Longer Term Impacts of Federal Deficits
Federal Debt
Financial & Macroeconomic Perspectives
Social Security Accounting
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
The Federal Government Expenditures

$T$ of 2017

% of GDP

Interest
Other Mandatory
Medicaid
Medicare
Soc Sec
Non-Defense
Defense
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.
- There are other revenues (e.g., “fees”) including FRB “Remittances” ($92 Billion in 2016)
The Federal Government Revenues

$T of 2017$

% of GDP

Other | Estate | Excise
Corp | Payroll | Individual

Year:
1968
1971
1974
1977
1980
1983
1986
1989
1992
1995
1998
2001
2004
2007
2010
2013
2016
The government budget deficit is given by:

- Deficit = outlays − receipts

- Deficit = (G + TRANSFERS + INTEREST) − TAXES − other revenues
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:

\[
\text{Deficit} = \Delta \text{US Treasury Debt ("bonds")}
\]

\[
= \Delta B_{\text{INV}} + \Delta HPM_{\text{Treas}}
\]

where,

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

\[
\Delta HPM_{\text{Treas}} = \text{Purchases of U.S. Treasury Debt by the Federal Reserve}
\]
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
  - Debt/GDP is a true economic measure
  - The correct definition of the debt is “debt held by the public:

Warning:
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>
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</thead>
<tbody>
<tr>
<td>Debt</td>
<td>1939</td>
<td>$42 B</td>
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<tr>
<td>$ \Sigma \text{ Deficits &amp; Surpluses}$</td>
<td>1940-2017</td>
<td>$14.6 T</td>
</tr>
<tr>
<td>= Debt</td>
<td>Dec-17</td>
<td>$14.7 T</td>
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</table>

Trillions of $
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 ≈ $5.4 Trillion held in “government accounts”
Debt per person

- ~ $42,000/person
- Sounds large
- It’s meaningless, because the federal government lives “forever” in economic terms
  - This is the key difference between the Federal gov’t and households
  - U.S. Treasury Debt doesn’t have to be paid off ...EVER in a growing economy and largely hasn’t.
- 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 $

Debt/GDP in %

Social Sec

Social Sec
Detailed Projection of Federal Budget

Trillion $

$1.5T

Trillion $

Federal Deficit
Fiscal Policy in the Short Run

Brief History of Fiscal Policy
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.
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.”
Controversies over the Impact of Fiscal Stimulus in the Short Run
Controversies

1) Size of the fiscal multiplier
2) Crowding Out private spending
3) Policy implementation lags
4) Efficiency: “Stimulus Bang for the Deficit Buck”
Controversy I: Fiscal Multiplier Size

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 AND there is a more persuasive argument for using gov’t taxation and spending policies to stimulate economic growth.
  - Liberal economists tend to believe in large fiscal multipliers.

- If the multiplier is small, then lots of debt is created with little short-term benefit to stimulating GDP growth.
  - Conservative economists tend to believe in small (or zero) multipliers.

Note: this issue underlies analysis of the tax-cut of personal and corporate tax rates.
Controversy II: Crowding Out

- An increase in deficits can increase the real interest rate – depending on Fed action -- and crowd out interest-sensitive spending on consumption and investment.

- Federal Reserve response to fiscal stimulus may reduce its effectiveness.
Controversy III: Policy Lags

- Then there are the lags: how fast does the spending get into the economy?
  - How long does it take Congress to recognize the economy needs stimulus?
  - How long it take Congress to act to pass a stimulus package?
  - How long does it take the government to spend the stimulus?

By the time a package is agreed to and passed by Congress, the need for stimulus may have passed.
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 of the economy.
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
Automatic Stabilizers and Impact on Deficit Measurement

Deficits ($B)

It’s not the deficit, but the Difference between Total and Automatic Component is a Measure of Exogenous Fiscal Policy
For every 1 pct point increase in the unemployment rate, the deficit will rise ~$95B “automatically.”
Controversy IV: Policy Efficiency

- It matters to whom you give the tax cuts
  - Less affluent households have higher marginal propensities to consume than more affluent households
  - Giving a dollar to a less affluent family has more stimulus per dollar than giving a dollar to Warren Buffet
  - There is more stimulus “bang for the deficit buck” giving money to the less affluent
  - Recovery was slower than usual because of the impact of the Great Recession on household balance sheets. They spent less of the tax cut stimulus than some had predicted.

