer period, so the projection risks associated with the applied assumptions cannot be identified in full. The risks associated with the forecasts, arising from the applied assumptions, are therefore also presented by the results of simulations over various periods of time.

2. The baseline scenario

In the scenario, which is the starting point for all the simulations presented in this analysis, public debt remains almost unchanged throughout the simulation period until 2037, i.e. at a level slightly less than 70% of GDP.[5] In this case, the fiscal deficit in the baseline scenario stabilises at the level of 3% of GDP and the primary balance at -1% of GDP. In the period after 2024, which is still

[2] The period could be extended in the event that the government's medium-term plan envisages certain investments and reforms for which it can be proven that they could facilitate easier achievement of a medium-term sustainable public debt. The length of the extension would depend on the level of debt and the assessment of the risk of debt sustainability in the base year.

[3] See Fiscal Sustainability Report 2021 – Volume 1. Available at: https://economy-finance.ec.europa.eu/system/files/2022-05/dp171_en_vol1.pdf

[4] See, for example, "An ex-post evaluation of forecasts of macroeconomic and fiscal aggregates in the reference period 2016–2019" (Fiscal Council, 2020).

[5] For the purpose of comparison, in the Draft Budgetary Plan from October 2022, the general government debt is projected at 70% of GDP and in the Stability Programme from April 2022 it is projected at 68% of GDP in 2024 and 2025 respectively. In the following, we use the estimates set out in the Draft Budgetary Plan from October 2022 as a starting point for comparisons.

covered by the Draft Budget Plan of October 2022, the assumed primary expenditure growth rate is equal to 4.5% growth in revenue (i.e. to nominal GDP growth). The public debt implicit interest rate[6] is increased to 3% by 2028 (from 1.6% in 2022), which is the same level as in 2018. Under such an assumption of the difference between the interest rate and nominal GDP growth (-1.5 pp) and under the assumption of primary balance of -1% of GDP, the share of the general government debt would also in the very long-term perspective (more than 100 years) converge to a level of around 70% of GDP.[7] Given the relationship between the interest rate and the nominal GDP growth (-1.5 pp), the long-term debt share in GDP changes by about 35 pp of GDP[8] for each change of -0.5 pp of GDP in the assumed primary balance deficit. The analysis does not take into account the possible effects on public debt based on developments that do not reflect the primary balance.[9]

The simulations used in this analysis should not be equated with forecasts, as they only serve to illustrate the risks of medium-term forecasting. All simulations shown are also static and therefore do not take into account feedback effects (e.g. changes in fiscal revenues resulting from different expenditures) or possible changes in the behaviour of economic agents, economic policy measures or responses of financial markets to fiscal policy changes. Simulations of the shocks of some macroeconomic variables, especially their simultaneous action, point to additional risks to which public finances are exposed in the medium and especially the long term.

All simulations were made within the platform of a medium-term debt sustainability analysis. Since 2021, the Fiscal Council has regularly shown the results of this analysis as part of the assessment of the risks arising from the budget document policies covering several years. A medium-term debt sustainability analysis indicates the State's ability to finance its liabilities stemming from the orientations of the past and future fiscal policy in the context of certain standard macroeconomic and fiscal shocks. In analysing the debt sustainability based on the procedure developed by the International Monetary Fund,[10] first a baseline scenario based on macroeconomic and fiscal projections is developed, followed by several alternative scenarios which show the responsiveness of debt to various shocks. The responsiveness and the changes in the dynamics and levels of the general government debt indicate the State's vulnerability in the event of shocks, which are not included in the baseline scenario due to their exogenous nature; the actual shocks may, however, deviate from those used in the analysis in terms of both their direction and magnitude. It is important to note that ageing costs are not directly included in the analysis, which could, among other things, lead to an underestimation of the values of the assumed expenditure growth rates.[11]

3. The impact of the required public debt level on expenditure growth

In the proposed EU economic governance framework, the level of the public debt that a country should reach after the transitional period (four years) and after an additional 10 years should be

[6] The ratio between interest costs and the general government debt from the previous year.

[7] See the figures and convergence diagram for the ratios between the aforementioned variables in Fiscal Council, 2021.

[8] If the primary balance amounts to -1.5% of GDP, the long-term convergence level of public debt is around 105% of GDP at a given ratio between the interest rate and nominal GDP growth (-1.5 pp). If the primary balance is -0.5% of GDP, the debt converges to the level of 35% of GDP in the long run.

