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Revisions to Fiscal Assumptions in the December 2016 Tealbook

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In light of the outcome of the recent national elections, fiscal policy in the United States appears likely to follow a more expansionary trajectory over the medium term than we had previously assumed in the baseline forecast. Although there is a a great deal of uncertainty, the staff has revised its fiscal policy assumptions for the December 2016 Tealbook projection. This memo describes these revisions and presents estimates from the FRB/US model of the effect of these fiscal policy changes on economic outcomes over the medium term.

Fiscal Policy Proposals

President-elect Trump's campaign proposed a number of fiscal policy changes, including reductions in personal and corporate income taxes, increases in defense and infrastructure spending and reductions in many areas of non-defense spending. According to the Committee for a Responsible Federal Budget (CRFB), these proposals would decrease revenues $5.8 trillion, decrease federal noninterest outlays $1.2 trillion, and increase interest costs $700 billion over the next ten years. We estimate that, after folding in additional potential spending on infrastructure that is not accounted for in the CRFB estimates, the incoming Administration's policy proposals, if enacted, would increase the annual federal budget deficit by between 2 to 3 percent of GDP over ten years.[1] Over the medium term it appears that the increase in the deficit would be at the high end of this range.[2]

The size of the fiscal expansion proposed by the Trump campaign is very large in comparison to past changes in fiscal policy and current alternative policy proposals. For example, the tax cuts implemented in the Economic Growth and Tax Relief Reconciliation Act of 2001 (i.e. the "Bush tax cuts") reduced revenues by roughly 1 percent of GDP per year over ten years. Similarly, the House Republican tax proposal from June 2016, often referred to as the Ryan-Brady plan, would increase the annual deficit by around 1 percent of GDP annually over ten years.[3] Moreover, deliberations about possible fiscal policy changes will take place in an environment in which annual budget deficits are expected to

[1]The CRFB estimates that the changes to fiscal policy, excluding any additional infrastructure spending, would increase the average annual deficit by 2.2 percent of GDP over ten years. However, the Trump campaign also proposed boosting investment in infrastructure by up to $1 trillion over ten years. Such an infrastructure plan would increase annual government deficits by around 0.5 percent of GDP if the government directly undertook the investment. The increase in annual deficits would likely be smaller if the investment was done by private firms receiving government subsidies as has been proposed.

[2] The size of the fiscal expansion due to Trump campaign's proposals appears to be somewhat larger over the next several years than the ten-year average because a number of deficit reducing provisions are phased in over time.

[3] Jim Nunns, Len Burman, Ben Page, Jeff Rohaly, and Joe Rosenberg (2016), "An Analysis of the House GOP Tax Plan," The Tax Policy Center, September 16.

steadily increase in the years ahead even in the absence of any change in policy.[4] Given this backdrop and the associated Congressional concern over the size of the deficit, we think it likely that the changes to fiscal policy will ultimately be smaller than the total of those proposed by the Trump campaign.

Changes to Staff's Fiscal Policy Assumptions

For the December Tealbook, we have assumed an increase in annual federal "primary" budget deficits (that is, the unified deficit excluding interest costs) of 1 percent of GDP.[5] As displayed in Table 1, this assumption is well within the range of policy adjustments recently made by outside forecasters. For example, Citi, BNP Paribas, and J.P. Morgan also expect an increase in the deficit of around 1 percent of GDP in 2018. At the lower end of the estimates, Goldman Sachs estimates that changes to fiscal policy will lead to an increase in the deficit of approximately ¾ percent of GDP. At the upper end, Capital Economics projects an increase in the deficit equal to 2½ percent of GDP. (See the Appendix for additional details on the fiscal policy revisions made by outside forecasters.)

Table 1: Announced Fiscal Policy Revisions by Selected Outside Forecasters

Forecaster	Increase in 2018 Deficit (percent of GDP)
BNP Paribas	1
Capital Economics	2½
Citi	1
Goldman Sachs	¾
JP Morgan	1
Macro Advisers	N.A.**
OECD	1¾

Note. Selected outside forecasts for the increase in the federal government deficit in 2018 due to fiscal policy adjustments to be enacted under the Trump administration.
** As of November 30, Macro Advisers had not built an adjustment in fiscal policy into their baseline forecast and were "leaning against" doing so.

[4] In contrast, prior to the Bush tax cuts, the Congressional Budget Office (CBO) projected that the budget surplus would grow from 2½ percent of GDP to more than 5 percent over a ten year period. See "The Budget and Economic Outlook: Fiscal Years 2002-2011," CBO, January 2001.
[5] Our decision to adjust the baseline assumption now—even with a great deal of uncertainty remaining about the fiscal situation—is in line with the staff's historical practice. For example, in the December 2000 Greenbook projection, the staff assumed that the incoming administration would enact a significant personal income tax cut. And in the projection for December 2008, the staff assumed a stimulus plan would be enacted despite the lack of a specific proposal.

