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A brief survey of the literature on optimal public debt

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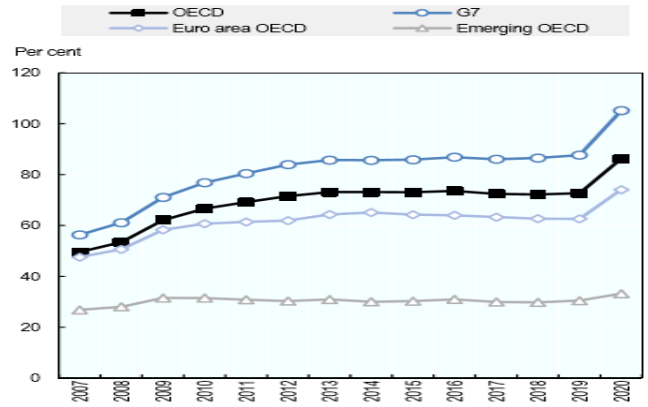
1. Introduction

The purpose of this paper is to provide an overview of the literature treating the following questions: how much government debt is necessary, how much is acceptable and in which situations should the government take on additional debt? As the foregoing three questions imply, the issue of the optimal level of debt is multidimensional. The question “How much government debt is necessary?” implies that the state *should* take on debt: literature treating this question looks at the utility of public debt for private investors, for productivity-enhancing public investment spikes or as a tool to stabilize/kick-start the economy. The question “How much government debt is acceptable?” suggests that above a certain threshold, public debt can harm the economy: literature treating this question looks at the relationship between the level of public debt and growth (e.g. crowding out of private investment, confidence effects), between rising debt and sustainability (sovereign debt crises, risk of default), between the real interest rate and the rate of time preference, as well as buffers needed for unforeseeable adverse shocks (Knightian uncertainty). Lastly, concerning the question “In which situations should the government take on additional debt?” a distinction is made in the literature between a temporary deficit to cope with a one-off shock and persistent deficits. This paper will aim at providing a brief overview of the recent literature on each of these three questions, with a focus where possible on Switzerland.

2. The rise in international debt in 2020

The issue of the optimal level of debt is particularly acute today. According to the OECD (2020), central government borrowings from the markets hit a record high in the first five months of 2020 due to the pandemic-related surge in government financing needs. From January to May 2020, governments issued debt securities worth USD 11 trillion, almost 70% higher than average issuance in the same period over the past five years. The sharp increase in borrowing needs and the decline in GDP due to the recession mean that the central government marketable debt-to-GDP ratio for the OECD area is projected to increase by 13.4 percentage points to around 86% in 2020 (this ratio rose by 12.6 percentage points between 2007 and 2009, during the global financial crisis).

Debt stock as a percentage of GDP



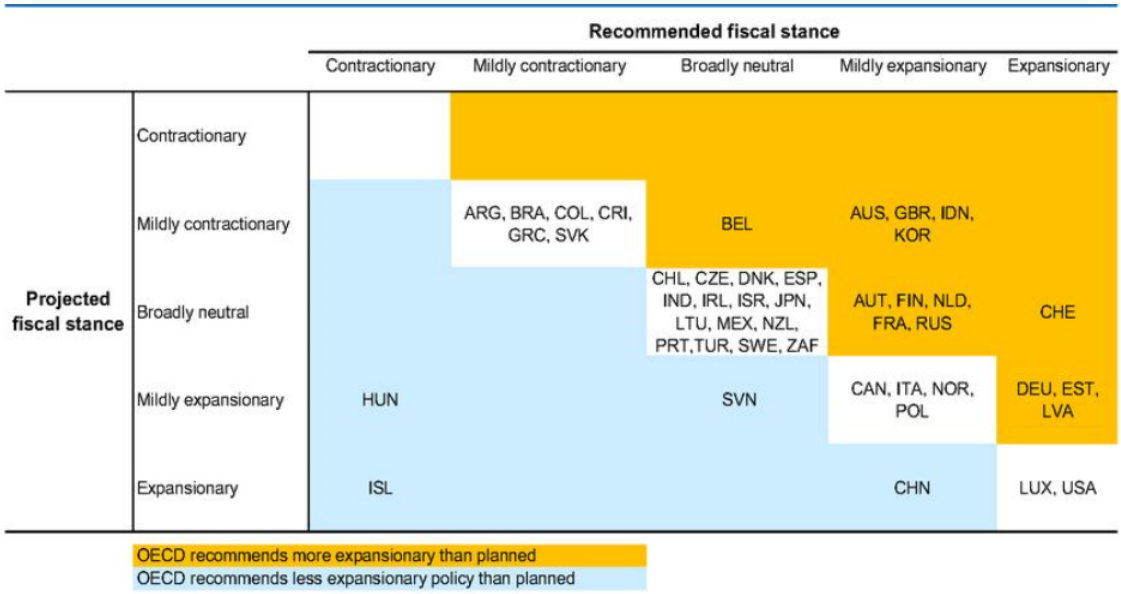
Source: OECD (2020)

