

Discussion of “Fiscal Stimulus and Fiscal Sustainability” by Alan Auerbach and Yuriy Gorodnichenko

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It is a privilege to be able to discuss this excellent and important paper by Alan Auerbach and Yuriy Gorodnichenko. In 2010, I participated in what was—to my knowledge—the only policy debate in which members of the cabinet personally presented dueling algebraic models. At issue was the cost and impact of fiscal expansions in a depressed but relatively high debt economy. One model—presented by Christy Romer—used some basic assumptions about fiscal multipliers and other parameters to make a strong case for fiscal expansion, finding that it would raise the nominal debt but also raise GDP, potentially by enough to result in a falling debt-to-GDP ratio. The other model was based on the premise that a fiscal expansion could result in a large increase in interest rates, resulting in a substantial increase in debt relative GDP—and potentially even failing to even raise GDP as a result.

At the time our only available resources were judgment and intuition—combined with parameters estimated off of very different experiences than what the United States was going through. That is why it is so useful that Auerbach and Gorodnichenko have produced empirical evidence to help answer this question—complementing a number of different modelling exercises that have come to a similar conclusion.

The question we were debating back then and that this paper helps to answer now is, unfortunately, one that is likely to be increasingly relevant. With very high debt levels in most advanced economies and with conventional monetary policy likely to be constrained for the foreseeable future, fiscal policy may need to play an increasingly important role in addressing future downturns but also may face increasing objections on fiscal responsibility grounds.

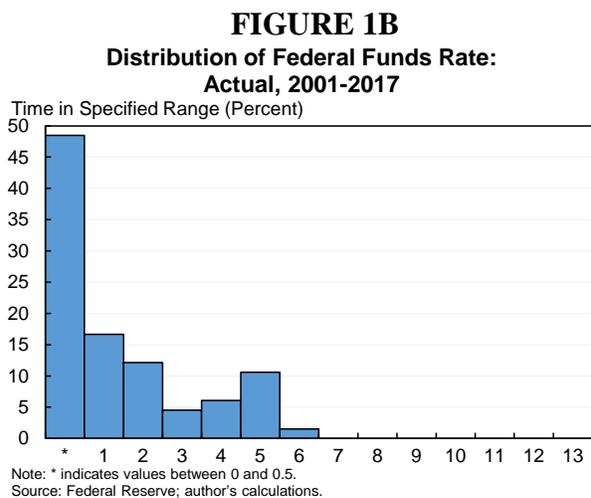
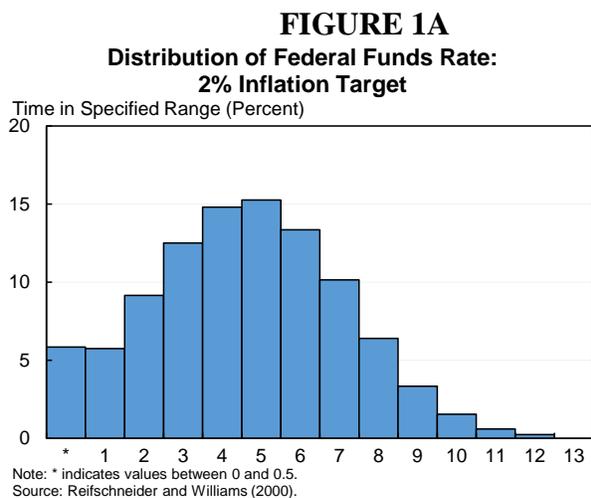
I will organize my comments around the answer to six questions, in the course of which I aim to provide some additional context for the Auerbach and Gorodnichenko results. I also offer some quibbles on one aspect of their paper that is tangential to their main results—the magnitude of the current fiscal problems. Their paper points out that debt has risen substantially, but it does not adequately acknowledge that on a forward looking basis there have been notable improvements in the fiscal trajectory, especially on health and pensions.

Question 0: Is Conventional Monetary Policy Likely to Be Constrained in the Future?

