Lecture III: Federal Deficits and Federal Debt

- The Government Budget, Deficits and Debt
- The Gov’t Spending and Tax Multiplier and Fiscal Policy in the Short-Run
- The Obama-Fiscal Stimulus: Was it Too Small or Too Large?
- Fiscal Policy in the Long Run: Are We Greece?
For Those Interested ...

- www.cbo.gov
  - Performs “non-partisan” analyses on behalf of Congress
  - Both short-term and long-term economic analyses are necessary for formation of public policy
  - Studies very readable for “congressional audience”
  - Assumptions and modeling techniques are specified
  - Most analyses are entirely consistent with what is taught in this course
The Federal Government Budget

- Major components of government spending:
  - Government purchases, $G$, which consists of:
    - Government consumption, $G_C$, and
    - Government investment, $G_I$.
  - Transfer payments, TRANSFERS.
  - Grants-in-aid to state and local governments.
  - Net Interest Payments, INTEREST.
The Federal Government Budget

- Major components of TAX receipts:
  - Personal taxes
  - Contributions for social insurance (a.k.a. Social Security and Medicare “taxes”)
  - Taxes on production and imports
  - Corporate taxes
  - Grants-in-aid to state and local governments.

- There are other revenues (e.g., “fees”) including FRB “Subventions” ($99 Billion last year)
The Government Budget Deficit

The government budget deficit is given by:

- Deficit = outlays – receipts
- Deficit = (G + TRANSFERS + INTEREST) – TAXES – other revenues

Key concept again: G in GDP=C+I+G+NX is not total government expenditures.
The Federal Government Budget Finance

- The Federal Government has a budget constraint because government outlays must be financed by:
  - Tax revenues
  - Borrowing from the public, and/or
  - Creation of “High Powered Money” (sometimes referred to as “printing money”)
The Deficit Equation that Connects the Federal Budget to Money Creation

The government budget constraint is:

\[
\text{Deficit} = \Delta \text{ US Treasury Debt ("bonds"):} = \Delta B_{\text{INV}} + \Delta \text{HPM}_{\text{Treas}}
\]

where,

\(\Delta B_{\text{INV}}\) = The change in the amount of debt held by the public

\(\Delta \text{HPM}_{\text{Treas}}\) = Purchases of U.S. Treasury Debt by the Federal Reserve
Federal Debt

- It is equal to the summation of **ALL PAST DEFICITS** minus **ALL PAST SURPLUSES**
- Economists don’t care about Debt per se. They care about the Debt/GDP ratio
  - True economic measure
  - The correct debt definition is debt **held by the public**

Beware of debt definitions uttered by media and politicians.
Past Deficits & Surpluses and Debt

<table>
<thead>
<tr>
<th>Item</th>
<th>Years</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Debt</td>
<td>1939</td>
<td>$42 B</td>
</tr>
<tr>
<td>$\Sigma$ Deficits &amp; Surpluses</td>
<td>1940-2015</td>
<td>$13.2 T</td>
</tr>
<tr>
<td>= Debt</td>
<td>Dec-15</td>
<td>$13.7 T</td>
</tr>
</tbody>
</table>
Pundit Games: Statements Designed to Generate Anxiety

- Distinction between **Gross** Federal Debt and **Debt Held by the Public**
  - “Debt of the US is almost equal to GDP” is a reference to debt held by the public + debt held by government agencies (e.g., SSA)
  - Gross Federal Debt does NOT represent U.S. Treasury debt
  - Difference = $5 Trillion held in “government accounts”
Debt per person

- ~ $39,000/person
- Sounds large
- It’s meaningless, because the federal government lives “forever” in economic terms
- U.S. Treasury Debt doesn’t have to be paid off ...EVER in a growing economy.
- Any interest paid to a U.S. resident represents a “transfer payment”
- Interest paid to foreign holders of U.S. represents income payments out of the country
Economists Care About the Debt/GDP Ratio not Debt

- **Trillions of $**
  - Gross Fed Debt
  - Debt Held by Public

- **Debt/GDP in %**
  - Gross Fed Debt/GDP
  - Debt Held by Public/GDP

**Social Sec**
Fiscal Policy in the Short Run
Fiscal Policy in the Short-Run

- Expansionary fiscal policies can increase aggregate demand and economic output. This can be either:
  - An increase in government spending, and/or
  - A reduction in tax rates.

