The Future of Fiscal Policy:
American Economic Policy Debates in the 21st Century

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Woodrow Wilson School
Fall 2019

Week 1

Outline

1. Course Overview
   - Course outline, schedule, logistics, goals of course

2. Fiscal Policy in the US
   - Federal Tax Revenue and Progressivity
   - Federal Government Spending

3. Debate about U.S. Debt and Deficits
   - How we got here
   - Fiscal Gap and Fiscal Outlook
   - Classic view on Government Debt
   - New View

4. Government Intervention in the Economy
   - Equity consequences of taxation
   - Efficiency consequences of taxation

5. Appendix
   - Social Security
   - Healthcare

Introductions: who am I/ who are you?

1. **My background**
   - Ph.D. from UC Berkeley, BA from Dartmouth
   - Staff Economist at Council of Economic Advisers
   - Formerly an Assistant Professor at Chicago Booth
   - Co-chair NBER business tax group

2. **Research fiscal policy topics**
   - Incidence and efficiency costs of corporate taxation
   - Economic impacts of taxing high-income earners
   - Effect of state tax system on U.S. economy
   - The structure of state corporate taxation
   - Business taxation and ownership in the U.S.
   - Who profits from patents? Rent sharing at innovative firms
   - Business Income and U.S. income inequality
   - Wealth concentration and capital income in America
   - Evaluating state and local business tax incentives

Course Outline

1. **Overview of US fiscal policy, deficit debate, general framework**
   - Do we need to address rising US debt and deficits? If so, how?

2. **Capital Taxation**
   - Top wealth tax? Or reform capital gains and estate taxation?
   - How should we tax corporations? Who benefits?

3. **Taxing top earners**
   - How high should top income tax rates be? Tax expenditures?

4. **Place-Based Policies and Local Economic Development**
   - Should we target poor places instead of poor people?

5. **Policy for low-income families**
   - How should we reform the safety net? Universal basic income?

Logistics and Goals

Logistics:

1. Class schedule
2. Four one-page policy memos
3. One in class policy presentation (signups)
4. Active participation
5. Four-page policy proposal memo

Goal:

1. Have engaging, informative, and policy relevant discussions of central fiscal policy issues

2. Incorporate applied economic models and evidence on policies in question (also see 593j for enhancing applied modeling skills)
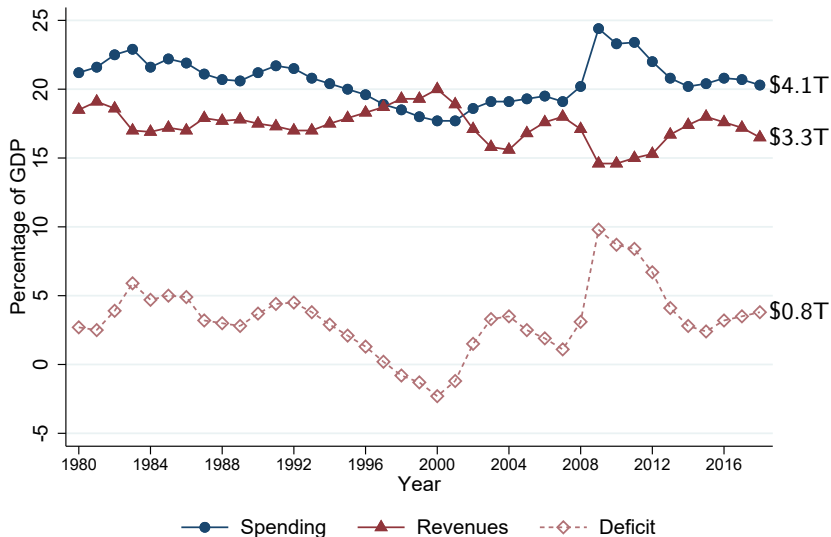
Fiscal Policy in the US

Fiscal Policy in the US

Outline:

1. Fiscal Overview
2. Tax Revenue
3. Government Spending

Federal Revenue, Spending, and Deficits: 1980-2018

Source: White House Office of Management and Budget

Government Budgeting

In 2019: US Federal debt (held outside govt) is \$16Tr around 80% of GDP (\$20Tr), US deficit is large 5.0% (\$1Tr) of GDP

- **Debt**: The amount borrowed by government through bonds to individuals, firms, or foreign governments. Debt is a **stock**

- **Deficit**: government's spending + interest payments on debt minus government revenues in a given year. A negative deficit is called a surplus. Deficit is a **flow**

- Evolution of debt from year to year:

  $$\text{Debt}_{t+1} = \text{Debt}_t + \text{Deficit}_t = \text{Debt}_t \cdot (1 + r_t) + \text{Spending}_t - \text{Revenue}_t$$

  with r_t interest paid on government debt

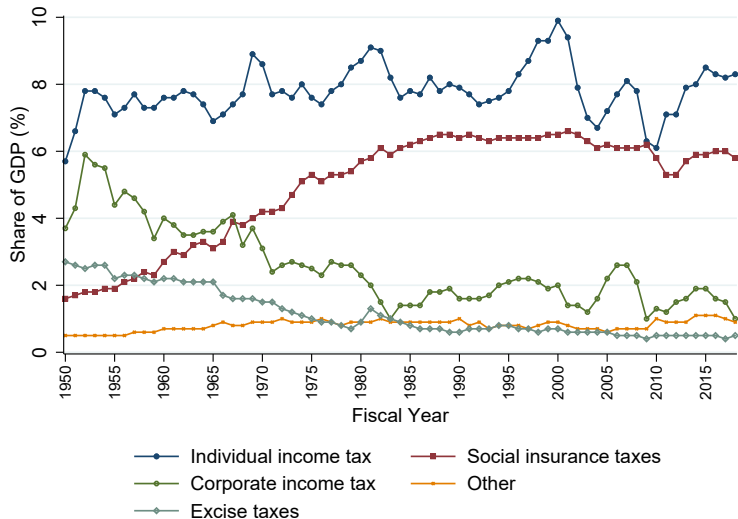- Primary Deficit = Spending - Revenue

Federal Revenue Projections: Pre and Post TCJA
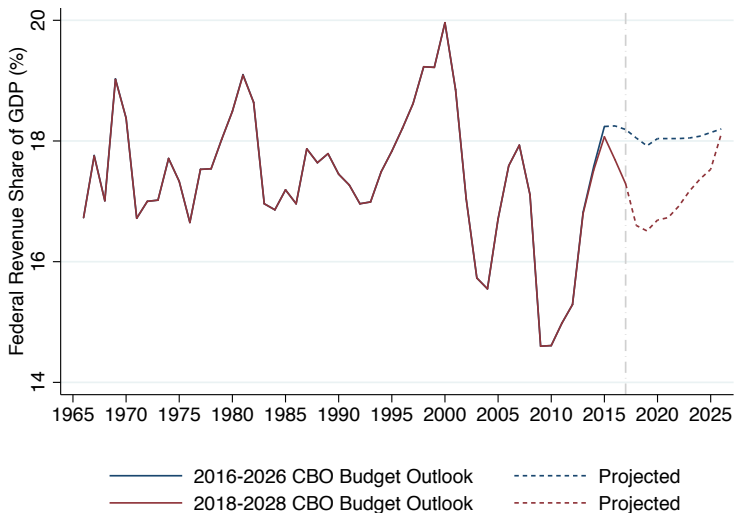
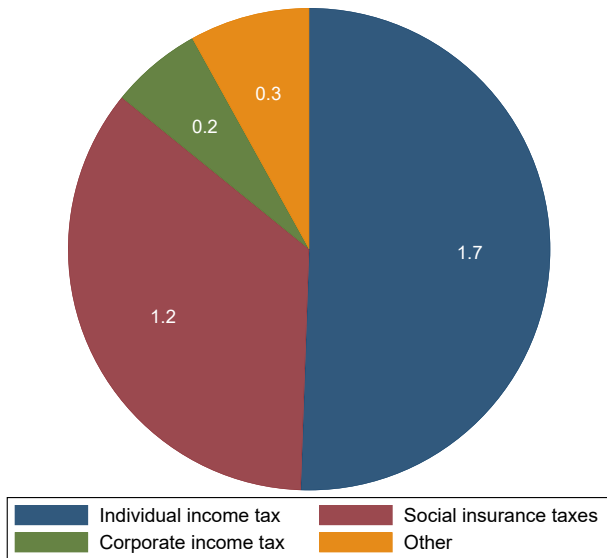Source: CBO Budget and Economic Outlook

Federal Tax Revenue and Progressivity
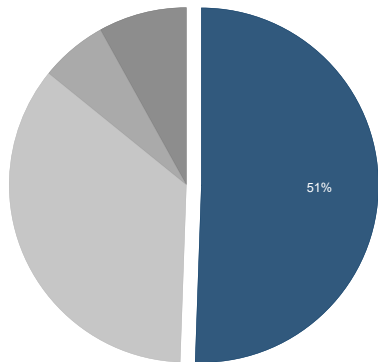
Total Federal Revenue by Source (% of GDP)

Source: White House Office of Management and Budget

Total Federal Revenue by Source, 2018 ($T)

Legend:
- Individual income tax
- Social insurance taxes
- Corporate income tax
- Other

Source: White House Office of Management and Budget

Federal Revenue: Individual Income Tax

51%

- **Revenue:** Accounted for $1.7T (8% of GDP) in 2018
- **Base:** Applied to wages, salaries, some investment earnings, profits of pass-through businesses
- **Structure:** Progressive. $24K standard deduction, additional income taxed at rates from 10-37%. High income households pay 3.8% surtax on income from interest, dividends, capital gains, and other passive income

Federal Revenue: Individual Income Tax

Tax Expenditures

- Include tax credits, deductions, lower tax rates for certain types of income
- Cost in 2018 was 6.3% of GDP, or $1.3T (80% as large as revenue from individual income tax)
- Largest tax expenditures, FY 2019:
  1. Exclusion for employer-provided health insurance ($173B)
  2. Reduced tax rate for capital gains ($127B)
  3. Child/other dependent tax credit ($122B)
  4. Tax benefit for employer defined contribution plans ($122B)
  5. Tax benefit for defined benefit plans ($91B)
  6. Earned income credit ($73B)
- Refundability: some tax credits (e.g. child credit, EITC) provide cash refunds to people with no tax liability