Answer: Yes

The paper is motivated by the reasonable premise that conventional monetary policy is likely to be constrained by the effective lower bound more frequently in the future, creating more of a rationale for using fiscal policy to support aggregate demand. I thought it would be useful to

spell out some of the evidence backing up this statement. In a 2000, paper David Reifschneider and John Williams projected that the federal funds rate would be at the zero lower bound 5 percent of the time going forward, following a distribution shown in Figure 1A. Since their paper was published the federal funds rate has been at the zero lower bound more than 40 percent of the time, as shown in Figure 1B.

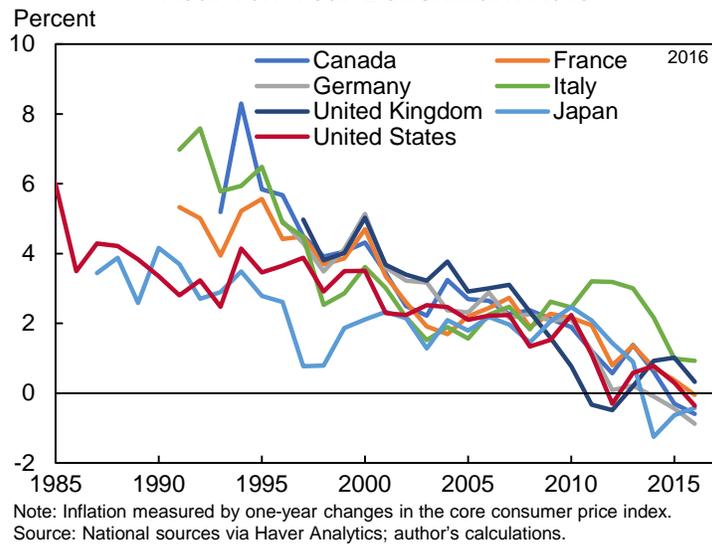


In part, this dramatic difference is due to the fact that Reifschneider and Williams—understandably—did not foresee the global financial crisis that would begin seven years after their paper was published. But much of the prediction error is not the consequence of the crisis but of the fact that the equilibrium federal funds rate appears to have been well below the 2.5 percent they assumed in the paper—in fact the latest longer-run estimates by the Federal Open Market Committee range from 0.5 to 1.5 percent.

The basis for believing real interest rates are likely to be lower going forward is that much of the decline has been global and occurred prior to the global financial crisis, as shown in Figure 2. This is consistent with the literature on the equilibrium interest rate and secular stagnation.¹ In addition, lower inflation expectations have resulted in even lower expected nominal interest rates going forward. Given that the Federal Reserve’s reaction to past recessions has been to cut the federal funds rate by an average of 600 basis points, this makes it increasingly likely that conventional monetary policy will bump up against the zero lower bound going forward.

¹ Summers (2014), CEA (2015), Teulings and Baldwin (2014), Laubach and Williams (2016).

Figure 2
Real Ten-Year Benchmark Rate



Given some of the limitations, side effects, and political controversy surrounding unconventional monetary policy, the increased likelihood of hitting the zero (or effective) lower bound in the future potentially raises the importance of fiscal policy. At the same time, with conventional monetary policy at a corner solution, the impact and efficacy of fiscal policy may change as well.

Question 1: Can We Afford *Not* To Engage In Fiscal Expansion In a Severe Recession?

Answer: No. Which is to say, fiscal expansion in a severe recession plausibly *improves* fiscal sustainability.

The key result in the Auerbach and Gorodnichenko paper is that a fiscal expansion in an economy with a substantial output gap is likely to lower the debt-to-GDP ratio because it raises the numerator (debt) by less than it raises the denominator (GDP). Relatedly, they find that in these circumstances there is more evidence for fiscal expansions resulting in *lower* real interest rates and Credit Default Swap (CDS) on sovereign debt, market developments that are consistent with the improved fiscal sustainability. Moreover, they find no evidence that fiscal expansion is less effective in a high-debt economy. Critically, all of these results are about economies in downturns—their featured point estimate for the impact of a fiscal expansion in an expanding economy is that it would increase the debt-to-GDP ratio.