- The full economic effect of the stimulus is dependent on
  - The amount of unemployment
  - For taxes, the kind of tax cut and position of HH balance sheet
  - Fed interest rate policy
Counter Cyclical Structure of the Federal Budget

- Both expenditures and tax receipts are sensitive to the growth of the economy
  - When the economy shrinks, tax revenues drop more (in percentage terms) than GDP
  - When the economy recovers, tax revenues increase faster than the economy
  - This built-in structural leads to automatic stabilizing influences.
    - Deficits increase in recessions
    - Deficits decline in recoveries
The History of the Deficit/GDP Ratio since 1930
The History of the Deficit/GDP Ratio since 1930

I. FDR’s multiple Federal programs (WPA, etc.) during the Great Depression were minor in terms of the size of the economy
II. FDR “bought into” the “austerity view” and tightened the federal budget in 1937, generating a second recession.
The History of the Deficit/GDP Ratio since 1930

III. The Great Depression ended with the beginning of WWII and the associated large deficits associated with financing the war expenditures.
The History of the Deficit/GDP Ratio since 1930

IV. In the late 60s, President Johnson chose to pay for the Vietnam War with deficits despite historically low unemployment rates, igniting a period of higher inflation.
The History of the Deficit/GDP Ratio since 1930

V. Obama Fiscal Stimulus in 2009 kept the economy from becoming a “depression.”
VI. Note the largest deficits are closely tied to the end of recessions. This tells us about “counter-cyclical structure” federal budgets.
Fiscal Policy in the Short-Run: Multiplier Measurement and the Ongoing Debate

This is a significant continuing controversy in economics.

- You can frequently determine an economist’s party affiliation by how they answer this question about the size of the multiplier.
- If the multiplier is large, then government policy has more impact on economic growth per dollar of debt created.
- If the multiplier is small, then lots of debt is created with little short-term benefit to stimulating GDP growth.
Why Size of Multipliers Matters and Economists Fight over the Estimates

- If the multiplier is large, there is more persuasive arguments for using government spending and taxing policies to stimulate economic growth
  - Liberal economists believe multipliers to be large particularly during recessions
  - Conservative economists find multipliers to be zero or small
Fiscal Policy in the Short-Run: Multiplier Measurement and the Ongoing Debate

- An increase in government purchases can increase the real interest rate – depending on Fed action -- and *crowd out* interest-sensitive spending on consumption, investment, and net exports.

- Then there are the lags: how fast does the spending get into the economy?
  - By the time Congress acts, the recession may be over

- If you reduce taxes, will households spend or save the increase in after tax income?
  - It matters to whom you give the tax cuts
  - There is more stimulus “bang for the deficit buck” giving money to the less affluent and almost no stimulus giving it to the most affluent.
Fiscal Policy in the Short-Run: Tax Cuts vs. Additional Federal Spending

When the economy is weak:

- Tax cut proponents emphasize giving more money to households may be quick way to increase spending
  - Counter-argument: giving a tax cut to Bill Gates or Warren Buffet has zero effect on spending.
  - Or, if households are repairing impaired balance sheets they may save the increase in take home pay

- Government spending proponents emphasize the direct increase in aggregate demand and the potential increase in government investment in infrastructure and human capital.
  - Counter-argument: governments can be slow to actually spend newly authorized expenditures
  - Or, due to political considerations, what the government purchases is not particularly useful (e.g., boondoggles)
Debate over “The Size of Fiscal Policy Multipliers” and Why it May be Confusing

State of economy: Closer to Potential GDP | High Unemployment

Response of Fed: Raises r | Leaves r unchanged

Type of model: RBC & Time series | Keynesian/structural

Type of Exp/Tax: Tax adj. for High Income | Direct Expenditures

Researcher bias: Conservative/classical | Keynesian/liberal
According to this research, the impact of fiscal stimulus is greater when the economy is recession than when the economy is closer to full employment.
The 2009 Debate Over Tax-Based Versus Spending-Based Fiscal Stimulus

- When the Obama administration proposed a fiscal stimulus package to jump start the economy in 2009, there was a vigorous policy debate:
  - Republicans favored tax cuts arguing they would stimulate spending and reduce tax distortions
  - Democrats favored increases in government spending because they would raise aggregate demand directly, and they would raise government investment in physical and human capital
  - Christina Romer of the Council of Economic Advisors argued that the expenditure multiplier was 1.5, which was larger in absolute value than the tax multiplier
  - Estimates of the multiplier are VERY controversial
Real World Approach to Evaluating Fiscal Policy Proposals