Federal Revenue: Social Insurance Taxes

35%
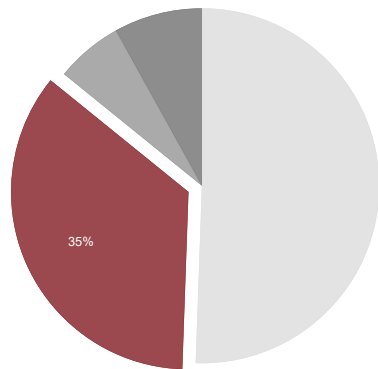
- **Revenue:** $1.2T in 2018
- **Payroll taxes:** $1/2$ paid by employer, $1/2$ by employee
  - Social Security: Taxes 12.4% of wages up to $128K cap. Cap increases with average national wages
  - Medicare: Taxes 2.9% of wages. High income households pay added 0.9% surtax
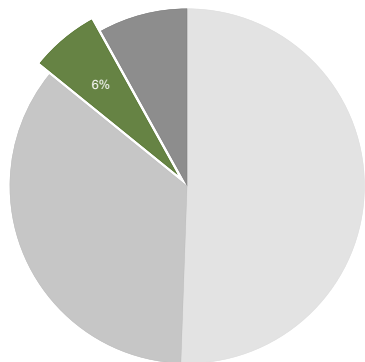- **Other:** e.g. employer-paid tax funding unemployment insurance
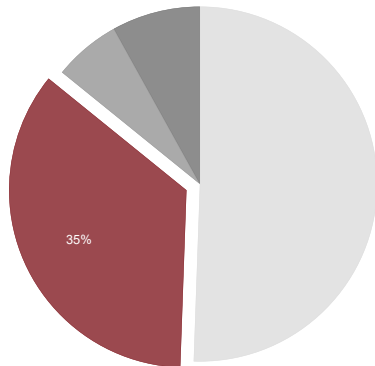
How payroll taxes differ from income taxes:

- Revenue enters trust fund
- Apply only to wages
- Flat rate tax
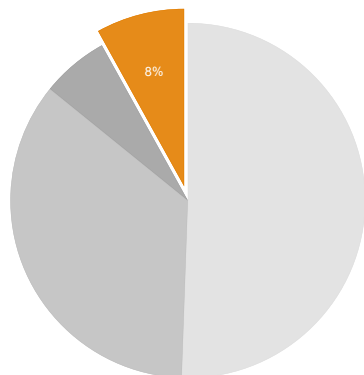- Few exemptions
- Applies from the first $ of earnings

Payroll taxes exceed income taxes among the bottom 80% of income distribution on average
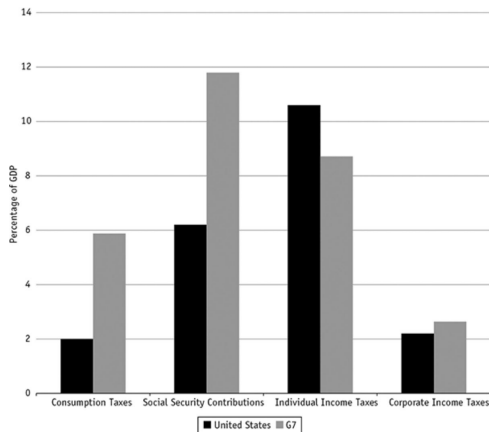
Federal Revenue: Corporate Income Taxes

- **Revenue:** $242B in 2018
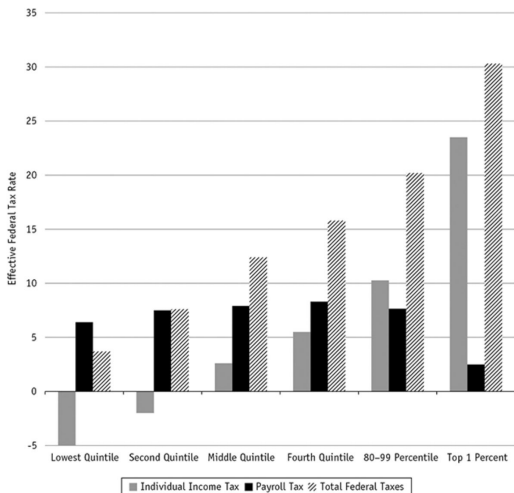- Return to this later in the course

Federal Revenue: Other Taxes

8%

- **Revenue:** $278B
- **Examples:**
  - Gas tax: 18.4 ¢/gallon unleaded, 24.4 ¢/gallon diesel
  - Alcohol and tobacco ("sin") taxes
  - Estate tax: First $22.4M exempt for married couple, so paid by fewer than 1/1000 people who die
  - Gift tax

Source: William Gale

Source: William Gale

State Income Tax Progressivity
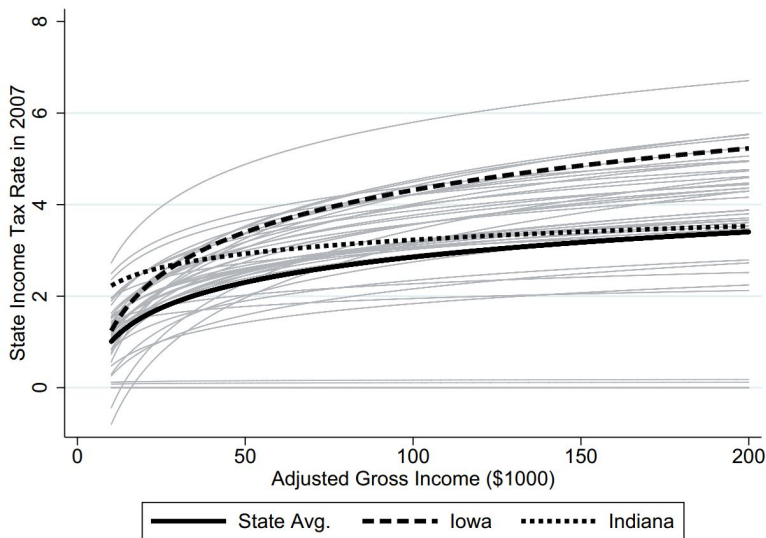
Source: Fajgelbaum et al, 2019

International Comparison: Income Tax Rates and Progressivity

Tax Rate by Decile: Income, Employment, and Indirect

Percent

Sweden

France

United Kingdom

United States

Decile of Income
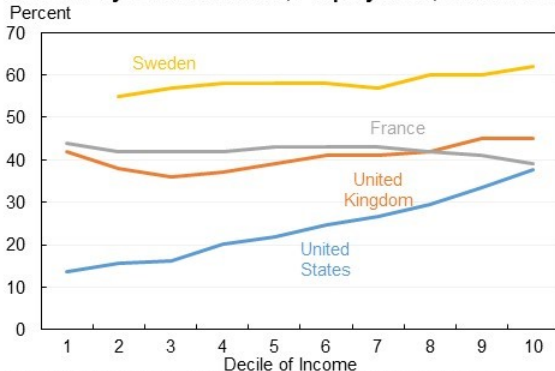
Source: Calculations based on Bigot, et al. (2014); Institute on Taxation and Economic Policy (2018); Congressional Budget Office. Calculations approximate and in progress.

Source: Jason Furman

Total Tax rates, 1962 (by pre-tax national income)

Source: Emmanuel Saez

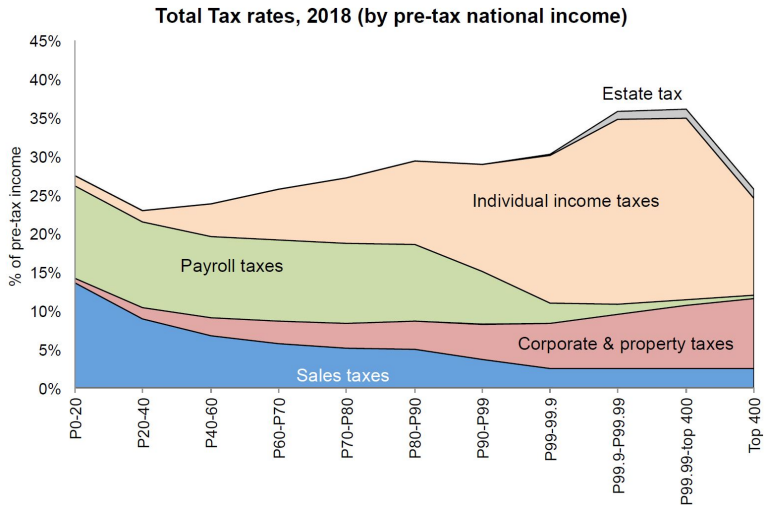Total Tax rates, 2018 (by pre-tax national income)
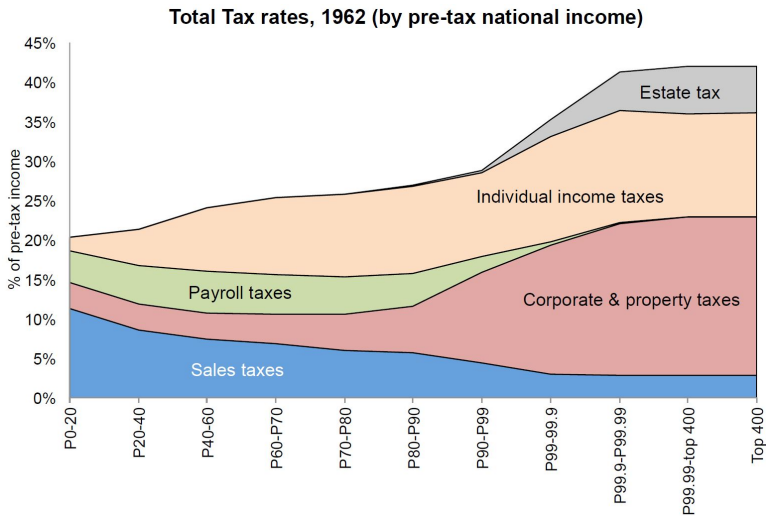
Source: Emmanuel Saez

"Incremental" tax revenue reforms

	2021-2030 (Billions)	
	Current Law	Current Policy
Repeal or Reforms of 2017 Tax Law		
Return Top Individual Rate to 39.6% from 37% (1)	$90	$200
Reverse Doubling of Estate Tax Exemption (back to $11.4M per couple) (2)	$60	$120
Repeal Pass-Through Deduction (2)	$290	$630
Increase Corporate Rate to 28% from 21% (2)	$730	
Raise Minimum Tax on Foreign Income to 21% + Apply Per Country (3)	$340	
Sub-Total	$1,510	$2,010
Additional Measures		
Increase Top Individual Rate to 45% (5.4% further increase) (1)	$380	
Tax Accrued Gains at Death and Increase CG/Dividends Rate to 28% (4)	$290	
Broaden Base of Self-Employment Tax + 3.8% ACA Surtax (4)	$270	
Cap Value of Itemized Deductions at 28% (5)	$390	$260
Estate Tax: $7M Per Couple Exemption, 45%-65% Rate, Limit Avoidance	$380	
Return to 2009 Parameters + Anti-Avoidance Measures (4)	$280	
Increase Rates on Largest Estates (Max = 65% Rate on Transfers >$1B) (6)	$100	
Eliminate Accelerated Cost Recovery for Largest Businesses (2&4)	$760	$920
Sub-Total	$2,850	$2,880
Total	**$4,360**	**$4,860**
% of GDP	**1.6%**	**1.8%**

Sources are authors' calculations based on: (1) AEI Tax Brain; (2) JCT (2017) and JCT (2018); (3) Clausing (2019b); (4) JCT (2016); (5) JCT (2011) and Tax Policy Center (2018); (6) Auxier, Burman, Nunns, & Rohaly (2016), Sammartino, Burman, Nunns, Rosenberg, & Rohaly (2016). The authors have updated all estimates to be consistent with a 2021-30 budget window[, with details provided in the appendix].