The difficulty in answering this question is finding plausible exogenous variation in fiscal policy that can be used to estimate its effect. The United States engaged in a large fiscal expansion from 2008 through 2013 and, over that period, the debt-to-GDP ratio doubled, rising 33 percentage points. However, the policy relevant question is what would have happened to the debt-to-GDP ratio absent this fiscal expansion. In particular, would the debt have been lower, resulting in an improved fiscal sustainability? Or would it have resulted in a much larger decline in GDP, worsening fiscal sustainability?

Auerbach and Gorodnichenko's use three different methods to find exogenous variations in fiscal policy. The first draws on their own work in Auerbach and Gorodnichenko (2013) that relies on differences between OECD forecasts of government spending and what actually happened—arguing that the difference reflects actual changes in government policy. The second draws on Blanchard and Perotti (2002) that uses a Vector Autoregression with the identifying assumption that discretionary fiscal policy does not respond contemporaneously to events. The final identification strategy draws on the narrative dates originally developed by Romer and Romer (2010) for exogenous fiscal changes.

All three methods generate relatively similar results—with fiscal policy having the conventional effects of raising output and, in a downturn, also reducing real interest rates and improving debt sustainability as shown in their Figures XX and XX.

The advantage of the Auerbach and Gorodnichenko strategy is that it uses a flexible, reduced form model to find patterns in the data itself. Importantly, it complements a wide range of estimates from calibrated structural models. These include:

- DeLong and Summers (2012) estimate the “critical values of the real Treasury rate for fiscal expansion to be self-financing.” With even small amounts of hysteresis and low fiscal multipliers they find that the critical value is much higher than a plausible estimate—so fiscal expansions in depressed economies are likely to be self-financing.
- The FRB-US model also finds that fiscal expansions in the presence of the zero lower bound will lower the debt-to-GDP ratio. A 1 percentage point of GDP fiscal expansion cuts the debt-to-GDP ratio by about 1 to 1.5 percentage point of GDP after a decade depending on whether or not there is hysteresis (Reifschneider and Summers as reported in DeLong, Summers, and Ball 2014).
- The International Monetary Fund (IMF) found a similar result with empirical estimates of the supply-side effects of a fiscal expansion in the 2014 World Economic Outlook. Another paper by IMF economists, Gaspar, Obstfeld and Sahay (2016), also found similar results in a model of the demand-side effects of fiscal policy.
- The OECD (2016) presented calibrations of the impact of a sustained increase in public investment on the debt-to-GDP ratio in their member economies, using its National Institute's Global Econometric Model (NiGEM) and Fiscal Maquette (FM) models.

Some of these models and estimates focus on the supply side, essentially finding that the rate of return on infrastructure investment exceeds the cost of borrowing—making it a good investment that improves fiscal sustainability. But most of these estimates are primarily, or entirely, about the demand-side. There are a number of reasons to expect a demand-side fiscal expansion to be particularly large in an economy operating well below potential.

With respect to demand-side stimulus, there are a number of reasons to expect that the impact could be particularly large in the presence of the zero lower bound.² This is partly because it is easier to close an output gap than to produce above potential. It is also because when monetary policy is at a corner solution it can “crowd in” private investment by raising inflation expectations and cutting real interest rates (Hall 2009; Christiano, Eichenbaum, and Rebelo 2011; Woodford 2011) as well as through an accelerator mechanism. To the degree that there is some hysteresis these effects are even stronger.

Importantly, there is reason to believe that the effects of fiscal expansion could have an even more favorable impact on debt sustainability in high debt economies than in low debt economies. As the debt-to-GDP ratio increases, the difference between the growth rate (g) and the interest rate (r) becomes relatively more important compared with the primary budget balance. To the degree that fiscal expansion increases $g - r$, it will result in a larger decline in the debt-to-GDP ratio in a highly indebted economy than in one with less debt.