- Not all government expenditures are beneficial
  - Government does spend money on boondoggles (i.e., projects with few benefits)
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.
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 (now at UC) 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
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>
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<tr>
<td></td>
<td>Robert Reich</td>
<td>$1.2 T</td>
<td>2 Years</td>
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<tr>
<td></td>
<td>Dean Baker</td>
<td>$900 B</td>
<td>didn't say</td>
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<tr>
<td>Republican</td>
<td>Martin Feldstein</td>
<td>$400B</td>
<td>1 Year</td>
</tr>
<tr>
<td></td>
<td>Larry Lindsey</td>
<td>$800B-$1.2T</td>
<td>didn't say</td>
</tr>
<tr>
<td></td>
<td>Kenneth Rogoff</td>
<td>$1 T</td>
<td>2 Years</td>
</tr>
<tr>
<td></td>
<td>Mark Zandi</td>
<td>$600 B</td>
<td>1 Year</td>
</tr>
<tr>
<td></td>
<td>Greg Mankiw</td>
<td>skeptical about fiscal stimulus</td>
<td></td>
</tr>
</tbody>
</table>

With 1 exception, they recommended stimulus, which means they believed in fiscal stimulus
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

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

How the $787 B hit the economy
Spring 2009 Obama Fiscal Stimulus

$800B Stimulus Package Passed
Fiscal policies which use deficits to stimulate growth also generate Federal debt

This a longer run (10 years +) issues and before turning to it we’ll need to build a model of longer term economic growth
Fiscal Policy in the Long Run

It’s All About the Debt/GDP Ratio
Economists care about the Debt/GDP ratio, not debt.
Social Security and Medicare/Medicaid Spending as a Percent of GDP, 1968-2017

% of GDP

Fiscal Years

- Social Security
- Medicare + Medicaid
General conclusions:

- Social Security financials can be fixed by relatively minor adjustments
- Not so with rising health related expenses because that is related to “Health Care Delivery”, demographics, and technological change
Social Security and Medicare/Medicaid Spending as a Percent of GDP, 2010-2045

Gross Expenditures

Net of Revenues

% of GDP

% of GDP
CBO Projections of Debt/GDP Ratio

Requires assumptions about economic growth, interest rates, and future budget policies.
Even without the changes in the tax structure, the deficit is projected to grow significantly over the next several years adding over $10 Trillion to the Debt Held by the Public.
CBO: Debt Baseline + Tax

Deficits in Trillions of $:

Debt as % of GDP:

$10.1 T of Deficits w/o Bill
Debt Held by Foreign Entities and Federal Reserve Banks

What you have heard is accurate

- A growing portion of the federal debt is now held by foreign entities (usually governments)
Change in Foreign Holdings of US Treasury Debt

$T$

Δ in Debt Held by Foreign Entities

Is China financing our deficits?

- Partly, and so is Japan, and so are many other countries
Sovereign Debt Crises

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:

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

<table>
<thead>
<tr>
<th>#</th>
<th>Country</th>
<th>Debt/GDP (%)</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Japan</td>
<td>226</td>
</tr>
<tr>
<td>2</td>
<td>Zimbabwe</td>
<td>202</td>
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<tr>
<td>3</td>
<td>Greece</td>
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<td>4</td>
<td>Italy</td>
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<td>5</td>
<td>Iceland</td>
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<td>7</td>
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<td>8</td>
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<td><strong>United States</strong></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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<td>80</td>
<td>Argentina</td>
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<td>100</td>
<td>Mexico</td>
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<td>157</td>
<td>Estonia</td>
<td>6</td>
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<td>159</td>
<td>Libya</td>
<td>5</td>
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<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.
Added 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 $\approx 0$, the debt will absorb savings and **crowd out** private investment that is likely to generate a higher rate of return
- If the GDP Gap $<< 0$ (i.e., the unemployment rate $>>$ NAIRU), 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 money.

- Building bridges to nowhere is a waste of economic resources always
- If the social returns > borrowing costs, the spending will generate social benefits
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 represents U.S. income flowing out of the country
Debt Burden: How to Evaluate Whether It’s a Benefit or a Cost

Guiding Principles (cont.)

IV. There are no magic “thresholds” that tell us some amount of U.S. debt will lead to a “currency crisis.”

- 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 service on fixed borrowings become a smaller burden on future generations, by the underlying force of economic growth when average income is growing.

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 and lead to large deficits.

- 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.
Savings and International Trade or Finance Between Nations
The largest changes in total national savings are associated with the size of the Federal Deficit.
A Revealing Identity

Investment + Net Exports = National Savings

All else being equal, if Savings declines Net Exports decline.

Policies which reduce National Savings at full employment will increase the trade deficit.

At full employment, policies that increase the Federal deficit will worsen the trade deficit.