Source: Batchelder and Kamin (2019)

"Structural" tax revenue reforms

	2021-2030 (Billions)	
	Current Law	Current Policy
Dramatically Raise Top Rates on Labor and Ordinary Income		
Increase top individual rate to 70% from 37% for income over $10M (1)	$260	$320
Eliminate maximum earnings threshold in Social Security tax above $250K in earnings (2)	$1,370	
Financial Transactions Tax		
0.1% tax on all financial assets (3)	$810	

	2021-2030 (Billions)		
	Tax Avoidance Rate		
	0%	15%	30%
Accrual Tax			
Limited to Top 1%			
Mark-to-market for publicly-traded assets (3)	$2,200	$1,700	$1,400
Retrospective accrual tax for illiquid assets (3)	$600	$400	$300
Total	$2,800	$2,100	$1,700
Limited to Top 0.1%			
Mark-to-market for publicly-traded assets (3)	$800	$600	$500
Retrospective accrual tax for illiquid assets (3)	$200	$150	$100
Total	$1,000	$750	$600
Wealth Tax			
2% tax on wealth for top 0.1% and 3% on wealth over $1B (3)	$3,300	$2,600	$1,900
2% tax on wealth for top 1% (3)	$6,700	$5,100	$3,500

Source as indicated: Authors' calculations based on (1) Ricco & Prisinzano (2019) (averaging their three estimates accounting for avoidance); (2) Congressional Budget Office (2018); (3) Survey of Consumer Finance and other sources. For more details, see appendix.
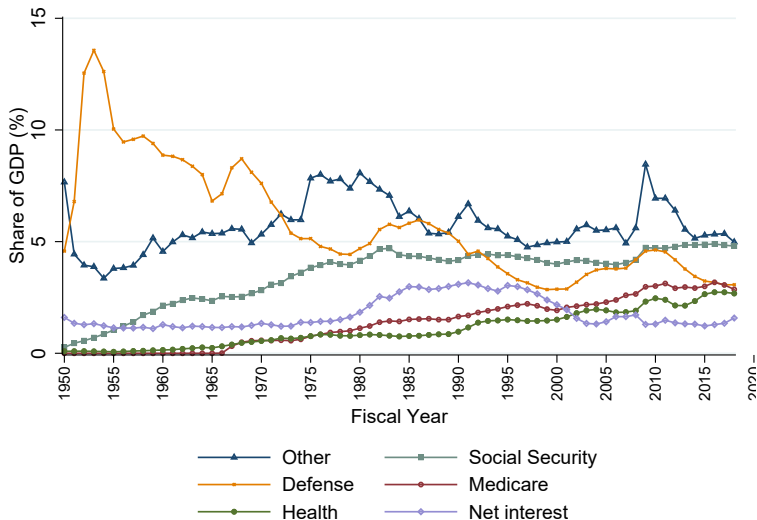
Source: Batchelder and Kamin (2019)

Proposed Progressivity with Wealth Tax
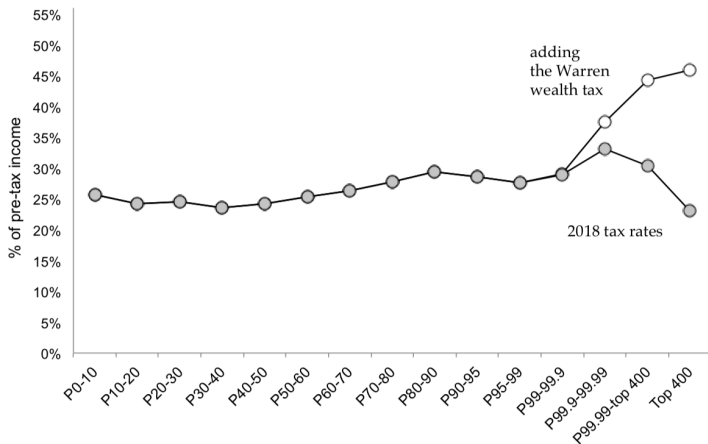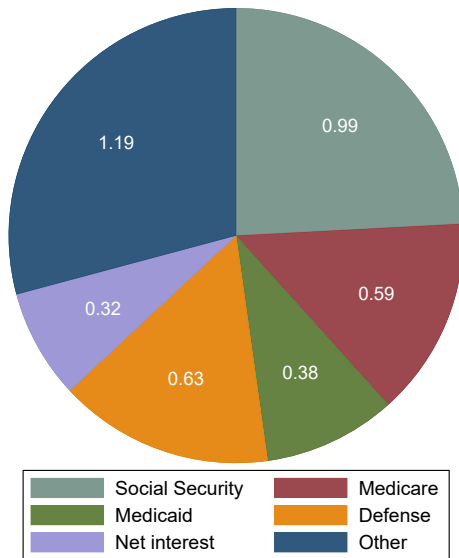

Source: Saez Zucman (BPEA 2019)

Federal Government Spending
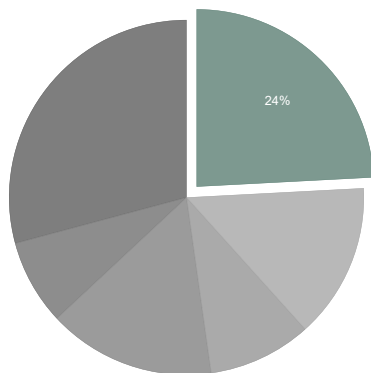
Total Federal Spending by Function (% of GDP)

Source: White House Office of Management and Budget

Total Federal Spending by Function, 2018 ($T)

Source: White House Office of Management and Budget

Federal Spending: Social Security

24%

- $967B in 2018
- Composed of Old-Age and Survivors Insurance (1935) and Disability Insurance (1956)
- 60M Americans ($\approx 1/5$ of pop) get benefits each year, mostly through retirement program
- In 2016, Social Security helped 26M people avoid poverty
- Program provides majority of retirement income for most elderly households

Federal Spending: Medicare
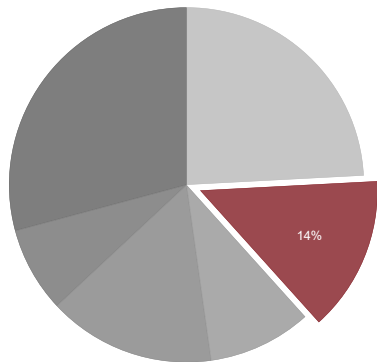
- $583B in 2018
- Began 1965 to provide elderly with basic health insurance
- George W. Bush added prescription drug coverage (Medicare Part D) in 2003
- Covers 60M beneficiaries in a given year
- Financed through combination of payroll taxes, insurance premiums, and general tax revenue

Federal Spending: Medicaid

9%
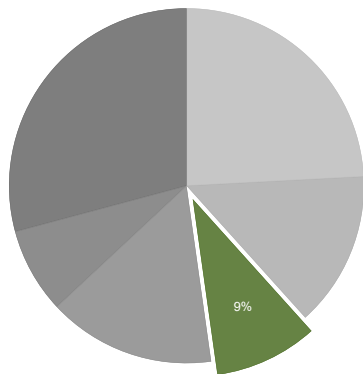
- $583B in 2018
- Began 1965 to provide medical coverage to some low-income families (1/3 of spending), disabled people, and the elderly
- Covered 74M beneficiaries in 2018
- Funded jointly by federal and state governments, administered by states
- Separate but related programs:
    - Subsidies to buy private insurance
    - Children's Health Insurance Program (CHIP)

15%
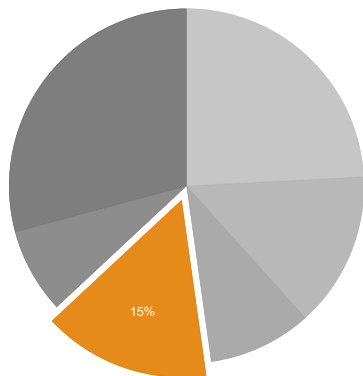
- $622B in 2018
- 20% of core Defense Dep't budget (excludes cost of overseas operations) goes to procurement
- Rest of core budget: operations, maintenance, personnel, R&D

8%
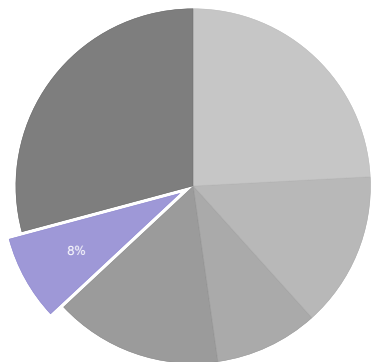
- $316B in 2018
- Size of payments depends on debt and interest rate
- Interest rates have been low in recent years (2018 averaged 2.2%)

29%

- **Safety net programs:** ≈10% of total spending in 2018, lifted as many as 18M people out of poverty in 2016
- **Other domestic programs:** ≈16% of total spending in 2018. Many of these programs are investments such as education, training, social services, and infrastructure.
- **Core functions:** includes running executive departments (e.g. Justice, Homeland Security) and agencies (e.g. EPA, National Park Service)

Federal Spending: Everything Else

- Select safety net programs

Program	Monthly Beneficiaries	Annual Cost
Veterans' benefits	5.0M	$81.6B
SNAP	40.9M	$69.2B
Suppl. Security Income (SSI)	8.3M	$54.7B
Unemployment insurance (UI)	10M	$46.5B
Housing assistance	5.4M	$28.7B
TANF	3.6M	$16.5B

- Select investment programs
    - **Education, training, social services:** state and local grants, Department of Labor training programs, Pell Grants
    - **Science, medical, and tech research:** NASA, NIH, NSF
    - **Transportation and infrastructure:** grants to states for highway maintenance