Auerbach and Gorodnichenko find that g goes up with no evidence that r goes up and, in fact, it might go down. This is consistent with the expectation that fiscal expansion will expand output and thus improve debt sustainability.

There is reason to believe the actual impact of future fiscal expansions could be even more beneficial than what Auerbach and Gorodnichenko found. Their sample is 1980 to 2014, mostly covering periods when nominal interest rates were not constrained by the zero lower bound. At the effective lower bound there is less scope for monetary offset and thus potentially higher fiscal multipliers and smaller interest rate effects. Moreover, debt is higher now, which makes the impacts on $g - r$ even more important than the past.

Of course, the authors are right to note a number of cautions and caveats—especially regarding the fiscal credibility of the country engaged in the expansion.

Question 3: Do We Even Need Fiscal Space to Pursue Fiscal Expansion?

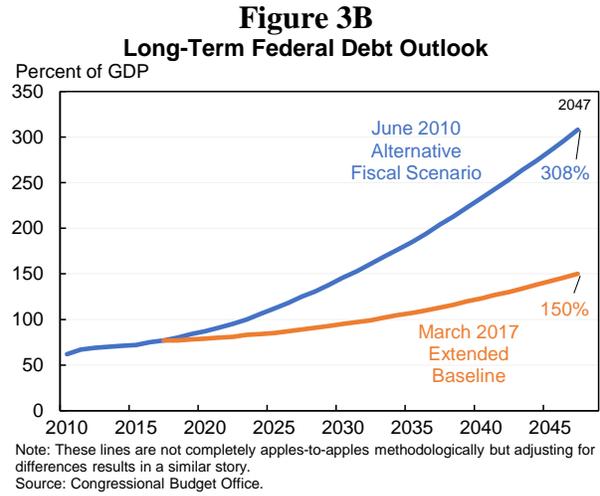
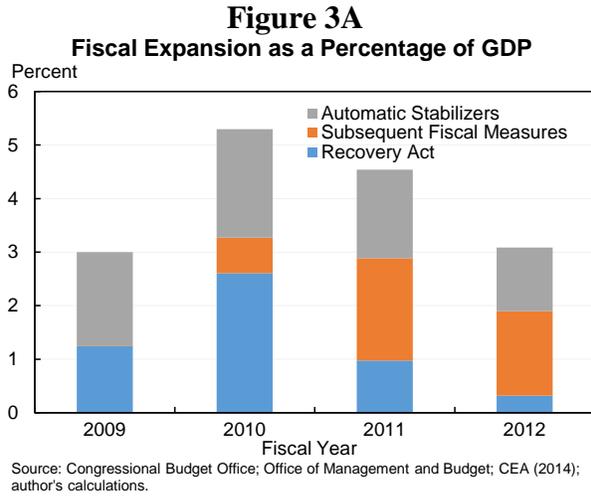
Answer: No—as long as there is a reasonably credible fiscal authority it can combine short-run fiscal expansion with long-run fiscal contraction.

If the Auerbach and Gorodnichenko results are correct then we cannot afford *not* to have a fiscal expansion in a severe downturn—regardless of the initial debt levels. But even if this result was not true, countries have another path, which is to combine short-run expansion with long-run consolidation. Moreover, such a combination could potentially strengthen the effects estimated by Auerbach and Gorodnichenko by putting even more downward pressure on interest rates.

An example of such a strategy is U.S. fiscal policy from 2009 to 2012. Over this period fiscal expansion averaged 4 percent of GDP as a result of a combination of discretionary fiscal stimulus (the Recovery Act and twelve subsequent measures) and automatic stabilizers, as shown in Figure 3A. At the same time, the projected long-run debt fell, in large part due to three longer-

² See Furman (2016) for a survey.

run fiscal consolidations: the Affordable Care Act, higher tax rates on high-income households, and reductions in discretionary spending, as shown in Figure 3B.



