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Fiscal Sustainability and Low Government Borrowing Rates[1]

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Alongside the general downward trend in rates of return, government bond rates have declined, being even negative at short maturities for some countries. At the same time, large country differences persist, reflecting dissimilarities in economic fundamentals. The low government borrowing rate, and especially the fact that it is below the growth rates, has fueled a debate on public debt. Blanchard (2019, 1198) goes as far as stating that "from a theory viewpoint, one of the pillars of macroeconomics is the assumption that people, firms, and governments are subject to intertemporal budget constraints. If the interest rate paid by the government is less than the growth rate, then the intertemporal budget constraint facing the government no longer holds".

This is a strong statement with wide-ranging policy implications and therefore worth discussing.[2] Blanchard's argument is essentially saying that a stable debt-to-GDP ratio is consistent with a permanent primary budget deficit when the growth-corrected rate of return is negative.[3] If so, debt servicing is not an issue, and debt levels pose no problem calling for fiscal consolidation. Importantly, this reasoning relies on several debatable assumptions. Two are particularly critical: a stationary environment and rates of return unaffected by the debt level.

The debate on low rates of return-cum-public debt has raised several issues, including the scope to pursue more aggressive stabilization policies not constrained by deficit/debt rules, and the scope to debt finance public investments in infrastructure or climate policies. Not least, these issues are important in relation to medium- to long-run sustainability of public finances in the wake of demographic changes. The following discusses this aspect.

DEMOGRAPHIC CHANGES AND PUBLIC FINANCES

The question of fiscal sustainability has become important due to strong trends in demographics, implying significant changes in the age composition of the population. The demographic trends are well known and widely described – see e.g., Bloom and Lee (2016). The flipside is that an increasing dependency ratio affects public finances, tending to make expenditures outpace revenues for unchanged policies. The drivers are primarily expenditures on pensions, health, and care. Figure 1 shows an assessment of the increases between now and 2070 in public ageing-related spending (pensions, health care, long-term care). On average, age-related expenditures increase by 1.7 percentage points of GDP, but with much larger increases in a number of countries.

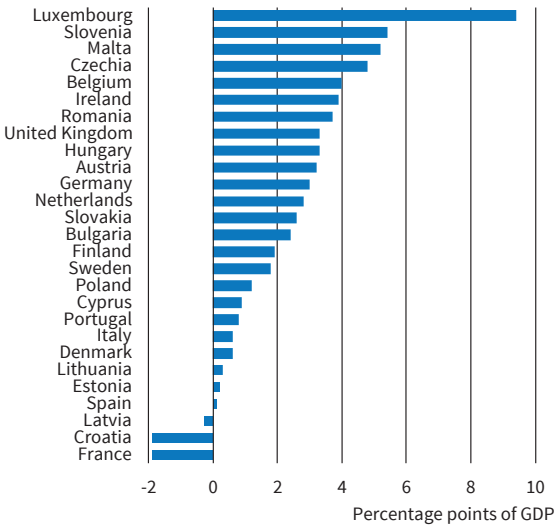
These developments raise fundamental questions on the viability of current welfare arrangements and the need for reform. In short, the environment is not stationary, and a trend deterioration in public finances is predicted for a large number of countries. Neglecting this issue creates uncertainty about future policies, a need for larger policy changes in the future, and has important implications for intergenerational distribution. Therefore, discussions of public debt issues need to take explicit outset in the fact that the environment is nonstationary.

FISCAL SUSTAINABILITY

Fiscal sustainability analyses pose a basic question: are current policies financially viable given predicted changes in demographics or other trends? This is a feasibility test, not a test of policy optimality. If the criterion for fiscal sustainability is met, current policies can be maintained, if this is wanted. Not meeting the requirement points to a need for a policy change

Figure 1

Increases in Public Expenditures[a] due to Ageing by 2070



[a] Includes expenditures on pensions, health care and long-term care.
Source: European Commission. © ifo Institute