Federal Spending

- Mandatory spending
  - Net interest payments (8% of spending)
  - Mandatory programs, AKA entitlements (61% of spending)
    - Law determines a person's eligibility, and then all eligible people receive benefits
    - Continue under terms set in law until laws are changed
    - Examples: Social Security, Medicare, Medicaid, TANF, farm subsidies
- Discretionary spending
  - Authorized only for set period, usually one year
  - $\approx 1/2$ is on defense
  - $\approx 1/4$ is on investments (education, training, science, infrastructure)
  - $\approx 1/4$ is on housing, environmental protection, food safety, government operations (e.g. enforcement, tax collection), etc.
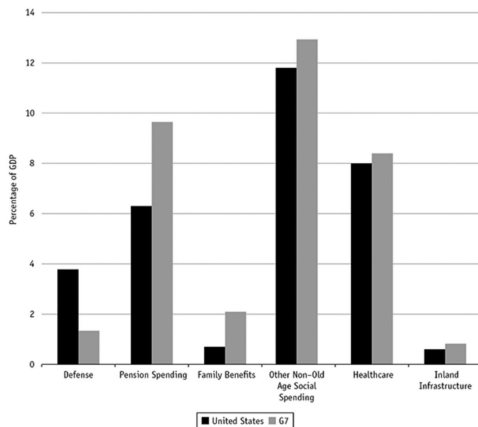
Source: William Gale

Debate about U.S. Debt and Deficits

*A national debt, if not excessive, will be a national blessing —
Alexander Hamilton (1781)*

A public debt is a public curse — James Madison (1790)

Debate about U.S. Debt and Deficits

Outline:

1. How we got here, the fiscal gap, and fiscal outlook
2. Classic view
3. New View

How we got here

Debt through U.S. History (% GDP)

Source: William Gale

Debt through U.S. History: Pre-WWII

- Brief, sporadic debt buildups in response to war or recession
- After each episode, debts rapidly paid off and new taxes canceled
- Ex) first income tax passed 1861 to finance Civil War, imposed on $\approx$10% of Union households. Tax eliminated 1871
- Investments (transportation, utilities, etc.) left to state and local governments
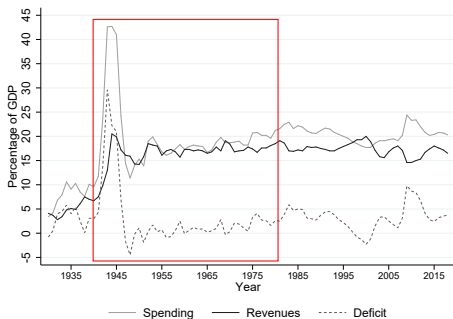
- Revenue Act of 1942 turns income tax from "class tax" to "mass tax". Tax base increases tenfold

- Expanded view of fiscal responsibilities: post-war tax and spending levels remain at high, wartime levels

- Shift in spending from defense to social programs

- Debt decreases as result of growth, low interest rates, and inflation, not budget cuts

- Government creates large implicit debts (future obligations)

Data: White House OMB
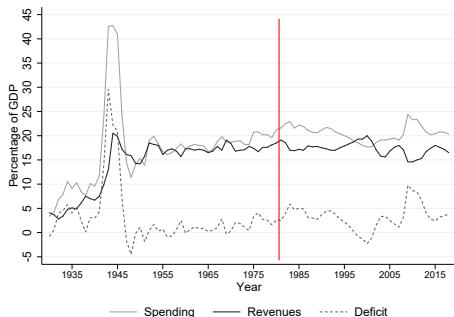
- Goal: raise revenue by boosting economy with tax cuts and defense spending (Laffer curve)
- Index tax brackets for inflation, erasing automatic revenue increases
- "Starve the beast": idea of forcing spending cuts by cutting taxes
- Overall effect: large deficits, first in U.S. history created intentionally without war or depression
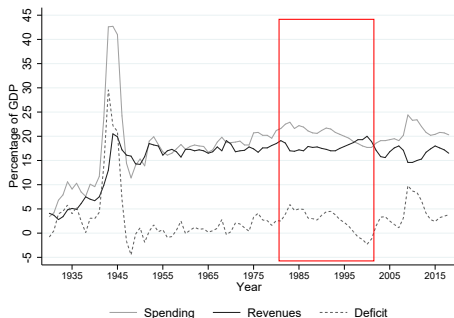
Data: White House OMB

- Bipartisan efforts to address deficits result in tax increases, Social Security benefit cuts, which Reagan signs into law
- George H.W. Bush and Clinton also raise taxes and cut spending
- New rules cap discretionary spending, make it more difficult to expand mandatory spending
- Budget surpluses 1998-2001
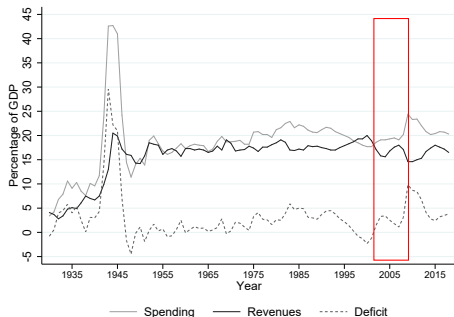
- Bush and Congress enact large, regressive tax cuts in 2001 and 2003
- Defense spending increases, largely due to wars in Iraq and Afghanistan
- Prescription drug coverage added to Medicare without additional funding source
- Budget rules abandoned
- Great Recession exacerbates the issue

Data: White House OMB

Fiscal Outlook and Fiscal Gap

- Debt-to-GDP in 2029 of 92% under current law and 106% under current policy
- Debt-to-GDP in 2049 of 194% under current policy
- Ensuring Debt-to-GDP in 30 years does not exceed today's ratio of 78% would require a combo of non-interest spending cuts and/or tax increases totaling 3.9% of GDP (about 2.5 pp of which are from social security and healthcare)
- If interest rates remain unchanged over next 30 years, 2049 Debt-to-GDP would be 156% and fiscal gap would be 3.2%.

The Challenge
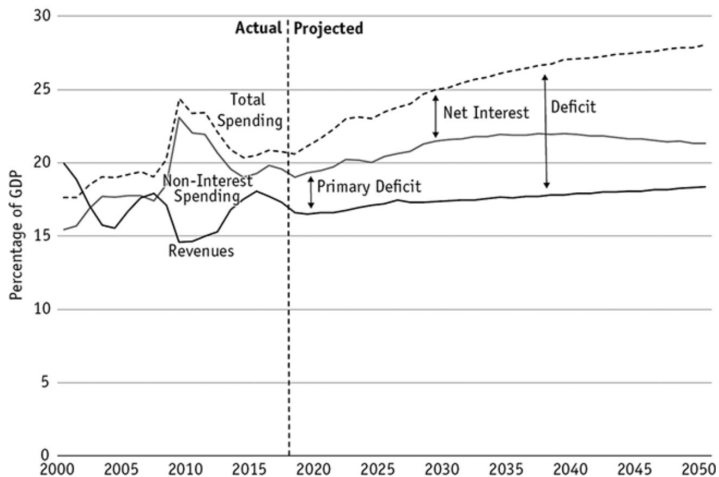
Source: William Gale

The Challenge

- Spending
    - Population aging: share of Americans 65+ will grow by 40% over next 3 decades, pushing entitlement costs higher
    - Per capita health costs are growing faster than GDP
    - Interest payments increasing because of growing debt, but not clear how much

- Revenue
    - Expected to grow much slower than spending

Why Spending is Increasing
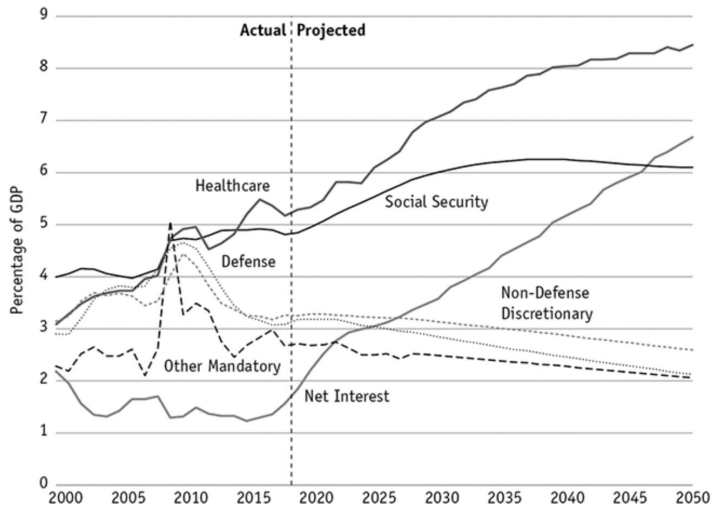
Source: William Gale

Table 1. Spending Categories as a Percent of GDP in Select Years

	2019	2029	2049
Healthcare	5.2	6.5	8.1
Social Security	4.8	5.8	6.0
Defense	3.1	2.9	2.9
Non-Defense Discretionary	3.1	3.0	3.0
Other Mandatory	2.7	2.3	2.3
Total Non-Interest Spending	18.9	20.5	22.3
Net Interest	1.8	3.4	7.1
Total Spending	20.7	23.9	29.4

Figure 5: Net Interest as a Share of GDP, 2019-2049
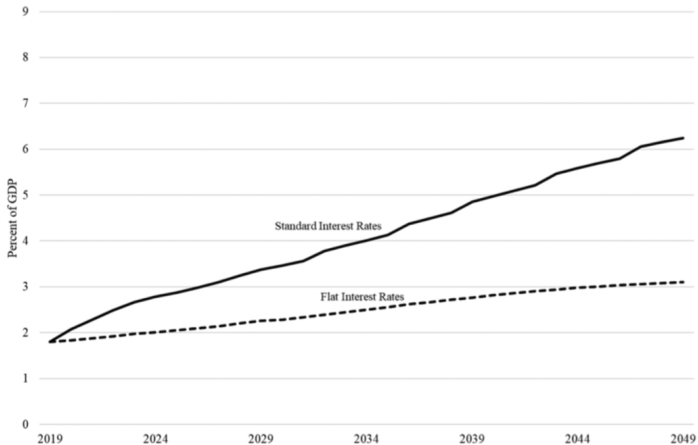
Source: Author's calculation; Board of Trustees (2019); Boards of Trustees (2019); Congressional Budget Office (2019b, 2019c)

Figure 7: Debt-to-GDP, 1790-2049

Source: Author's calculation; Board of Trustees (2019); Boards of Trustees (2019); Congressional Budget Office (2010, 2019b, 2019c); Office of Management and Budget (2019)

Classic view on Government Debt

Classic view on Government Debt

Main effects of government budget deficits are

1. increasing aggregate demand in the short run
2. reducing the capital stock in the long run

Short-Run Effects of the Govt on the Macroeconomy

- **Keynesian theory (IS-LM macro model) in short-run:** More government spending or tax cuts stimulates the economy in the short-run [and conversely]
- **Short-run stabilization**: Govt can use taxes and spending policies to smooth the peaks and troughs of the business cycle
    - **Automatic stabilization**: Policies that automatically alter taxes or spending in response to economic fluctuations to offset changes in household consumption levels (ex: unemployment insurance, progressive taxation, corporate profits tax)
    - **Discretionary stabilization**: Policy actions taken by the government in response to business cycle (ex: Fiscal stimulus with Spring 2008 rebate checks, 2009-12 Obama stimulus, unemployment insurance extensions)
- Ability to run deficits in recessions is a great tool for short-run business cycle stabilization (but need to reduce debt during good times to keep ability to run deficits when needed)