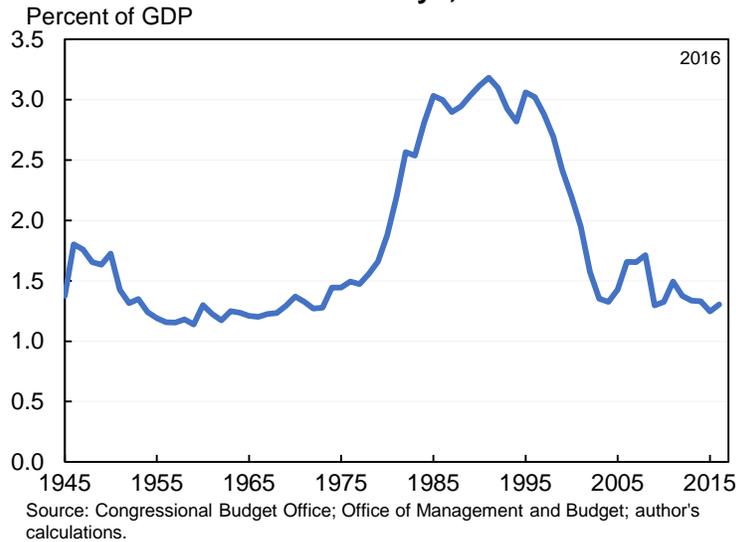
Question 4: Do We Have Less Space For Fiscal Expansion Than Before?

Answer: Not necessarily. Debt is higher but forward-looking measures of fiscal deficits have come down.

In my fourth question I want to quibble to some degree with the Auerbach and Gorodnichenko paper. Before getting to the quibble I should note that the statements about the magnitude of current fiscal problems are peripheral to the main empirical results in their paper. Moreover, to the degree the results in their paper are correct then it does not matter—even if fiscal sustainability is much worse than in the past we still should engage in fiscal expansions in the future. But, in part for the sake of those less convinced about the result, it is important to note that in many respects fiscal sustainability—and thus fiscal space—has improved.

As the authors note, debt-to-GDP measures have risen substantially in most advanced economies—to above 70 percent and in many cases above 100 percent. But interest rates are much lower than expected and, as a result, interest payments as a fraction of GDP are nearly the lowest they have been since World War II in the United States as shown in Figure 4, with similar results in other countries. Elmendorf and Sheiner (2017) have stressed that the optimal level of public debt is higher when real interest rates are lower.

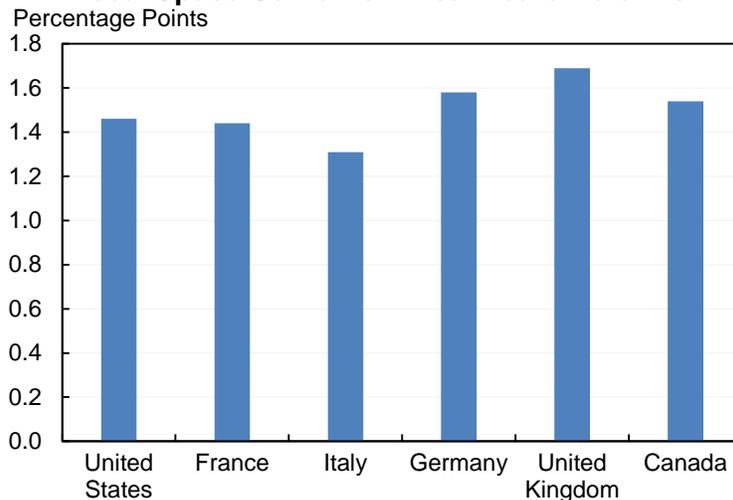
Figure 4
Net Interest Outlays, 1945-2016



More importantly, the debt-to-GDP ratio is a backward looking history that tells you the sum of past deficits but not anything about the future outlook. As is well known, the combination of aging populations and rising health spending will increase government outlays over the coming decades. Less well known, the latest estimates of this increase in outlays are smaller than previous estimates of the increase.