[1] I thank Seppo Orjasniemi for providing data.
[2] See also e.g., Auerbach et al. (2019); Eichengreen et al. (2019); and Wyplosz (2019).
[3] Debt (D) evolves according to $D_t = (1 + r_t)D_{t-1} - B_t$, where r is the rate of return, and B is the primary budget balance (revenues less expenditures). Hence, the debt-to-GDP (Y) ratio is $d_t = \frac{D_t}{Y_t} = \frac{1+r_t}{1+g_t} d_{t-1} - b_t$, where g is the growth rate for GDP, $Y_t = (1 + g_t)Y_{t-1}$. Assuming a stationary environment, the steady state relation between the debt and primary budget balance is $b^* = \frac{1}{\hat{r}} d^*$, where the growth-corrected gross rate of return is defined as $1 + \hat{r} \equiv \frac{1+r}{1+g} \cong 1 + r - g$. Hence, a given debt-to-GDP ratio ($d^* > 0$) is consistent with a budget deficit ($b^* < 0$) if $\hat{r} < 0$, while it requires a budget surplus ($b^* < 0$) to sustain a given debt level if $\hat{r} > 0$.

at some point in time. The analysis is silent on the precise content and timing of such a policy change. The sustainability metric is an indicator for policymakers, clarifying the opportunity set and providing guidance on the need for policy reforms.

To define the sustainability indicator – denoted by b_t the primary budget balance (revenues less expenditures) measured relative to GDP, and by $\hat{r}$ the growth-corrected real rate of return (r–g), which for simplicity is assumed constant – the debt level (measured relative to GDP) at the end of period t is denoted d_t, and hence $d_t = (1+\hat{r})d_{t-1} - b_t$. The indicator for sustainability of fiscal policy (S)[4] is defined as the permanent improvement in the budget balance relative to GDP, which, given the initial debt level ($d_t - 1$), the projected primary budget balances ($E_t b_{t+j}, j \geq 0$) and the growth-corrected real rate of interest ($\hat{r}$)ensures that the intertemporal budget constraint is exactly fulfilled. The sustainability indicator S is defined as the solution to

$$(1)\quad E_t\left[\sum_{j=0}^{\infty}\left(\frac{1}{1+\hat{r}}\right)^j b_{t+j}\right] + \sum_{j=0}^{\infty}\left(\frac{1}{1+\hat{r}}\right)^j S_t = (1+\hat{r})d_{t-1}$$

where E_t denotes the expectations (projection) operator conditional on period t information (hence the time subscript on the S variable). The sustainability indicator measures the permanent primary budget changes (relative to GDP) required to ensure that the present value of all primary balances (left-hand side of equation (1)) can exactly cover initial debt (right-hand side of equation (1)).

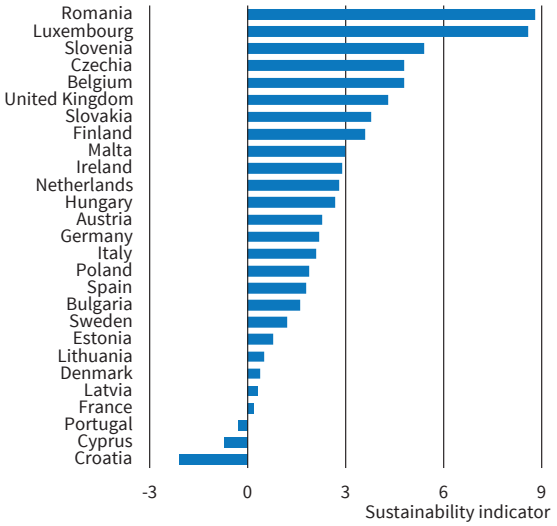
In short, the sustainability indicator is an annuity – the permanent improvement in the primary budget balance needed to meet the intertemporal budget constraint. If $S_t > 0$, there is a sustainability problem, since the primary budget balance must be permanently improved to ensure that the intertemporal budget constraint is met, and if $S_t < 0$, there is no sustainability problem but room for expenditure increases or tax decreases.

Figure 2 shows the outcome from a recent assessment of fiscal sustainability for EU countries. Clearly, such assessments rely on a number of assumptions, not discussed here for space reasons, but the conclusion is that most EU countries face substantial financing problems requiring large permanent improvements in the primary balance (compared to the initial situation). Across the EU, the needed improvement of the primary budget balance (relative to GDP) is 2.4 percentage points. Clearly, there are substantial country differences, with some countries facing large problems, while others, including countries like Denmark and Sweden, do not face major problems due to already implemented reforms.

[4] Often termed the S2 indicator in EU publications to distinguish it from other sustainability indicators – see e.g., European Commission (2020).