Government spending and growth, 2010-2013
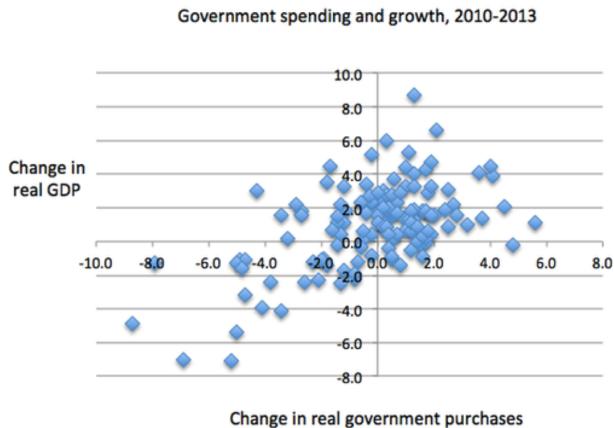
% changes in annual real govt spending and changes in real GDP, 33 EU countries, 2010-11, 2011-2, 2012-3 (=99 dots). Source: Krugman NYtimes blog, January 6, 2015

Classical long run effects of govt deficit
Private + public savings = investment + net foreign investment

An increase in the deficit (and thus a decrease in public saving) leads to:

1. A rise in private saving (S)
2. A decline in domestic investment (I)
3. A decline in net foreign investment (NFI)

Classical long run effects of Govt: $S + (T - G) = I + NFI$

Private + public savings = investment + net foreign investment

Derivation from national accounting identities:

- Private sector's budget constraint: $Y = C + S + T$
  - Y is national income, C is private consumption, S is private saving, T is taxes less govt transfer payments
- National income also equals national output, which is 4 types of spending: $Y = C + I + G + NX$
  - I is domestic investment, G is govt purchases of goods and svcs, NX is net exports of goods and svcs
- Combining and rearranging gives: $S + (T - G) = I + NX$.
- Since $NX = NFI$, i.e., net foreign investment, we have national saving ($S + (T - G)$) equals the uses of saving at home and abroad ($I + NFI$)

Classical long run effects of govt deficit

Private + public savings = investment + net foreign investment

An increase in the deficit (and thus a decrease in public saving) leads to:

1. A rise in private saving (S)
   - If individuals are forward looking, they understand that higher debt implies high taxes later on and hence they save more to be able to pay higher taxes later on [Ricardian equivalence but not much empirical support]
2. A decline in domestic investment (I)
   - leads to smaller capital stock $\rightarrow$ lower output and income.
   - MPK would be higher, leading to higher interest rates, and labor productivity would be lower, reducing wages and labor income.
3. A decline in net foreign investment (NFI)
   - Domestic residents will own less capital abroad (or foreign residents will own more domestic capital). In either case, capital income of domestic residents will fall.
   - As will net exports ("twin deficits" of the 1980s). Pushing trade balance into deficits generally requires an appreciation of the currency, which makes domestically produced goods relatively more expensive than foreign-produced goods.

Classic view on Government Debt

Other effects of government budget deficits (besides AD and K) include

1. Monetary policy: if large debts are accompanied by high interest rates, monetary policy may be pressured to be more expansionary
2. Deadweight loss of taxes needed to service the debt
3. Political economy: does spending justify costs when not "paid for"
4. Fiscal space and vulnerability to crisis

As we will see, there are debates about how important these considerations are

New Views on Debts and Deficits

New Views on Debts and Deficits

Many recent views

1. Blanchard (2019) "Public Debt and Low Interest Rates"
2. Rachel and Summers (2019) "On secular stagnation in the industrialized world"
3. Elmendorf (2019) "Should we reduce federal budget deficits now?"
4. Furman and Summers (2019) "Why Washington should end it's debt obsession"

Blanchard (2019) "Public Debt and Low Interest Rates"

- Avg interest rate on debt is less than economic growth rate ("$r < g$")
- Debt snowballs (in which high debt $D \to$ high interest payments rD $\to$ high deficits $\to$ higher debt) less of a concern when tax base (which grows at g) grows faster than r.
- The importance of suppressing consumption today for investment is lower b/c low rates indicate that the private sector sees fairly low returns to investment.
- "The signal sent by low interest rates is not only that debt may not have substantial fiscal cost, but also that it may have limited welfare costs"
  - "The lower the marginal product (of capital), the lower the welfare cost of debt"
  - This result is related to dynamic inefficiency and Diamond's OLG model

Dynamic inefficiency and ("r vs g")

- r reflects the marginal product of capital
- g reflects population growth and technological change
- If $r > g$, then the economy is efficient in the sense of having less capital than at the golden rule steady state
- If $r < g$, then the economy is inefficient in the sense of having accumulated too much capital, in which case a reduction in capital accumulation (via debt) can potentially increase consumption in all time periods
- The classic view is that households are not saving too much and that $r > g$ (see Abel, Mankiw, Summers, Zeckhauser, 1989), but falling r (perhaps due to secular stagnation) is partly motivating Blanchard's reassessment

WSJ: *Are you concerned about the government debt buildup?*

MR. SUMMERS: I'm less concerned about the buildup of public debt than many of my friends. The debt-to-income ratio for the government is high, but the debt service-to-income ratio is lower than normal. I'm not saying all deficit spending is good. President Trump used up fiscal space to put money in the pockets of wealthy people and corporations with limited propensity to spend. But it will be a grave mistake if deficit reduction is the principal theme for the next president. Any thought of deficit reduction has to deal with how we'll maintain adequate demand and levels of employment. And we have to be mindful of our huge public-investment shortfall.

https://www.wsj.com/articles/summers-sounds-the-alarm-11567995181

Furman and Summers: A middle road

Reducing debt is not as urgent as it used to be

- Traditional view: government deficits raise interest rates, crowd out private investment
- Today: huge government debt but low interest rates, healthy business investment
- Interest rates being pushed down by lower investment demand, higher savings rate, widening inequality
- Result: cost of debt is low, U.S. paying same on interest as in 1970s but with much higher debt
- Cutting deficits would push interest rates even lower, risky if recession hits

Furman and Summers: A middle road

Data: FRED, CBO

Furman and Summers: A middle road
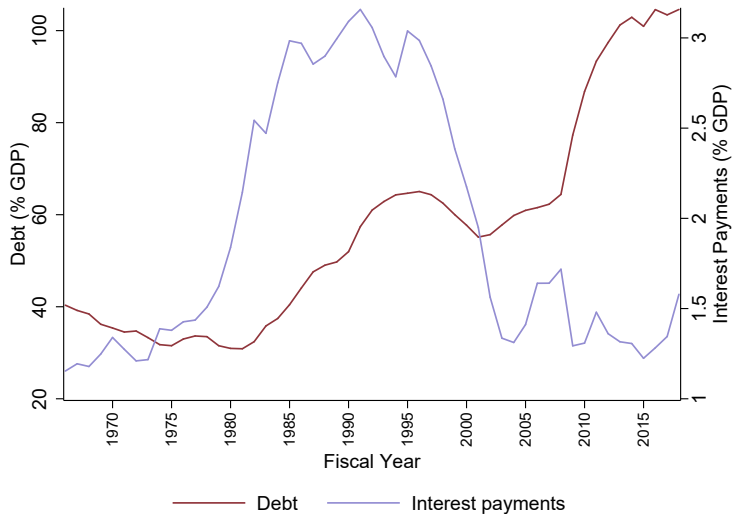
But, budgeting still matters (and MMT goes too far)

- Modern Monetary Theory (MMT) claims deficits don't matter for governments that borrow in their own currencies
- U.S. debt on track to exceed 150% of GDP over next 30 years, and MMT approach risks hyperinflation
- Governing is getting more expensive as health, college costs increase, inequality rises

Recommendation: "Do no harm"

- Don't add debt except during recessions
- But, don't let deficit fears deter from addressing big issues: poverty, labor force particpation, health insurance, climate change
- Eventually, reduce debt by raising revenues in an equitable way

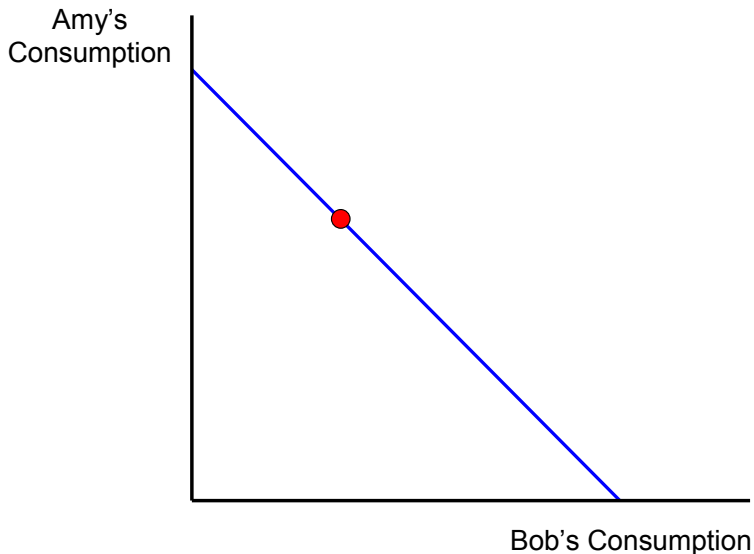# Douglas Elmendorf: Reduce deficits, but not right now

- **Long-term vision:**
  - Interest rates expected to stay low despite high public debt
  - US should have more debt than it has historically
  - But, current debt trends are unsustainable
- **Arguments we need to reduce deficit now are unconvincing**
  - Interest rates could rise suddenly, but unlikely
  - Some benefit to announcing reforms well ahead of implementation. But, only for some changes and only if we assume people effectively plan ahead
  - Politicians might make hard budget choices only in response to continued pressure, but difficult to predict
- **We should delay action to reduce deficit**
  - Deficit reduction now would slow economy in short-term- dangerous with current low interest rates
  - Current political climate means reduction would not come from revenue increases, entitlement changes, or defense cuts
  - Instead, reduction would focus on benefit cuts for lower- and middle-income people, and would hurt society more than rising debt would

Government Intervention

Government Intervention in the Economy

- Organizing framework: "When is government intervention necessary in a market economy?"

  - Market first, government second approach

  - Why? Private market outcome is efficient under a broad set of conditions (1st welfare theorem)

- This section can be split into two parts

  - How can govt. improve efficiency when private market is inefficient?