Figure 3B above showed that the debt trajectory in the United States is expected to be considerably better than what was forecast in 2010. Most advanced economies have seen similar improvements, in part because of health reforms that have lowered future health spending by about 1-1/2 percent of GDP in the G7 economies, according to OECD estimates shown in Figure 5.

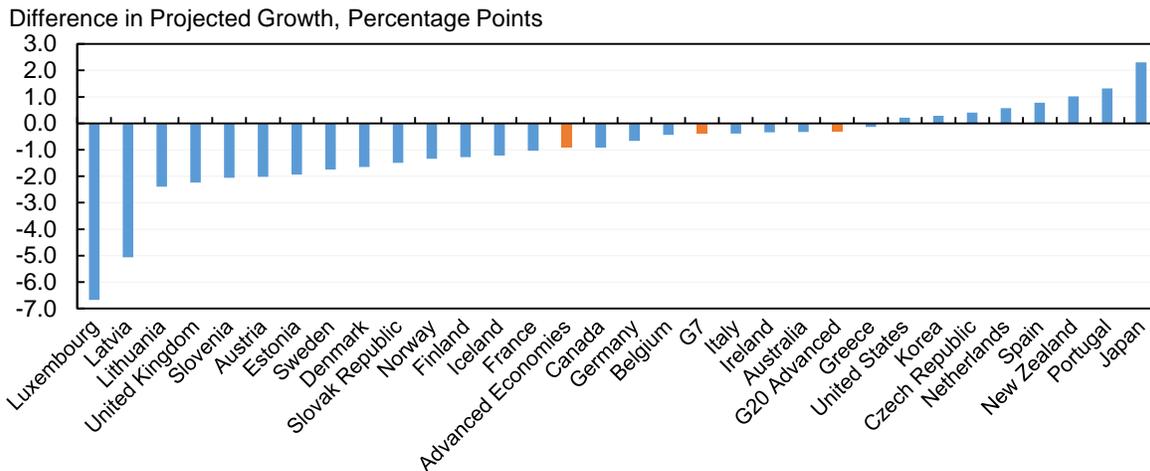
Figure 5
Fiscal Space Gains from Healthcare Reforms



Source: OECD (2016).

In addition, a number of countries have undertaken pension reforms, which, together with health reforms and revisions to projections of future health spending, have combined to bring down projections of future increases in pension and health spending, as shown in Figure 6 which shows the change in the IMF’s projection of health and pension spending increases from 2010 to 2030. While all countries are projected to see increases, those increases are somewhat smaller than the increases projected five years ago in most countries—suggesting that fiscal space has increased in an important sense.

Figure 6
Changes in Spending on Health and Pensions, 2010 to 2030:
2016 IMF Forecasts vs. 2011 IMF Forecasts



Source: International Monetary Fund, Fiscal Monitor (April 2011, October 2016); author's calculations.

In addition, the Auerbach and Gorodnichenko paper assumes that tax revenues and non-pension spending are fixed as a share of GDP outside of the budget window. But, at least in the United States, tax revenues are gently rising as a share of GDP mostly due to real bracket creep and non-pension spending is mostly falling as a share of GDP. Taking this into account brings the fiscal gap—the amount that taxes need to rise or spending needs to fall in order to stabilize the debt-to-GDP ratio over the next 75 years—to between 0.8 and 2.8 percent of GDP based on estimates in Auerbach and Gale (2017).

Question 5: Does this paper answer all of our questions about fiscal expansions?

Answer: Of course not—more research is needed!

The paper is focused on the effects of fiscal expansion on debt sustainability and the effects of debt sustainability on fiscal expansion. It presents results for a particular set of a countries over a particular time. Understanding the ways that these findings do and do not generalize is critical, something that could be enhanced by embedding these results in a structural model. Moreover, understanding the importance, or lack thereof, of fiscal credibility and intertemporal fiscal policies, for example expansion today combined with contraction in the future, would be helpful as well. Finally, understanding the different impacts of discretionary and automatic fiscal policy

and different types of fiscal policies and whether those interact with the issues discussed in this paper would be useful to policymakers.

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