Figure 2

Sustainability Indicator – EU Countries



S2 indicator, computed for a horizon running until 2070.
Source: European Commission. © ifo Institute

THE ROLE OF THE RATE OF RETURN

An important variable entering the sustainability analysis is the rate of return (the growth-corrected real rate of return) and, given the development in government borrowing rates, it is important to look closer at the role of the discount factor. The sustainability indicator depends in a rather complicated way on the discount factor, since the future primary balances are discounted and then translated into an annuity value ensuring that the intertemporal budget constraint is met. This is seen more clearly by noting that the sustainability indicator can be written as a weighted average of all future primary budget balances, and the initial debt level can be transformed into an infinite annuity, i.e.,

$$(2)\quad S_t = -\sum_{j=0}^{\infty} v_j E_t b_{t+j} + \frac{\hat{r}}{1+\hat{r}} d_{t-1}$$

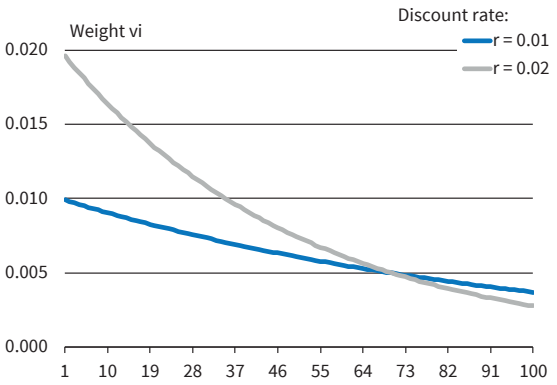
where $v_j = \frac{\hat{r}}{1+\hat{r}}\left(\frac{1}{1+\hat{r}}\right)^j$, and $\sum_{j=0}^{\infty} v_j = 1$ for $\hat{r} > 0$. A change in the discount rate $\hat{r}$ thus 'twists' the weights, since

$$\frac{\partial v_j}{\partial r}\begin{cases} < 0 \; for \; j > j^* \equiv \dfrac{1+\hat{r}}{\hat{r}} \\ > 0 \; for \; j < j^* \equiv \dfrac{1+\hat{r}}{\hat{r}} \end{cases}$$

A higher discount rate decreases the importance of the budget balance in the far future and increases the importance of the budget balance in the near future. The intuition is that a higher discount rate decreases the present value of the primary budget balance in the far future, but at the same time, it increases the annuity factor, and therefore the underlying budget profile is weighted differently when the interest rate changes (see below).

Figure 3

Period Weights in the Sustainability Indicator



Source: Author's calculations © ifo Institute

Figure 3 shows how different periods are weighted for two different discount rates. The lower the discount rate, the larger the weight to the budget position far into the future.[5] In short, the decline in the discount rate effectively makes the sustainability analysis more forward-looking by weighting the far future more heavily relative to the near future. The importance of this clearly depends on the profile for the primary budget balance. Since ageing tends to cause a deteriorating profile for the primary budget position, a lower interest rate goes in the direction of worsening the sustainability problem.

To consider the importance of the discount rate for the sustainability indicator, consider the case of Finland, whose sustainability is in the upper half of EU countries (Figure 2). The project development in public expenditures and revenues for Finland are shown in Figure 4. There is a widening gap between expenditures and revenues; that is, the budget profile deteriorates over time due to an ageing population. For unchanged policy public gross debt would increase from currently about 60 percent of GDP to about 250 percent in 2070. The sustainability indicator is 4.7 percent of GDP, pointing to a significant sustainability issue.

[5] It is an implication that the assumptions made on the far future get a higher weight and thus become more important.