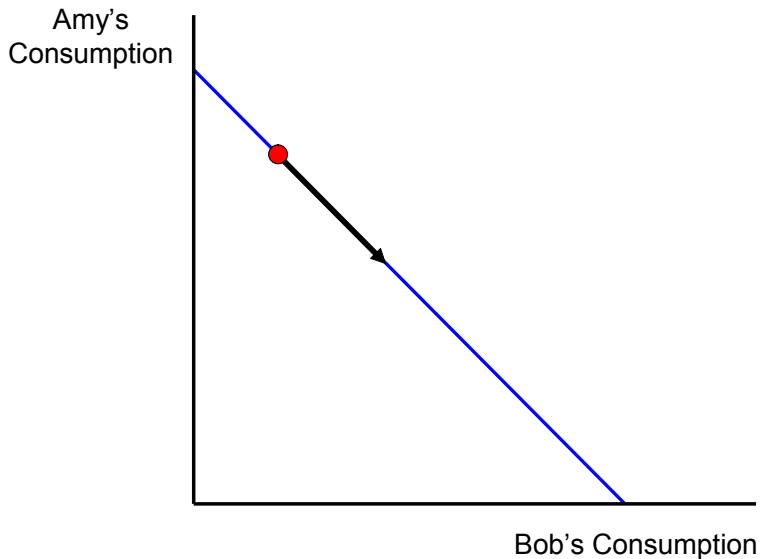 - What can govt. do if private market outcome is undesirable due to distributional concerns?

Efficient Private Market Allocation of Goods

First Role for Government: Improve Efficiency

Amy's Consumption

Bob's Consumption
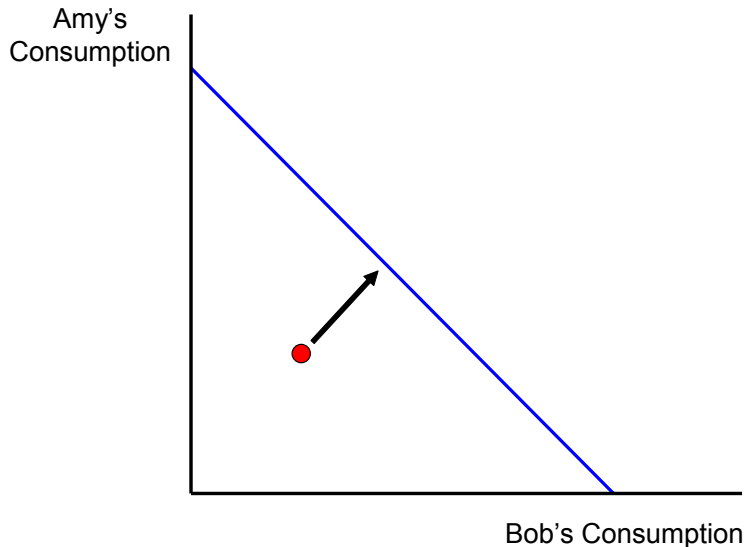
Second Role for Government: Improve Distribution

Amy's Consumption (vertical axis)

Bob's Consumption (horizontal axis)

First Welfare Theorem

Private market provides Pareto efficient outcome under three conditions

1. No externalities
2. Perfect information
3. Perfect competition

This theorem tells us when government should intervene

Failure 1: Externalities

- Markets may be incomplete due to lack of prices (e.g. pollution)
  - Achieving an efficient solution requires an organization to coordinate individuals – that is, a government
- This is why govt. funds public goods (highways, education, defense)
- Questions: What public goods to provide and how to correct externalities?

Failure 2: Asymmetric Information and Incomplete Markets

When some agents have more information than others, markets fail

1. Adverse selection in health insurance
   - Healthy people drop out of private market $\rightarrow$ unraveling
   - Mandated coverage could make everyone better off
2. Capital markets (credit constraints) and subsidies for education
3. Markets for intergenerational goods
   - Future generation's interests may not be fully reflected in market outcomes

Failure 3: Imperfect Competition

- When markets are not competitive, there is role for govt. regulation
    - Ex: natural monopolies such as electricity and telephones
- We will discuss monopolies later in the course (in the innovation policy discussion)

Individual Failures

- If agents do not optimize, government intervention (e.g. by forcing saving via social security) may be desirable
  - This is an "individual" failure rather than a market failure
- Conceptual challenge: how to avoid paternalism
  - Why does government know what is desirable for you (e.g. wearing a seatbelt, not smoking, saving more)
- Difficult but central issues for optimal policy design

Redistribution Concerns

- Even when the private market outcome is efficient, may not have good distributional properties
- Efficient markets generally seem to deliver very large rewards to a small set of people (top incomes)
- Government can redistribution income through tax and transfer system

Why Limit Government Intervention?

- One solution to these issues would be for the government to oversee all production and allocation in the economy (socialism).
- Serious problems with this solution
  1. Information: how does government aggregate preferences and technology to chose optimal production and allocation?
  2. Government policies distort incentives (behavioral responses in private sector)
- In practice, there are sharp tradeoffs between the costs and benefits of government intervention
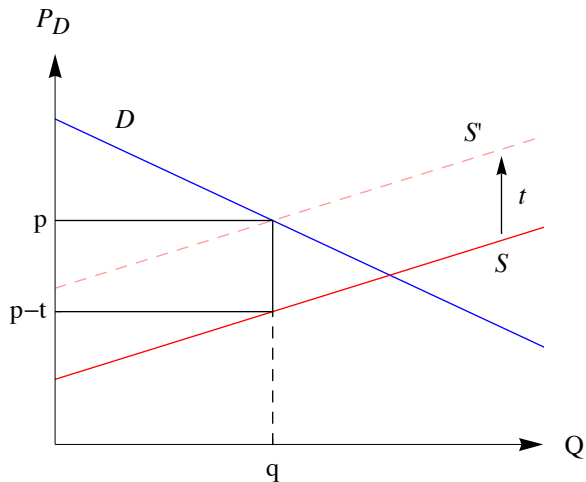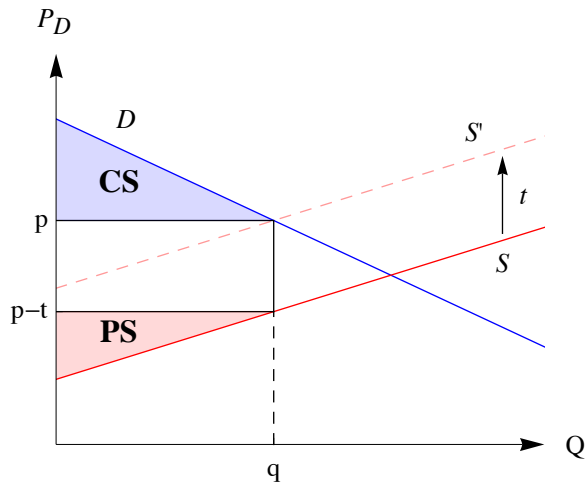
Equity-Efficiency Tradeoff
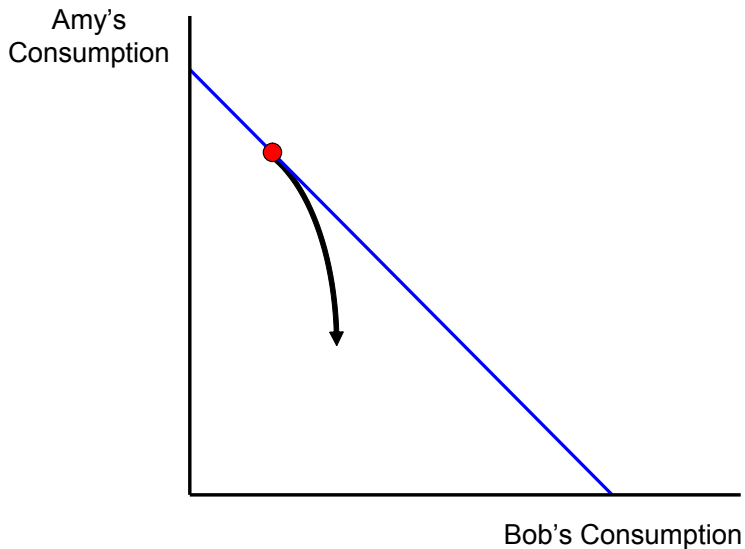
Efficiency and equity consequences of taxation

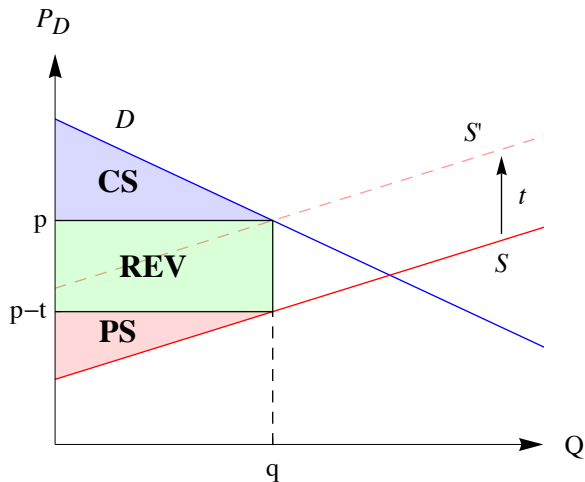# Efficiency and equity consequences of taxation

Market Equilibrium with Taxes

Taxes

Market Equilibrium with Taxes

- Consumer Surplus
- Producer Surplus
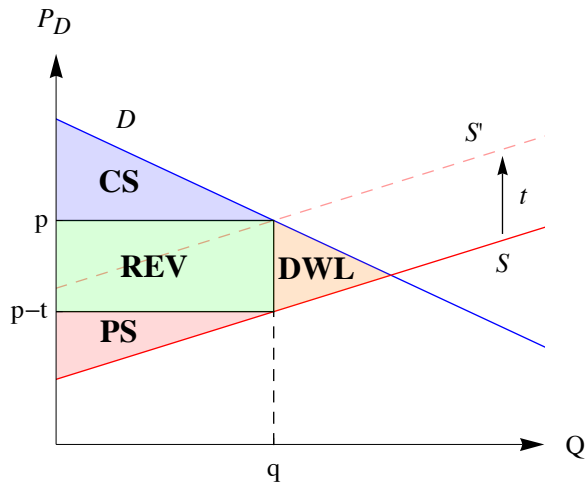
Taxes

Market Equilibrium with Taxes

- Consumer Surplus
- Producer Surplus
- Government Revenue

Taxes

Market Equilibrium with Taxes

- Consumer Surplus
- Producer Surplus
- Government Revenue
- Deadweight Loss

Efficiency and equity consequences of taxation

Definition

- Efficiency costs: effect of policies on **size** of the pie

- Focus in efficiency analysis is on quantities, not prices

- Incidence: effect of policies on **distribution** of economic pie

To evaluate the efficiency and equity consequences of taxes, having a simple quantitive analytical framework is useful

Equity Consequences of Taxation

Incidence

Definition

Tax incidence is the study of the effects of tax policies on prices and the distribution of utilities

Incidence

- Ideally, we would characterize the effect of a tax change on utility levels of all agents in the economy