3. How much government debt is necessary?

Fiscal initiatives aiming at increasing potential growth

In 2015, the OECD (2015) calculated, on the assumption that public debt is used exclusively to finance net investment while taxes finance current spending, that there is a positive but limited "optimal" (growth-maximizing) government debt level at 50-80% of GDP (OECD, 2015). Their argument was that productivity-enhancing public investment could raise output more than it raised debt, thus leading to a fall in the debt-to-GDP ratio (OECD, 2016). The OECD argued that most advanced countries (including Switzerland, see below) should make use of the fiscal space afforded by low interest rates to make public investments leading to higher potential growth. There are, however, caveats to this, which will be described below in section 4.

Planned versus recommended fiscal stances for 2017-2018



Source: OECD Economic Outlook November 2016

For the case of Switzerland, Tille (2020) pleads in favor of long-term public investments such as training the labor force for the challenges of the digital economy and improving energy efficiency.

A second argument in favor of public investment to foster potential growth is to hinder hysteresis in an economic slump. Delong and Summers (2012) argue that in a depressed economy, with short-term nominal interest rates at their zero lower bound, ample cyclical unemployment, and excess capacity, even a small amount of hysteresis means that expansionary fiscal policy is likely to be self-financing.

Provision of safe assets for the private sector

In the view of Bacchetta (2017), Swiss debt is too small: firstly, the reduction in Swiss public debt is contributing to the scarcity of safe assets in the global economy. Secondly, the debt reduction is making the liquidity trap deeper and puts a downward pressure on the real interest rate. This reduction is partly responsible for the need for negative interest rates, and makes monetary policy more challenging. It contributes to postpone the exit of a liquidity trap and the return to positive interest rates. Bacchetta claimed that there is no good justification

for the decline in sovereign debt in the last decade and therefore public debt should be at a higher level. Concerning the scarcity of safe assets in the global economy, Caballero (2017) affirms that a lasting solution to the shortage of safe assets will require a combination of finding alternative sources of safe asset supply (by current emerging markets eventually becoming able to provide them as well) and a reduction in demand (reconsidering how and why central banks hold safe assets as reserves and as part of quantitative easing, and rethinking the rules that require private financial firms to hold safe assets).

One-off exogenous adverse shocks

Several papers approve of the increase in public debt to absorb the cost of the temporary shock due to the Covid-19 virus, as it serves to preserve organizational and human capital during the pandemic. Estimates of the fiscal cost vary between 36-100 billion CHF. Tille (2020) calculates that in the current situation, the debt-to-GDP ratio could be held steady and a primary fiscal deficit of CHF 2.8 billion (0.4% of GDP) could still be run. He argues that growth would ultimately reduce the debt burden of COVID-19 expenditures, and that in the worst case it could be eliminated by running small primary surpluses of 0.2-0.7% of GDP over 20 years. The presence of the debt brake would prevent adverse debt dynamics after the one-off increase in debt due to Covid-19. According to Danthine (2020), Switzerland could afford to increase the public debt-to-GDP ratio by 16% of GDP (115 billion CHF), as the resulting debt-to-GDP ratio would still be under 50%.