Multi-equation model of the macro economy estimated from history

It’s a social science and this diagram is what underlies much of what you hear on news programs.
Obama Stimulus Program

- $787 Billion in Total Stimulus, included:
  - Expenditures: Direct Purchases
  - Tax cuts: stimulate spending by households
  - Payments to states
    - State and local governments is where most spending on infrastructure occurs
    - State and local governments have major constraints on spending (limits on deficit spending). Direct payments are meant to keep them from cutting spending in recessions.*

* Accounting matters. State and local governments have capital & operating budgets, which means large debt issuances associated with bond funded infrastructure investments
Spring 2009 Obama Fiscal Stimulus

How the $787 B hit the economy

- Direct Purchases $88 B
- Tax cuts $21 B
- Transfers and tax cuts $363 B
- Federal Government $215 B
- State and Local Government $44 B
- Businesses
- Households

Goods & Services Purchases
A Technical Complexity: Dynamics of Exogenous vs. Endogenous $\Delta$'s in Federal Deficits

- Endogenous deficits are a function of budget structures and economic growth
- Fiscal stimulus policies will increase deficits in the short term ABOVE WHAT THEY WOULD BE ANYWAY.
- Medium term impacts on debt can only be evaluated with more complicated models
Automatic Stabilizers and Impact on Deficit Measurement

It’s not the deficit, but the Difference between Total and Automatic Component is a Measure of **Exogenous** Fiscal Policy
### Automatic Stabilizer Estimates 2006-2014

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Deficit</th>
<th>Auto Stab</th>
<th>Def w/o Auto</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>-248</td>
<td>11</td>
<td>-259</td>
</tr>
<tr>
<td>2007</td>
<td>-161</td>
<td>-7</td>
<td>-154</td>
</tr>
<tr>
<td>2008</td>
<td>-459</td>
<td>-70</td>
<td>-389</td>
</tr>
<tr>
<td>2009</td>
<td>-1,413</td>
<td>-320</td>
<td>-1,093</td>
</tr>
<tr>
<td>2010</td>
<td>-1,294</td>
<td>-373</td>
<td>-921</td>
</tr>
<tr>
<td>2011</td>
<td>-1,300</td>
<td>-336</td>
<td>-964</td>
</tr>
<tr>
<td>2012</td>
<td>-1,087</td>
<td>-272</td>
<td>-815</td>
</tr>
<tr>
<td>2013</td>
<td>-680</td>
<td>-247</td>
<td>-432</td>
</tr>
<tr>
<td>2014</td>
<td>-483</td>
<td>-193</td>
<td>-291</td>
</tr>
</tbody>
</table>

It’s not the size but the change in the deficit associated with explicit government policies that signals whether there’s “stimulus.”
### Fiscal Multiplier Estimates from CBO

<table>
<thead>
<tr>
<th>Component</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchases of Goods and Services by the Federal Gov't</td>
<td>1.0</td>
<td>2.5</td>
</tr>
<tr>
<td>Transfer Payments to S&amp;L Gov't for Infrastructure</td>
<td>1.0</td>
<td>2.5</td>
</tr>
<tr>
<td>Transfer Payments to S&amp;L Gov't for Other Purchases</td>
<td>0.7</td>
<td>1.8</td>
</tr>
<tr>
<td>Transfer Payments to Individuals</td>
<td>0.9</td>
<td>2.1</td>
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<tr>
<td>One Time Payments to Retirees</td>
<td>0.6</td>
<td>1.0</td>
</tr>
<tr>
<td>Two Year Tax Cut for Lower and Middle Income People</td>
<td>0.6</td>
<td>1.5</td>
</tr>
<tr>
<td>One Year Tax Cut for Higher Income People</td>
<td>0.2</td>
<td>0.6</td>
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</table>
Estimates of 2009 Stimulus by CBO: Impacts on GDP

Liberals believe this

Conservatives believe this
Estimates of 2009 Stimulus by CBO: Impacts on Unemployment

- Liberals believe this
- Conservatives believe this
Estimates of 2009 Stimulus by CBO: Impacts on Unemployment

Liberals believe this

Conservatives believe this
What Do Economists Think about the 2009 Fiscal Stimulus?