[9] Stock-flow adjustment, which may result from privatisation or changes in treasury liquidity reserves.

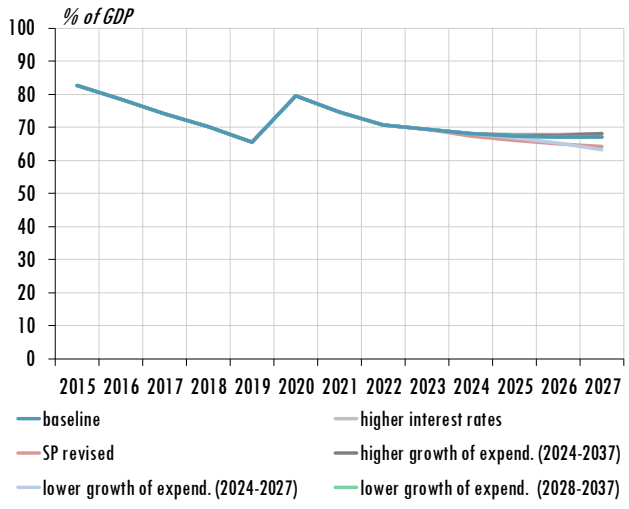
[10] The currently available basis is available at: https://www.imf.org/external/pubs/ft/dsa/mac.htm. For the purposes of our analysis, we have extended the proposed basis period by 10 years, so that it now covers a total of 15 years. The debt sustainability analysis used by the EC is more complex, but the platform for its use is not (yet) publicly available.

[11] Ageing costs are, among other things, the only category on the basis of which the initial structural position of public finances changes in the long run in EC's debt sustainability analysis (see, for example, Fiscal Sustainability Report 2021: Volume 2 – Country Analysis), while the structural balance so determined, together with the snowball effect (interest rate to GDP growth ratio), also entails changes to the level of public debt.

determined based on a debt sustainability analysis of the country concerned. Given the other assumptions (initial level of debt and budget balance, nominal GDP growth, interest rate level), the predetermined desired public debt level can be achieved by adjusting the growth of net primary expenditures in the initial four-year period. The maximum rate of growth of a government's net primary expenditure during the initial four-year transitional period is thus expected to ensure a sustainable long-term reduction of public debt or the achievement of its target level after an additional 10 years. The "sustainable decline" of the share of debt is not specified more precisely in the EC communication. We assume that a sustainable decline would be achieved if the debt is reduced constantly.

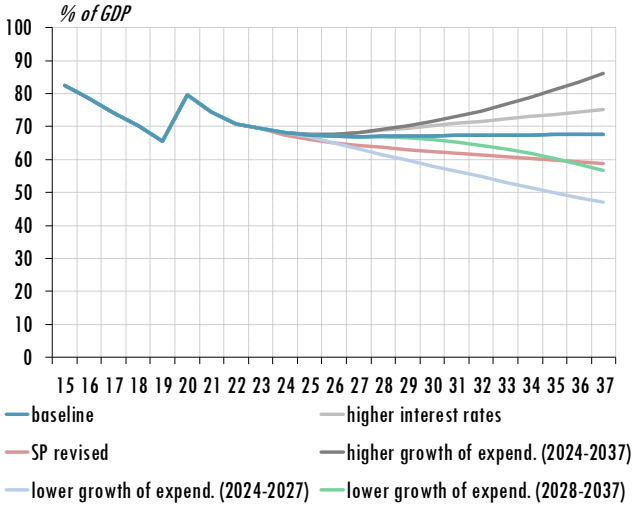
Simulations show that to achieve a long-term reduction in the share of public debt, the growth of primary expenditures in the transitional four-year period should be lower than the assumed nominal GDP growth. According to the simulations, the debt level would cumulatively decrease by approximately 1.4 pp of GDP from its starting level at the end of the period indicated in the last Draft Budget Plan (70% of GDP), i.e. from our baseline, over the next period (the additional ten-year period, i.e. until 2037), with a decrease in the average growth rate of net primary expenditure by 0.1 pp per year in the transitional period (2024–2027), as compared to the assumed growth shown in the baseline. If we wanted to reduce public debt to around 60% of GDP by 2037, the average annual growth rate of primary expenditure in the period 2024–2027 should be slightly less than 4% instead of the 4.5% envisaged by the baseline scenario, i.e. 0.5 pp less than the assumed nominal GDP growth. This would reduce the public debt in 2037 by around 8 pp of GDP in comparison to the baseline. Such a slowdown in the growth of net primary expenditure in the transitional period alone (2024–2027)[12] as compared to the baseline would result in a lower primary deficit level in the next 10 years (at around -0.5% of GDP instead of -1% of GDP according to the baseline), even though growth in expenditure in this period (2028–2037) would be the same as in the baseline scenario (4.5%).