For now, we are implementing the fiscal expansion as a cut in personal income taxes that commences in the third quarter of 2017. This assumption about the composition of the policy change is intended to be only a placeholder. A change in fiscal policy of a similar magnitude (i.e. that increases annual budget deficits by 1 percent of GDP) could occur through a multitude of alternative fiscal policy proposals, including increased defense spending, increased infrastructure spending, decreased corporate taxes, etc. We will update the composition, size, and timing of our assumed fiscal policy change as more information becomes available.

The Economic Effects of the Changes to our Fiscal Policy Assumptions

To assess the effect of the projected policy change on aggregate demand, we use the staff's Fiscal Impetus (FI) methodology.[6] FI measures the *direct*, or first-round, change in aggregate demand arising from discretionary fiscal policy changes made by federal, state, and local governments. Per the FI methodology, we apply a marginal propensity to consume (MPC) of 0.7 to the assumed tax cut that phases in gradually over the medium term. Accordingly, the staff estimates that the 1 percent of GDP reduction in personal income taxes will boost the growth rate of real GDP by roughly ¼ percentage point per year in each of 2017, 2018 and 2019. These FI estimates do not, by design, incorporate any follow-on multiplier effects of the tax cuts, nor do they allow for any offsets to GDP growth caused by the reaction of monetary policy or associated changes in the value of the dollar.

To incorporate these additional effects, we estimate the implications of the expected fiscal policy change relative to the October Tealbook baseline projection using the FRB/US model and the assumption that monetary policy mechanically follows the prescriptions of the intercept-adjusted inertial Taylor (1999) rule used in the October baseline Tealbook forecast. Table 2 reports the results of this exercise for the SEP variables—GDP growth, the unemployment rate, PCE inflation, and the federal funds rate. (The effects that will be built into the December Tealbook projection will be close but not identical to those shown here because various characteristics of the judgmental forecast apparatus are not precisely the same as in FRB/US.)

We find that the assumed change in fiscal policy raises the level of real GDP at the end of 2019 by ½ percent (the effect on the level of GDP can be calculated by summing across the "Real GDP Growth" columns). This increase in output is smaller than the cumulative FI effect discussed above because the boost to GDP growth from the more expansionary fiscal policy leads to a quicker withdrawal of monetary policy accommodation and an appreciation of the dollar that more than offset the additional boost to GDP provided by the follow-on multiplier. The simulation also indicates that by the end of 2019 the change in fiscal policy will push down the unemployment rate by nearly 0.3 percentage point and cause both total and core PCE inflation to run 0.15 percentage point higher (relative to the October Tealbook basline).

[6] For a discussion of the FI methodology, see Byron Lutz and William Peterman, "Perspectives on the Government Sector and Aggregate Demand," memo to the FOMC, July 17, 2015.

Table 2: Estimated Effects of a Reduction in Personal Income Taxes of 1 percent of GDP

	2017 Q4	2018 Q4	2019 Q4
Real GDP Growth (4-qtr growth)	0.27	0.14	0.06
Unemployment rate (level)	-0.13	-0.22	-0.27
Core PCE prices (4-qtr growth)	0.03	0.12	0.15
Total PCE prices (4-qtr growth)	0.03	0.12	0.15
Nominal federal funds rate (level)	0.07	0.27	0.44

Note. The table displays FRB/US-based estimates of the changes in economic outcomes relative to the October Tealbook baseline due to a personal income tax cut. The tax cut is considered to be permanent, is equal to 1 percent of GDP, and starts in the third quarter of 2017.

The FRB/US analysis includes essentially no supply-side effects attributable to the projected fiscal policy change. However, depending on the composition of the fiscal package, there could be some modest positive supply-side effects. For instance, lower corporate income taxes might spur investment, and public infrastructure investment could increase private-sector productivity. We will analyze these supply-side implications when more concrete information about the composition of policy changes becomes available, but we anticpate that any supply-side effects will likely be relatively small.

Uncertainty about Staff's Fiscal Policy Assumptions

Our assumed fiscal policy change is subject to three primary sources of uncertainty. First, the size of the policy change is uncertain. However, since the effects of fiscal policy changes essentially scale linearly in FRB/US, Table 2 can be used to infer the economic effects of tax cuts of different sizes. For example, a tax cut equal to 2 percent of GDP, as opposed to 1 percent of GDP, would tend to double the size of the effects in Table 2; equivalently, a tax cut of ½ percent of GDP would tend to halve the size of the effects in Table 2.

Second, the timing of the enactment of the fiscal policy change is uncertain. Taking historical experience as our guide, we judge this uncertainty as unlikely to be resolved until at least the spring. For example, at the start of the Clinton administration, tax changes were signed into law in the late summer of 1993. At the beginning of the Bush administration, tax cuts were passed in the early summer of 2001. Moreover, fiscal policy changes may not happen all at once. For example, during the Bush administration there was an additional tax cut in 2003 that accelerated the phase in of some of the tax cuts from the initial 2001 law and also included new provisions that further reduced taxes.