- Useful simplification in practice: aggregate economic agents into a few groups

- Incidence analyzed at a number of levels:
  1. Producer vs. consumer (tax on cigarettes)
  2. Source of income (labor vs. capital)
  3. Income level (rich vs. poor)
  4. Region or country (local property taxes)
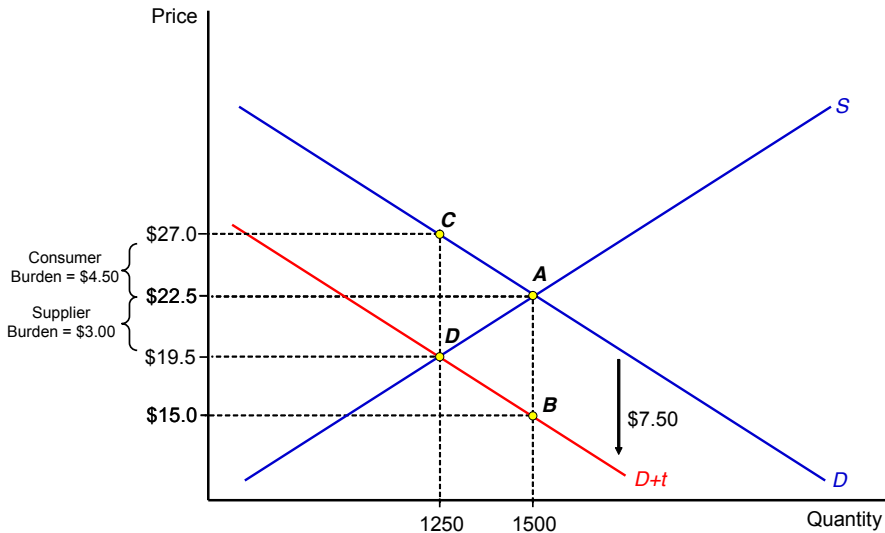 5. Across generations (social security reform)

Key Lessons about Tax Incidence
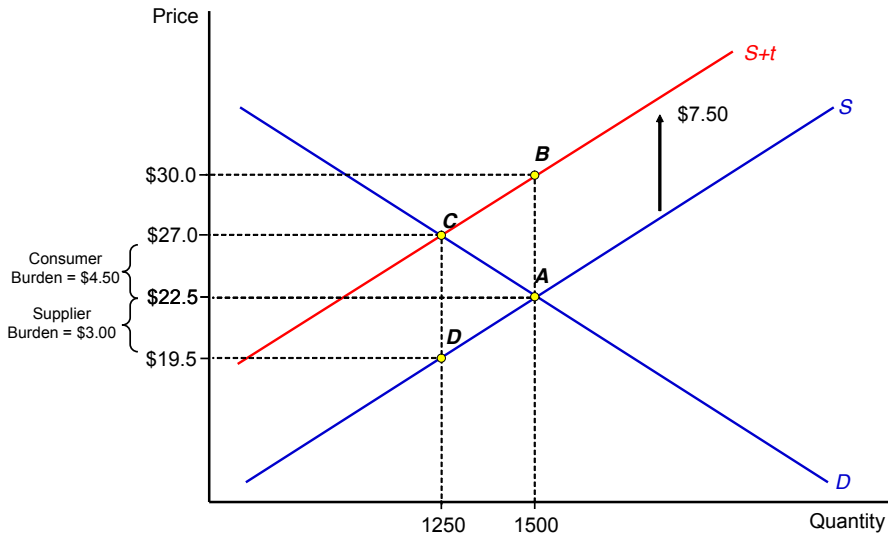
1. Economic tax incidence separate from "legal incidence"

Key Lessons about Tax Incidence

1. Economic tax incidence separate from "legal incidence"

2. Taxing consumers and producers results in same economic impact[1]

Tax Levied on Consumers

**Tax Levied on Producers**

3 Key Lessons about Tax Incidence

1. Economic tax incidence separate from "legal incidence"

2. Taxing consumers and producers results in same economic impact[2]

3. Incidence depends on *relative elasticities*
   - The more elastic agent is more able to avoid burden of the tax

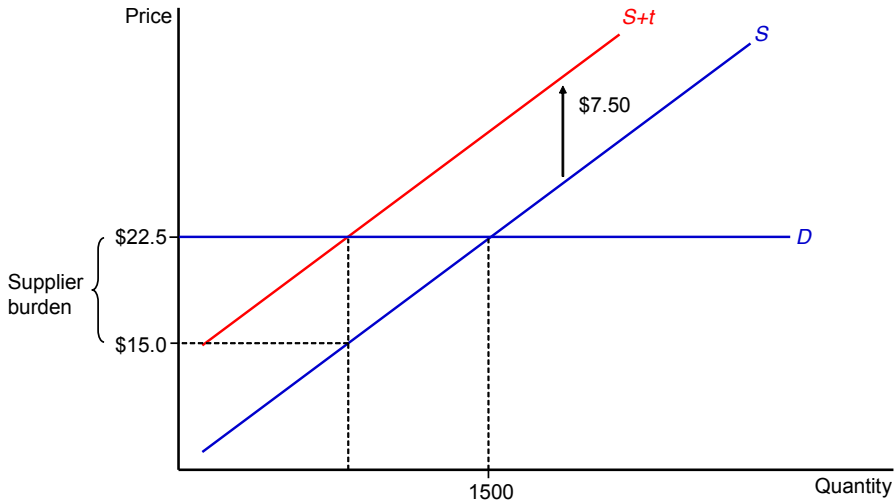$$\%\Delta P_D = \tau \frac{\varepsilon^S}{\varepsilon^S - \varepsilon^D}$$

$$\%\Delta P_S = \tau \frac{\varepsilon^D}{\varepsilon^S - \varepsilon^D}$$

   - The ratio $\frac{\%\Delta P_D}{\%\Delta P_S} = \frac{\varepsilon^S}{\varepsilon^D}$ is the inverse of the elasticities
   - If the demand elasticity is twice as large as the supply elasticity, then sellers pay two-thirds of the tax and buyers pay only one-third

Perfectly Inelastic Demand
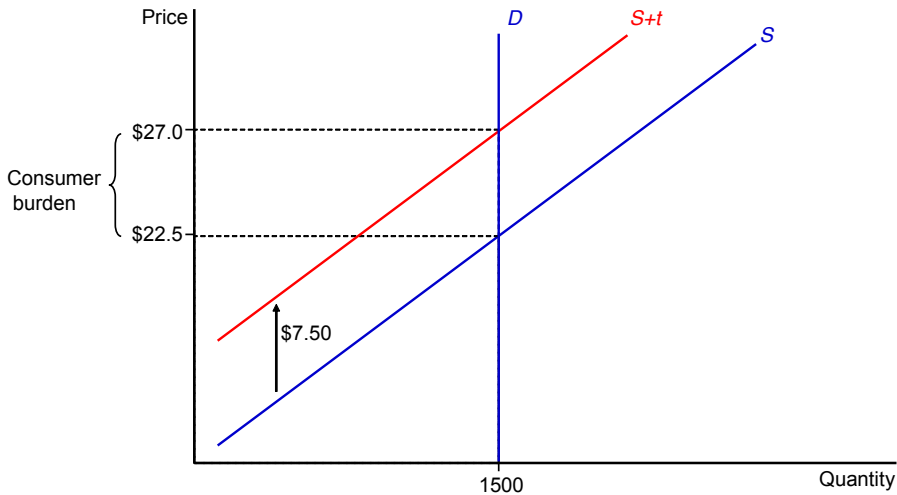
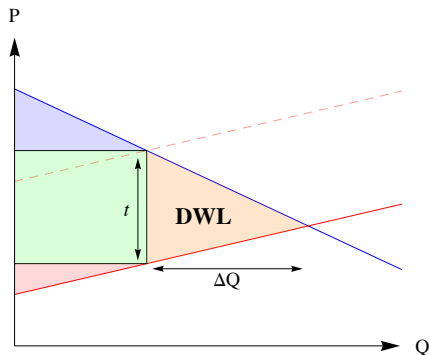**Perfectly Elastic Demand**

Efficiency Consequences of Taxation

Deadweight Loss
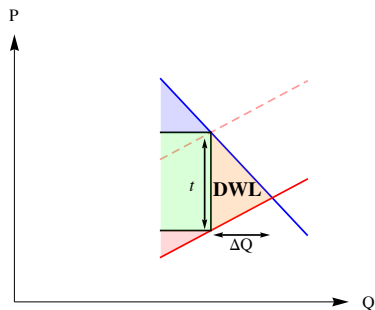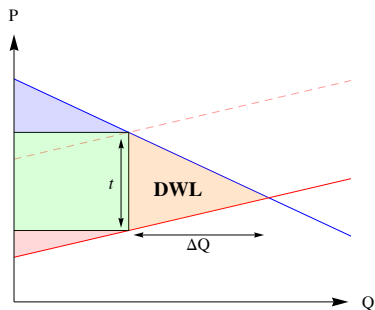Marginal cost of taxation increasing in the tax rate

- Deadweight loss is approximately *quadratic* in the tax amount
  - DWL $= \frac{1}{2}t \cdot \Delta Q$
  - ΔQ proportional to t (for linear supply & demand)
  - So DWL goes as t^2

Deadweight Loss
More elastic supply & demand $\Rightarrow$ More DWL

Two markets with same P & Q, but different supply and demand curves:

- For a given tax t, DWL is bigger if supply & demand are more elastic
  - DWL $= \frac{1}{2}t \cdot \Delta Q$
  - More elastic supply and demand mean larger ΔQ for a given t
  - Intuition: DWL is caused by loss of transactions
    More elastic S&D means more transactions destroyed

Tax Policy Implications

With many goods, most efficient way to raise revenue is:

1. Tax inelastic goods more (e.g. medical drugs, food)
2. Spread taxes across all goods to keep rates relatively low on all goods (broad tax base)

These are two countervailing forces; balancing them requires quantitive measure meant of deadweight loss

APPENDIX

Social Security

Social Security: Overview

- Consists of two linked programs
  - Old-Age and Survivors Insurance (OASI): provides retirement income and life insurance benefiting retirees, their spouses, and survivors of deceased workers
  - Disability Insurance (DI): provides income for working-age people who can no longer work because of a long-term disability
- Covers almost all Americans (excludes some state and local government employees)
- Average retirement benefits are $16,000 per year. Widows and disabled receive less
- Kept 26 million Americans out of poverty in 2016
- Provides $\geq 1/2$ of income for two-thirds of elderly, $\geq 90\%$ of income for more than a third of elderly
- Most recent reforms, 1983: to prevent imminent crisis, reforms raised retirement age, raised payroll taxes, and cut benefits. Revenues exceeded benefits every year 1984–2009