4. How much government debt is acceptable?

Impact of debt on growth

The issue of the impact of debt on growth has given rise to much debate in academic circles and in international organizations. It is a difficult issue, as the direction of causation must also be assessed (to what extent are we observing the impact of debt on growth as opposed to that of growth on debt?), and the other factors influencing growth also need to be taken into consideration. The impact of the debt level is likely to be negative, due for example to high financing costs crowding out of private investment, if it exceeds a certain threshold, estimated by various studies at somewhere between 70 – 100% depending on country-specific factors (see Bruchez and Schlaffer, 2012 and OECD, 2015 for reviews of these studies). According to the OECD (2015), whose stochastic simulations take into account past macroeconomic shocks and fiscal behavior, prudent debt targets should be set 15 percentage points of GDP below the debt threshold on average.

ECB researchers Burriel et al (2020) find that in the euro area high public debt poses significant economic challenges as it makes the economy less resilient to shocks and reduces the scope for counter-cyclical fiscal policy, and that debt overhangs can exert adverse pressure on the economy through multiple channels over the long run. The relationship between debt and growth is bidirectional, with economic, financial and sovereign debt crisis reinforcing each other's detrimental impact on output. Their simulations also suggest that high-debt economies are adversely affected in terms of potential (long-term) output. According to Chuddik et al. (2013), a rising and then permanently higher debt-to-GDP ratio will have negative effects on economic growth in the long run. If the increase is temporary then there are no long-run growth effects so long as debt to GDP is brought back to its normal level. However, they find statistically significant threshold effects in the case of countries with rising debt to GDP ratios, suggesting that the debt trajectory may be as important as the level of debt itself.

Guex and Guex (2018) examine the relationships between public debt, economic growth, and long-term interest rates in Switzerland from 1894 to 2014 and conclude that the public debt during this period did not have a negative impact on economic growth and did not raise long-term interest rates. However, during the period examined, the debt-to-GDP ratio in

Switzerland has a mean of 49.2%, so while there were brief episodes of higher debt, on average it was lower than the thresholds referred to above.

Stabilization

Using debt to stabilize the economy in the case of adverse shocks can be desirable; however the OECD (2015) calculates that saving offsets (Ricardian equivalency effects) become stronger at a tipping point of government debt at around 75% of GDP.

Debt sustainability

Blanchard (2019) recently argued that an increase in debt may have small fiscal costs in a low-interest environment. However, Blanchard also concedes in this paper that there are valid counter arguments that imply larger fiscal and welfare costs. In particular, he refers to Lorenzini and Werning (2018), who explore the existence of self-fulfilling equilibria: investors' fear of future default gives rise to higher interest rates, which, in turn, lead to a gradual but faster accumulation of debt and ultimately default. Thus, investors' fears become a self-fulfilling prophecy. Lorenzini and Werning find that self-fulfilling equilibria can be avoided if debt levels are low, if fiscal rules sufficiently reduce deficits when debt rises (the presence of default risk requires a more aggressive rule), and if debt maturities are long enough (a short maturity requires constant refinancing, exposing the borrower to increases in interest rates). However, they find that even when the equilibrium is unique, there exists a threshold level of debt separating the good and bad paths for debt, below which debt falls and stabilizes and above which debt and default rates grow.

IMF researchers Mauro and Zhou (2020), who recently also noted that negative interest-growth differentials have become prevalent since the global financial crisis, ask whether we can therefore sleep more soundly, despite high government debts. They undertake an empirical analysis of past interest growth differentials and document that not only have negative differentials occurred more often than not, in both advanced and emerging economies, they have often persisted for long historical stretches. Moreover, they show that differentials are no higher prior to sovereign defaults than in normal times. However, marginal (rather than average) government borrowing costs often rise abruptly and sharply just prior to default, and therefore their answer to the question they raised about sleeping more soundly is "not really".