Economic Stimulus (revisited)

Question A: Because of the American Recovery and Reinvestment Act of 2009, the U.S. unemployment rate was lower at the end of 2010 than it would have been without the stimulus bill. (The experts panel previously voted on this question on February 15, 2012. Those earlier results can be found here.)

Responses

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Uncertain</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>No Opinion</th>
</tr>
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<tbody>
<tr>
<td>39%</td>
<td>43%</td>
<td>0%</td>
<td>2%</td>
<td>0%</td>
<td>0%</td>
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</table>

Responses weighted by each expert’s confidence

<table>
<thead>
<tr>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Uncertain</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
</tr>
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<tbody>
<tr>
<td>53%</td>
<td>44%</td>
<td>0%</td>
<td>3%</td>
<td>0%</td>
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Source: IGM Economic Experts Panel
www.igmchicago.org/igm-economic-experts-panel
Here’s What Economists Told Obama in Late 2008

<table>
<thead>
<tr>
<th>Affiliation</th>
<th>Economist</th>
<th>Amount</th>
<th>Time</th>
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<tbody>
<tr>
<td>Progressive</td>
<td>Joe Stiglitz</td>
<td>$1 T</td>
<td>1 Year</td>
</tr>
<tr>
<td></td>
<td>Paul Krugman</td>
<td>$600 B</td>
<td>1 Year</td>
</tr>
<tr>
<td></td>
<td>Jamie Galbraith</td>
<td>$900 B</td>
<td>1 Year</td>
</tr>
<tr>
<td></td>
<td>Robert Reich</td>
<td>$1.2 T</td>
<td>2 Years</td>
</tr>
<tr>
<td></td>
<td>Dean Baker</td>
<td>$900 B</td>
<td>didn’t say</td>
</tr>
<tr>
<td>Republican</td>
<td>Martin Feldstein</td>
<td>$400B</td>
<td>1 Year</td>
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<td></td>
<td>Larry Lindsey</td>
<td>$800B-$1.2T</td>
<td>didn’t say</td>
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<td></td>
<td>Kenneth Rogoff</td>
<td>$1 T</td>
<td>2 Years</td>
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<tr>
<td></td>
<td>Mark Zandi</td>
<td>$600 B</td>
<td>1 Year</td>
</tr>
<tr>
<td></td>
<td>Greg Mankiw</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

With 1 exception, they recommended stimulus, which means they believed in fiscal stimulus.
Fiscal Policy in the Long Run
Economists Care About the Debt/GDP Ratio not Debt
Social Security and Medicare/Medicaid Spending as a Percent of GDP, 2010-2050

General conclusions:
- Social Security financials can be fixed by relatively minor adjustments.
- Not so with rising Medicare related costs because that is related to “Health Care Delivery”, demographics, and technological change.
What you have heard is accurate

- A growing portion of the federal debt is now held by foreign entities (usually governments)
U.S. Treasury Debt Held by Foreign Entities

$Trillions

Is China financing our deficits?

- Partly, and so is Japan, and many other countries
Recent Data on Chinese Holdings of U.S. Treasury Debt

China No Longer a Bull in Treasury Shopping
After years of inflows, money from China, and from its proxies based in Belgium, has mostly been flowing out of the Treasury market this year.
A **sovereign debt crisis** is a collapse in the market for country’s government debt.

The crisis can occur if the debt-to-GDP ratio rises to the point where investors become concerned about the probability of default by the sovereign government:

- Deficit increases, increasing Debt/GDP ratio
- Increases in Debt/GDP increases probability of default
- Market responds by requiring higher interest rates
- Higher interest rates increase debt service payments
## Debt/GDP Ratios among Countries, 2013