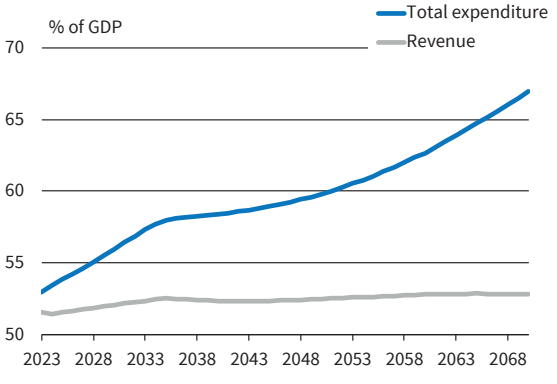
For the policy discussion, it is important how sensitive the sustainability assessment is to the discount factor. Figure 5 shows how the sustainability indicator depends on the discount rate. The nonlinear effect arises because the gap between expenditures and revenues is not monotonously increasing over time. Overall, the sustainability indicator for Finland is not significantly affected (note the scale) by changes in the discount rate. This is reassuring for the use of the fiscal sustainability indicator given the current discussion on the level of the discount factor. The bottom line is that the discussion of the government borrowing rate and its declining trend is not important; what matters is the clear deteriorating trend, which translates into an increasing trajectory for the public debt level. A development which clearly calls for policy action in many countries (Figure 2).

The preceding discussion takes outset in a positive growth correct rate of return, which is also the empirical relevant case for most countries facing serious sustainability problems. There are several other arguments to take into account in setting the discount rate for sustainability analyses. First, while current rates of returns are low, this cannot be taken to be a good predictor of future (global) rate of returns over the horizon relevant for the sustainability analysis. Hence, on current low rates of return cannot uncritically be assumed in analyses of fiscal sustainability.

Second, in the illustration of the sustainability analysis above, the rate of return was assumed independent of the primary budget and thus debt, that is, the credit risk premium was disregarded. However, a sustainability problem implies that in the absence of policy initiative there will be systematic budget deficit and thus increasing debt, which calls the constant rate of return assumption into question. Basing sustainability analyses on currently observed low rates of return is thus misleading. Experience has shown that countries with high debt levels face a vicious circle with increasing rates of return triggering a debt spiral, as seen during the sovereign debt crisis following in the aftermath of the financial crisis. Empir-

Figure 4

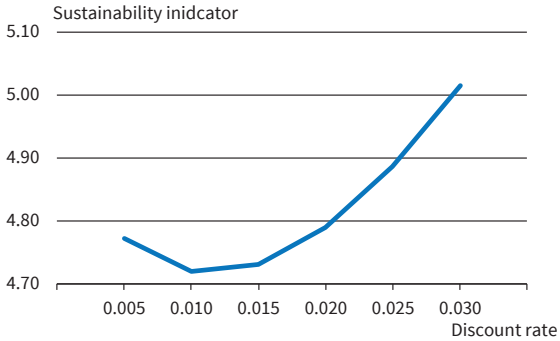
Projected Public Expenditures and Revenues, Finland



Source: Finish Economic Policy Council; Finish Ministry of Finance. © ifo Institute

Figure 5

The Sustainability Indicator and the Discount Rate



Source: Finish Economic Policy Council; Finish Ministry of Finance; author's calculations. © ifo Institute

ical evidence points to such nonlinear responses, see Alcidi and Gros (2019) and the survey on empirical evidence in Rachel and Summers (2019). Analyses of the determinants of fiscal (debt) limits have clarified the precise mechanisms including the underlying taxation capacity (Bi and Leeper 2010). Such responses can be included in assessments of fiscal sustainability. The important point in the present context is that it points out that government borrowing rates would be affected if debt levels pass critical levels.

Third, the approach taken above implicitly assumes certainty equivalence by focusing only on the expected trajectory for public finances, neglecting the uncertainty. The presence of uncertainty is an argument against using a risk-free rate of return as the discount rate.

Finally, running high debt level increases risk exposure in relation to adverse business cycle events that may bring debt levels above critical levels, releasing financial market responses, which in turn may constrain the room for countercyclical fiscal policies in such situations, as also seen during the financial crisis.

CONCLUSION

Ongoing demographic changes imply that budget deficits are on a deteriorating trajectory for most EU countries. This calls for policy initiatives to ensure the financial viability of welfare arrangements. The intertemporal budget constraint is alive and important for government, despite current low levels of government borrowing rates.

Defining away budget constraints is often leading to shortism in economic policy, accumulating into large problems in the medium to long run. The current low levels of government bond rates surely provide relief to public budgets. Debt servicing becomes easier, and for an unchanged primary budget position, some debt consolidation is thus possible without the need for policy initiatives. But in a medium- to long-run perspective, this effect is overrun by the budgetary consequences of ageing. These changes have significant negative public finance implications, and the need to address this problem cannot be escaped.

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