Third, as mentioned previously, the composition of the fiscal policy shock is uncertain. For example, in addition to personal income tax reductions, Trump's campaign proposals also included corporate tax cuts, increases in defense purchases and infrastructure investment, and decreases in many categories of non-defense purchases and transfer payments (e.g. Medicaid). The composition of the fiscal policy shock could have important implications for both the timing and magnitude of the economic effects. If the policy change is more heavily weighted towards additional government purchases, then the effect on real GDP would be greater than is indicated by the MPC of 0.7 applied to personal income tax cuts; alternatively, a cut in corporate taxes would probably have a notably smaller effect on real GDP. Finally, depending on the composition of the spending, the timing of the economic effects might be faster or slower than assumed for the current personal income tax cut. For instance, some types of public infrastructure spending take a considerable amount of time to initiate and complete.

One additional source of uncertainty concerns the size of the fiscal multiplier – i.e. the change in output generated by a one dollar increase in the government deficit. A vast research literature in this area includes an extraordinarily wide range of estimates for the size of the fiscal multiplier in the United States, ranging from 0.3 to 3.5.[7] Thus, even if the magnitude and composition of the fiscal policy change is known, significant uncertainty remains over the size of the economic effects. Finally, a recent and influential strand of the fiscal multiplier literature has emphasized that multipliers tend to be larger during recessions or when the effective lower bound (ELB) binds.[8] However, under the staff's view that the economy is roughly at full employment, and with the federal funds rate having lifted off the ELB and—in our baseline projection—on track for continued gradual increases over the medium term, the extra boost to the fiscal multiplier in that economic environment is not likely to be relevant to the current situation.

[7] Felix Reichling and Charles Whalen (2012), "Assessing the Short-Term Effects on Output of Changes in Federal Fiscal Policies," Congressional Budget Office Working Paper, No. 2012-08.

[8] For example, Alan J. Auerbach and Yuriy Gorodnichenko (2012),"Measuring the Output Responses to Fiscal Policy," *American Economic Journal: Economic Policy*, 4 (2); Lawrence Christiano, Martin Eichenbaum, and Sergio Rebelo (2011), "When is the Government Spending Multiplier Large?," *Journal of Political Economy*, 119 (1); Brad Delong, Larry Summers, and Laurence Ball (2014), "Fiscal Policy and Full Employment," Center for Budget and Policy Priorities, *Policy Futures*, April 2; Michael Woodford (2011), "Simple Analytics of the Government Expenditure Multiplier," *American Economic Journal: Macroeconomics, 3.*

Appendix: Announced Fiscal Policy Revisions by Selected Outside Forecasters

	Increase in Federal Deficit (Percent of GDP)	
	2017	**2018**
BNP Paribas	0.5	1.1
Capital Economics	1.0*	2.4
Citi	-	1.1
Goldman Sachs	-	0.8
JP Morgan	-	1.0
Macro Advisers	N.A.**	N.A.**
OECD	0.8	1.8
FRB Staff	***0.5***	***1.0***

***** Inferred from text.

** As of November 30, Macro Advisers had not built an adjustment in fiscal policy into their baseline forecast and were "leaning against" doing so.

BNP Paribas

- Federal government deficit increases by 0.5 percent of GDP in 2017 and 1.1 percent of GDP in 2018
  - Stimulus starts in mid-2017
- Tax cuts and an increase in spending
  - Personal income tax cut of 0.7 percent of GDP in 2018
  - Corporate tax cut of 0.2 percent in 2018
  - Spending increase of 0.2 percent of GDP (0.1 percent on infrastructure) in 2018

Capital Economics

- Federal government deficit increases by 2.4 percent of GDP per year
  - Stimulus starts in mid-2017
- Tax cuts and an increase in spending
  - Primarily through personal income tax cuts for high earners
  - Also corporate tax cuts and increased infrastructure spending

Citi

- Federal government deficit increases by 1.1 percent of GDP per year
  - Stimulus starts in 2018
- Tax cuts and an increase in spending
  - Corporate and individual tax cuts
  - Tax base broadening
  - One-time repatriation of corporate profits yields a revenue increase of 1 percent of GDP
  - Increased infrastructure spending

Goldman Sachs

- Federal government deficit increases by 0.8 percent of GDP per year
  - Stimulus starts in fourth quarter of 2017
- Tax cuts and an increase in spending
  - Personal income tax cut of 0.35 percent of GDP
  - Corporate tax cut of 0.15 percent of GDP
  - Spending increase of 0.3 percent of GDP (0.2 percent on infrastructure)

JP Morgan

- Federal government deficit increases by 1 percent of GDP in fiscal year 2018
  - Stimulus starts in second half of 2017
- Tax cuts and an increase in spending
  - Tax cuts evenly split between personal and corporate
  - One-time repatriation of corporate profits
  - Increase in infrastructure spending over 5 years of $150 billion

Macroeconomic Advisers

- As of November 30, Macro Advisers had not built an adjustment in fiscal policy into their baseline forecast and were "leaning against" doing so.

OECD

- Federal government deficit increases by 0.75 percent of GDP in 2017 and 1.75 percent in 2018
  - Stimulus starts in second quarter of 2017
- Tax cuts and an increase in spending
  - Personal income tax cut of 0.50 percent of GDP (average over 2nd half of 2017 and 2018)
  - Corporate tax cut of 0.75 percent of GDP
  - Increase in government consumption and investment of 0.25 percent of GDP