<table>
<thead>
<tr>
<th>#</th>
<th>Country</th>
<th>Debt/GDP (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Japan</td>
<td>226</td>
</tr>
<tr>
<td>2</td>
<td>Zimbabwe</td>
<td>202</td>
</tr>
<tr>
<td>3</td>
<td>Greece</td>
<td>175</td>
</tr>
<tr>
<td>4</td>
<td>Italy</td>
<td>133</td>
</tr>
<tr>
<td>5</td>
<td>Iceland</td>
<td>131</td>
</tr>
<tr>
<td>6</td>
<td>Portugal</td>
<td>128</td>
</tr>
<tr>
<td>7</td>
<td>Ireland</td>
<td>124</td>
</tr>
<tr>
<td>8</td>
<td>Jamaica</td>
<td>123</td>
</tr>
<tr>
<td>9</td>
<td>Lebanon</td>
<td>120</td>
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<tr>
<td>10</td>
<td>Cyprus</td>
<td>113</td>
</tr>
<tr>
<td>15</td>
<td>Belgium</td>
<td>102</td>
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<tr>
<td>16</td>
<td>Puerto Rico</td>
<td>97</td>
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<td>26</td>
<td>Germany</td>
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<td>36</td>
<td>United States</td>
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<td>70</td>
<td>Vietnam</td>
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<td>71</td>
<td>Poland</td>
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<tr>
<td>80</td>
<td>Argentina</td>
<td>46</td>
</tr>
<tr>
<td>100</td>
<td>Mexico</td>
<td>38</td>
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<tr>
<td>157</td>
<td>Estonia</td>
<td>6</td>
</tr>
<tr>
<td>159</td>
<td>Libya</td>
<td>5</td>
</tr>
<tr>
<td>160</td>
<td>Oman</td>
<td>4</td>
</tr>
<tr>
<td>161</td>
<td>Liberia</td>
<td>3</td>
</tr>
</tbody>
</table>

Simple statements about Financial Crises and Debt-GDP ratios are highly misleading.
Debt Burden: How to Evaluate Whether It’s a Benefit or a Cost

**Guiding Principles**

I. It really matters where the economy is relative to full employment.
   - If the GDP Gap ~ 0, the debt will absorb savings and crowd out private investment that is likely to generate a higher rate of return
   - If the GDP Gap << 0, additional debt (from deficits) will crowd in private investment
Debt Burden: How to Evaluate Whether It’s a Benefit or a Cost

Guiding Principles (cont.)

II. It really matters what the government does with the additional resources
   - Building bridges to nowhere is a waste of economic resources always
   - If the social returns > borrowing costs, the spending will generate social benefits
Debt Burden: How to Evaluate Whether It’s a Benefit or a Cost

*Guiding Principles (cont.)*

III. Debt held by U.S. Entities Generates Far Less Future Economic Cost than Debt held by Foreign Interests

- Interest payments from the U.S. Treasury to a U.S. citizen is a “transfer payment”
- Interest payments from the U.S. Treasury to a foreign government is real future U.S. income flowing out of the country
Guiding Principles (cont.)

IV. There are no magic “thresholds” that tell us some amount of U.S. debt will lead to a “dump the dollar” scenario

- It’s easy to describe the scenario and scare audiences
- It’s not so easy to know its likelihood
- This is a much bigger problem for smaller economies with large international capital flows financing internal investment than to large economies that are “more closed” (e.g., the U.S.)
Debt Burden: How to Evaluate Whether It’s a Benefit or a Cost

Guiding Principles (cont.)

V. Borrowing from future generations to address inequities associated with significant economic downturns almost always generates a social benefit IF the tax system is equitable

- Debt service on fixed borrowings become a smaller burden on future generations, by the underlying force of economic growth when average income is growing.
VI. Paradox of Thrift can Apply to Government Budget Deficits in Recessions

- Pursuing austerity budgets in recessions can lead to more debt accumulation over time because the cuts in fiscal stimulus can slow economic growth.

- Pursuing aggressive fiscal policy in recessions can generate less debt accumulation over time because it stimulates economic growth in the medium term, leading to lower deficits in the medium term.

- 2011-2013 may represent a period when fiscal stimulus was reduced contributing to slower economic growth than would have occurred with greater fiscal stimulus.
Debt Burden Today: Costs vs. Benefits

- Treasury rates are at or near historical lows
- Public infrastructure is deteriorating due to cuts in maintenance and revenues (e.g., “real” gas tax revenues)
- Higher real costs of post high-school public education are reducing investments and incentives for individuals to invest in human capital (i.e., post-secondary education)

A clear case where benefits > costs over time

There’s another reason: It’s called the “Zero Bound” and we’ll discuss in the next lecture
You Can’t Talk about Macroeconomic Policy without Simultaneously Considering Fiscal and Monetary Policies