Figure 1: The medium-term effect of assumption changes on general government debt (normal period of budget documents)



Source: SORS, own calculations. Note: Baseline is defined in Chapter 2, assumptions of alternative scenarios are defined in the Box.

Figure 2: The long-term effect of assumption changes on general government debt



Source: SORS, own calculations. Note: Baseline is defined in Chapter 2, assumptions of alternative scenarios are defined in the Box.

[12] We assume that in the rest of the observed period (2028–2037), the growth of rate of primary expenditure will be the same as that set out in the baseline scenario (4.5%).

4. Factors affecting the achievement of the desired public debt level

4.1 Nominal GDP growth

Nominal GDP growth represents the most important basis for projections of aggregate growth and the level of general government revenue. The level of GDP is also the relative benchmark value for public debt level. Simulations show that, in a short term, even relatively small deviations in GDP growth can make fairly significant difference in fiscal balance projections and, in the medium term, also in debt projections. If, for example, the growth of nominal GDP, and consequently revenue, lagged behind the growth from the baseline scenario by 1 pp in 2024 and 2025 alone (instead of around 4.5%, it would average 3.5% in those two years),[13] public debt would reach around 71% of GDP and 80% of GDP in 2027 and 2037 respectively (instead of around 68% of GDP in the baseline scenario). This also points to the need for a proactive role of the Government in the initial stage of setting the assumptions for the EC's debt sustainability analysis. In the past, there were clear differences between the EC's and IMAD's long-term potential growth and output gap projections, for example, despite their use of identical methodologies.

4.2 Interest rates

Although it does not directly affect primary expenditure, the assumption of interest rate trends can significantly change debt dynamics. If the implicit interest rate were to rise to 4% instead to 3% over five years (by 2028), the debt level would rise by around 8% pp of GDP (see "higher interest rates" in figures) compared to the baseline scenario by 2037.[14] The difference between the simulated level of public debt and the level of debt from the baseline would be only slightly greater than 1 pp of GDP after only four years of the transitional period, but, due to higher interest costs, the general government deficit would rise above the permitted level of 3% of GDP in this short time period alone.

4.3 The starting fiscal position

The starting fiscal position is of great importance for determining the public debt development over the 4+10-year period. Under the given assumptions (primary expenditure growth, interest rate level and revenue growth), the starting fiscal position also determines its own future levels and consequently the future debt dynamics and debt level. The responsible management of domestic public finances is, therefore, extremely important even before the implementation of the changes to the EU economic governance framework. Otherwise, at least during the initial transitional period of implementation of the economic governance framework, a major adjustment of expenditure growth may be required. If the general government deficit in 2023 and 2024 were, on average, 0.5 pp of GDP lower than that projected in the last Draft Budget Plan,[15] it would, under the assumption of the same primary expenditure growth rates (4.5%) and other applied assumptions as those set out in the baseline for the 2025–2037 period, result in about 8 pp GDP cumulative decline in the share of public debt in GDP by 2037 as compared to the debt simulation in the baseline scenario (see "SP revised" in figures). In the presented scenario, the deficit in the period 2028–2037 stabilises at a little over 2% of GDP instead of at around 3% of GDP under the baseline scenario.

[13] This is not a big shock in a long-term comparison perspective, as the standard deviation of revenue growth in the period 2005–2019 was slightly below 4 pp.

[14] Under the so changed assumption of the difference between the rate of interest and nominal GDP growth (-0.5 pp instead of -1.5 pp) and under the assumed primary balance deficit set out in the baseline scenario in the amount of -1% of GDP, the hypothetical convergence level of the general government debt amounts to approximately 210% of GDP. See simulations of convergence of debt from its various baseline levels in Fiscal Council (2021).

[15] The projection of the general government sector balance in the Draft Budgetary Plan (October 2022) was -5% of GDP and -2.2% of GDP for 2023 and 2024 respectively.