Mehrota (2017) analyzes empirically and theoretically how the cost of servicing the public debt changes in a low interest rate, low growth environment. He finds that among advanced economies, real interest rates on government debt (r) do frequently fall below the growth rate (g) of real GDP. However, he also finds a moderate probability of reversion to conditions where $r > g$ over a 5 or 10 year horizon, such that a policy of building up a large stock of public debt may be fiscally unwise. As to the optimal level of debt, he points out that this depends not only upon $r < g$, but also on many other considerations: the level and type of distortionary taxes, the type of financial frictions faced by households and firms, the manner in which taxes redistribute income across households, the degree of crowding out, and the way in which the government values the utility of current versus future generations.

The OECD notes that while from the sole perspective of current conditions, debt sustainability is not an immediate concern for most OECD governments, a sustained rise in interest rates relative to growth could eventually make large debt stocks costly to service and unsustainable (how quickly would depend on the debt maturity structure). Sheiner (2018) finds that due to the slowdown in productivity growth, the future safe interest rate may become consistently higher than the growth rate.

The case in which the real interest rate exceeds the rate of time preference

Leith et al (2019), using an overlapping generations model in which agents do not care about their children (or do not care about them enough), causing the real interest rate to exceed the rate of time preference, argues that from a Ramsey planner's point of view it may be worth sacrificing some current utility in order to achieve a steady state where distortionary taxes are lower than they currently are (even if the current generation may lose out as a result). Second, the level of the capital stock (and therefore output and consumption) in these economies is likely to be sub-optimally low, and reducing government debt will crowd in additional capital. Thus, it may be optimal to reduce debt today to reduce distortionary taxation in the future. They come to the conclusion that it is even optimal for the government to reduce debt to zero and to hold assets.

Fiscal space to cope with unforeseeable crises in the future (Knightian uncertainty)

Another reason why lower public debt levels might be desirable, according to OECD (2015), is that in a low interest rate world, central banks are at greater risk of hitting the zero lower bound on policy rates as they respond to business cycle fluctuations, implying that fiscal policy may take on greater importance going forward. Thus, more fiscal space for cyclical increases in the government debt-to-GDP ratio could support larger fiscal stimulus in future recessions.

Mehrota also stresses that in a low interest rate world there may be more frequent effective lower bound episodes, assuming the average inflation rates do not rise, and that therefore, fiscal policy may take on greater importance in responding to future recessions. Governments must then trade off any fiscal benefits that come from having a high level of public debt on average given $r < g$ against the benefits of entering a recession with fiscal space for cyclical increases in the debt to GDP ratio to support greater fiscal stimulus.

Romer and Romer (2019) showed that in OECD countries over the period 1980–2017, countries with lower debt-to-GDP ratios responded to financial distress with much more expansionary fiscal policy and therefore suffered much less severe aftermaths. They conclude that conducting policy in normal times to maintain fiscal space provides valuable insurance in the event of financial crises.

5. In which situations should the government take on additional debt?

The literature suggests that governments that have fiscal space can and should increase debt under certain circumstances, particularly when monetary policy is constrained as the policy rate is at the effective lower bound. It is argued that it is desirable to take on extra debt should it be necessary to ensure sufficient supply of safe assets to private investors, to finance productivity-enhancing public investment spikes or to stabilize the economy in a recession (thereby reducing the risk of hysteresis). More recently, the literature suggests in the context of the Covid-19 pandemic that it is appropriate to take on further debt to prevent undesirable destruction of organizational and human capital (due to massive bankruptcies and unemployment), as if the increase is temporary then there are no long-run growth effects, so long as the debt to GDP ratio is subsequently brought back to its normal level. On the other hand, situations in which governments should be more wary of increasing their debt include, apart from a lack of fiscal space, a high level of foreign debt or bank fragilities and a lack of independent monetary policy (OECD, 2015).

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