Its name: Net Capital Outflow Identity
A Revealing Identity: Data

Balance of Trade = National Savings − National Investment
Fiscal policies which increase deficits when the economy is fully employed will worsen the trade balance.
Notes on the Social Security Trust Funds
Mechanics of On Budget and Off Budget Deficits

Off Budget Surplus or Deficit + On Budget Surplus or Deficit = Total Budget Surplus or Deficit
Total Deficit = On Budget + Off Budget

Billions of $
Credits to Social Security when There is a Surplus

For example in 2017:

- Social Security’s total outlays (x Medicare) = 6.4% of GDP
- Tax revenues = 6.2% GDP
- Most of Social Security’s tax revenues come from payroll taxes plus taxes on SSA benefits. In addition, the trust funds are credited with interest on the Treasury securities they hold.
- Since the beginning of the Social Security program, all securities held by the trust funds are special issues available only to the trust funds.
Social Security Trust Fund: Primer

- **Real Cash**
  - Tax Revenues
- **Non-Cash Accounting**
  - Interest "credits"
- **Real Cash**
  - SSA Benefits

\[ \Delta \text{SSA Trust Fund Balance} = \Delta \text{Balance} \]

- If \( \Delta \text{Balance} > 0 \):
  - Trust "Buys" Special Securities and is paid interest on holdings
- If \( \Delta \text{Balance} < 0 \):
  - Trust "Sells" Special Securities to raise cash in order to pay benefits
Key Forecast Dates

When does:

(1): Cash Revenues = Cash Benefits?
(2): Cash Revenues + Accounting Interest Revenues = Cash Benefits ?
(3): The Fund Balance = 0 ?

Economists care about Date 1 because it impacts the real budget deficit.

Dates 2 and 3 are based on “political agreements” regarding how to credit or debit the fund balance.

Note: Just to make it more confusing there are multiple Trust Funds.
### Key Dates from the Annual Trustees Report

<table>
<thead>
<tr>
<th>Data Type</th>
<th>Trust Fund</th>
</tr>
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<tbody>
<tr>
<td>Cash</td>
<td>OASI</td>
</tr>
<tr>
<td>1</td>
<td>2010</td>
</tr>
<tr>
<td>2</td>
<td>2020</td>
</tr>
<tr>
<td>3</td>
<td>2034</td>
</tr>
</tbody>
</table>

Cash + Int Fund Bal=0

OASI = Old Age and Survivors Insurance Trust Fund
DI = Disability Insurance Trust Fund
HI = Medicare Hospital Insurance Trust Fund
The key statistic that economists worry about is the size and growth of the “net transfer” relative to GDP. On this basis,

- Social Security has only a modest impact on future federal budgets. There exist many relatively (economically) easy ways to identify economic alternatives to reducing the growth rate of this impact over time (e.g., increasing the eligibility age).

  - While the growth in beneficiaries is large because of the baby boom, real benefits per beneficiary will grow slower than GDP because benefits are indexed to inflation not productivity growth.
  
  - Meanwhile, payroll taxes per payee will grow faster than inflation because of the growth in real wages. (Yes, income distribution issues can affect this.)
  
  - While adjustments to future benefits or slightly higher tax rates may not be politically easy to adopt, they have been identified in many prior studies and are considered “tweaks” to the program by economists.
Economics

Medicare is different than Social Security

- The medical delivery cost factors are rising faster than GDP due to technological change and the high rate of spending on health care services that may be not be productive.
- The population is aging and baby boomers will be aging into the age cohorts of larger needs for health services.
- The potential economic impacts can only be addressed by yet-to-be-identified structural changes in the delivery of health care, individual payments for medical services, or much higher taxes.
Social Security and Medicare/Medicaid Spending as a Percent of GDP, 2010-2045
The financial statements and “trust fund balances” are an entirely different metric tied to the accounting rules adopted by the government to account for the trust fund balance.

- The “key dates” in a prior table reflect these rules.
- One of these rules includes “interest payments” from the U.S. Treasury to the trust funds. This is equivalent to the U.S. government moving funds from one account to another account within the single entity—i.e., the U.S. Treasury.
- When the trust funds “sell the securities back to the U.S. Treasury” to generate funds, it is accounted for as a revenue for the trust funds and an expense for the rest of the U.S. Treasury.

- It makes the funds appear ok financially and the rest of the government look worse financially. In total, it’s a zero sum game.
Conclusion about Social Security and Medicare

Economists’ Views

- Whatever adjustments are made to the Social Security System to address the reported accounting deficits they will be small and probably not impact people in this room.

- The financial challenges facing the Medicare system are far more challenging because it involves resolving two very contentious issues
  - The business model associated provision of medical services
  - The economic numbers associated with NOT addressing this issue are large and growing faster than GDP