4.4 Net primary expenditure growth rate

The growth rate of net primary expenditure is the fundamental variable that determines the level of debt in our analysis, in addition to the implicit interest rate and GDP growth. In the short term, under the revised expenditure growth assumption, the differences in the debt level are relatively small and therefore unnoticeable in the typical sensitivity analyses normally presented in budget documents. After four years, the level of debt varies by around 1 pp of GDP from the one projected by the baseline scenario with average growth of expenditures varying by 0.5 pp, while over a longer period, e.g. an additional 10 years, differences in debt level can be significant (20 pp of GDP). The simulations also highlight the importance of the long-term impact of a relatively more significant change in expenditure growth on the level of debt over the relatively short initial period. As a result of a significant slowdown in the growth of net primary expenditures in the initial transitional period, the debt decrease is much greater than the only slightly slower expenditure growth over a longer period. If, for example, expenditure growth decreased at an annual average for the 2024–2027 period by 1.5 pp (to 3%) compared to the baseline scenario (see "lower growth of expenditure 2024–2027" in figures), public debt would decrease by 20 pp of GDP by 2037.[16] If expenditure growth decreased by 0.5 pp (to 4%) on the annual average for the 2028–2037 period (see "lower growth of expenditure 2028-2037" in figures), the amount of debt would decrease by "only" about 10 pp of GDP by 2037. With front-loaded consolidation in the period 2024–2027, room for fiscal policy manoeuvre would be created for the event of possible future crises.[17] In accordance with the static approach of this analysis, we left the other assumptions in all the described simulations unchanged, particularly GDP growth and the level of interest rates.[18]

4. 5 Combination of shocks

The simultaneous outturn of shocks and accumulated responses could further increase the level of public debt and undoubtedly contribute to its unsustainability over the medium-term. The combination of shocks referred to in sections 4.2 and 4.4 (0.5 pp higher net primary expenditure growth and higher interest rates) would entail an increase in public debt compared to the baseline scenario by almost 30 pp to approximately 95% of GDP by 2037. If such assumptions materialised, the general government balance deficit would exceed 3% of GDP during almost the entire simulation period (with the exception of 2024 and 2025). Maintaining such a deficit over a long period of time is an unrealistic assumption, since the European Commission, as a rule, launches an excessive deficit procedure against a Member State when the specified limit is exceeded.

[16] Such growth of primary expenditures in the transition period alone would entail a primary surplus of approximately 0.8% of GDP in the 2028–2037 period.

[17] In the long-term average (2004–2021), the growth of narrow expenditure, which excludes expenditure for bank recapitalisation and COVID-related expenditure, was 3.8%. As this average also includes a period of extremely low (and realistically unsustainable) expenditure growth during the period of validity of the ZUJF, the consolidation shown is quite extensive and therefore only hypothetical or unlikely.

[18] This simulation, like all the others shown in this analysis, does not take into account the possible multiplier effects of government expenditures and the feedback effect of expenditures on fiscal revenues. Both effects, which are likely to be typical at least in the short term, depend, among other things, on the structure of expenditures and on the cyclical situation of the economy and the stance of monetary policy.

Box: Definition of the selected scenarios presented in the analysis

Under the scenario in which **fiscal deficits are exogenously reduced** compared to the last Draft Budget Plan (label in figures: "SP revised"), the government sector deficits in 2023 and 2024 are on average 0.5 pp of GDP lower than the projected deficits in the latest Draft Budget Plan. All other assumptions are the same as in the baseline scenario for the period 2025–2037.

Under the scenario of **higher interest rates** (label in figures: "higher interest rates"), the implicit interest rate in five years (until 2028) rises to 4% instead of 3% under the baseline scenario. All other assumptions are the same as in the baseline scenario for the period 2024–2037.

In the case of **permanently higher growth of expenditure** (label in figures: "higher growth of expenditure (2024–2037) "), net primary expenditure grows 0.5 pp faster than under the baseline scenario (5% instead of 4.5%). All other assumptions are the same as in the baseline scenario for the period 2024–2037.

In the case of **slower growth of expenditure** (label in figures: "lower growth of expenditure (2024–2027) "), net primary expenditure grows 0.5 pp more slowly than under the baseline scenario (4% instead of 4.5%) in the period 2024–2027. All other assumptions are the same as in the baseline scenario for the period 2024–2037.

In the case of **slower growth of expenditure** (label in figures: "lower growth of expenditure (2028–2037) "), net primary expenditure grows 0.5 pp more slowly than under the baseline scenario (4% instead of 4.5%) over ten years (2028–2037) after the transitional four-year period. All other assumptions are the same as in the baseline scenario for the period 2024–2037.