Social Security: Structure

- **Funding:**
    - Workers and employers both pay 6.2% on worker's wages, up to income cap ($128,400 in 2018). Most of economic burden falls on workers
    - In a given year:
        - If benefits > revenue, difference is withdrawn from trust fund
        - If revenue > benefits, excess is added to trust fund
   - 85% of revenue goes to OASI, rest to DI
- **Benefits:**
    - Basic monthly benefit (Primary Insurance Amount, PIA) depends on career average monthly earnings, x:

        $$PIA = 90\%(x \text{ up to } \$895) + 32\%(x \text{ from } \$895 \text{ to } \$5,397)$$
        $$+ 15\%(x \text{ from } \$5,397 \text{ to taxable earnings cap})$$

    - Full retirement age (FRA) hit 66 in 2017, increasing to 67 by 2027
    - Benefits depend on age at first claim and FRA:
        - 100% of PIA for workers who claim at FRA
        - 70% of PIA for workers who claim at 62 (youngest eligible age)
        - 124% of PIA for workers who claim at 70 (oldest eligible age)
    - Benefits reductions may apply for people who work while on SS

Social Security: Progressivity
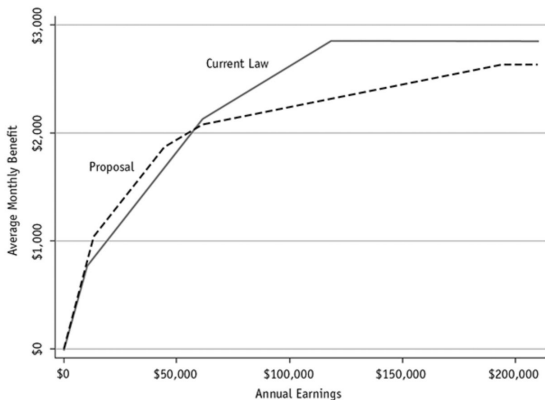
Benefits by average annual earnings, current and under changes proposed by BPC commission.

Credit: William Gale

- Payroll tax is regressive due to income cap
- Annual benefits are progressive: ratio of retirement benefits to average earnings ("replacement rate") falls as average earnings rise
- Higher-income people tend to live longer, so collect benefits for longer

Social Security: Challenges
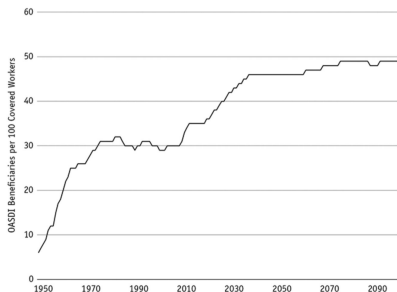
The burden on individual workers is increasing.

Credit: William Gale

- **Long-term:** "Demography is destiny"
  - For the most part, SS is pay-as-you-go: each year's payroll taxes pay for the same year's benefits
  - Ratio of beneficiaries to workers is increasing as life spans increase and Baby Boomers age
  - Current tax rates and benefits are unsustainable
- **Short-term:** Trust fund scheduled to run out by 2034
  - Benefits can only be paid from payroll taxes or trust fund
  - Without policy change, benefits will fall by 21% in 2034 and 26% in long run

Figure II.D2.—OASDI Income, Cost, and Expenditures as Percentages of Taxable Payroll
[Under Intermediate Assumptions]

https://www.ssa.gov/OACT/TR/2019/tr2019.pdf
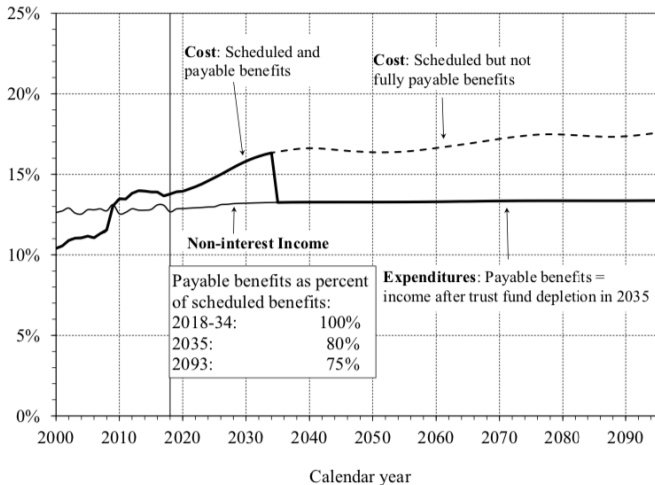
**Figure II.D5.—Cumulative Scheduled OASDI Income Less Cost,
From Program Inception Through Years 2018-2093**
[Present value as of January 1, 2019, in trillions, under Intermediate Assumptions]

Ending year of accumulation
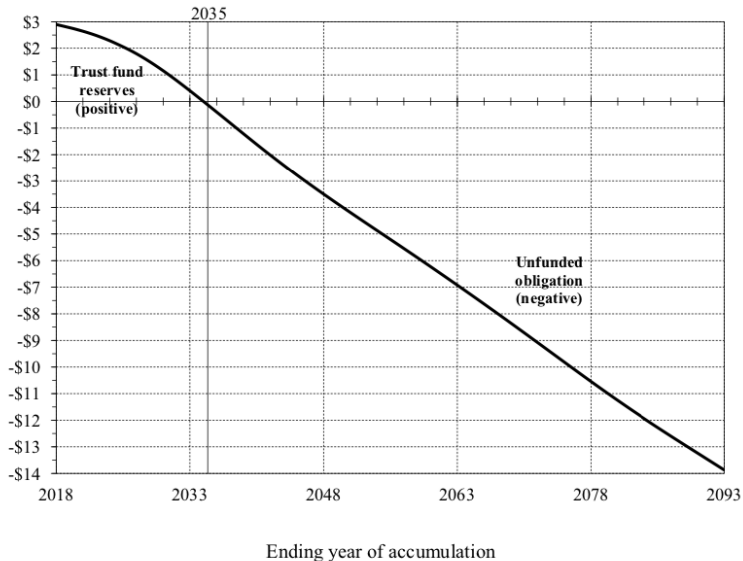
Social Security: Possible Reforms

- **BPC Commission on Retirement Security and Personal Savings recommendations**
  1. Raise payroll tax cap
  2. Tax more benefits of high-income households: currently, taxable share peaks at 85%
  3. Raise payroll tax rate
  4. Raise full retirement age
  5. Make retirement benefits more progressive: raise minimum benefit, reduce high-income benefits
  6. Extend benefits for vulnerable populations: increase access for children and spouses of deceased beneficiaries
  7. Change PIA formula to reward continued work
  8. Change the way Social Security calculates inflation: chained CPI rather than unchained
- **Other ideas**
  1. Invest Social Security trust fund in stock market rather than Treasury bonds
  2. Privatize all or part of Social Security

Healthcare

Healthcare: Key Issues

- **Access:** 9% of Americans did not have health insurance in 2018. Uninsured are disproportionately young, minorities, or low-income, and most cite cost as barrier
- **Costs:** U.S. spends far more on healthcare than any other country, without significant difference in health outcomes

Healthcare: Federal Programs

- **Medicare:** provides insurance for people 65+ (60M in 2018) and accounts for 20% of all national healthcare spending
  - Part A: Traditional Medicare. Covers care in hospitals, homes, nursing homes, hospice centers
  - Part B: Supplementary medical insurance. Participants opt in and pay premiums
  - Part C: Medicare Advantage, allows beneficiaries to receive Medicare benefits through private insurance plan
  - Part D: Prescription drug subsidies, available only through private insurance plans
- **Medicaid:** provides insurance for some low-income people, the elderly, and the disabled ($\approx$68M/month in 2018). Accounts for 17% of national healthcare spending
  - Covers $\approx$45% of young children in U.S. Children are almost half of all recipients
  - Federal-state program: federal government pays 50-75% of costs depending on state

Healthcare: Federal Programs

- **CHIP:** provides insurance for children and pregnant women not eligible for Medicaid who also can't afford private plans (7M people in 2018).
  - Eligibility varies by state, but typically covers children in families with income up to 200% of poverty line
  - Federal-state program with wide variation between states
- **Veterans' Health Administration:** runs healthcare facilities and provides health insurance plan to >9M active duty and retired service members and their families

Healthcare: Impact of Federal Programs

- **Financial security:**
  - Medicaid reduces risk of having unpaid medical bills, catastrophic out-of-pocket medical spending
  - Medicare reduces financial risks for elderly
  - Children in Medicaid/CHIP are more likely to complete high school and college and less likely to engage in risky behavior, both factors increasing future income
- **Better health:**
  - Medicaid reduces rates of depression, improves self-reported health
  - Children in Medicaid/CHIP are more likely to have annual check-ups, less likely to have unmet medical needs
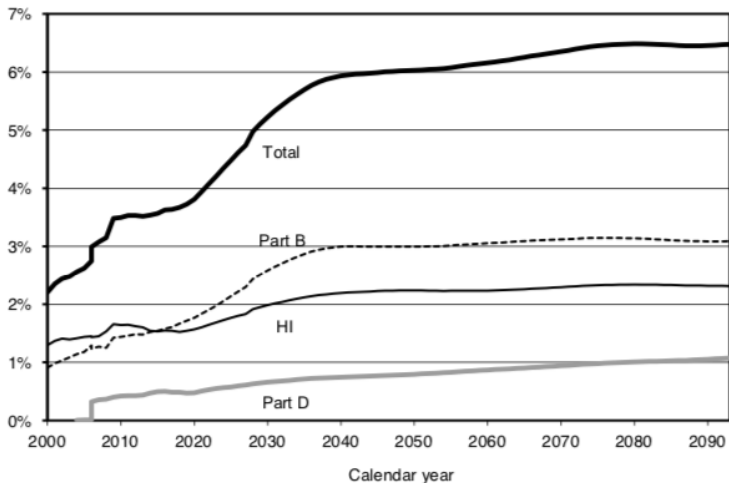- **Long-term cost reduction:** because of above factors, some portion of program costs paid off in long-run
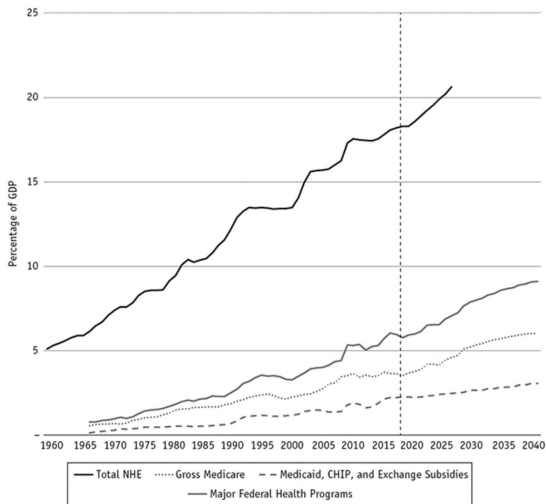
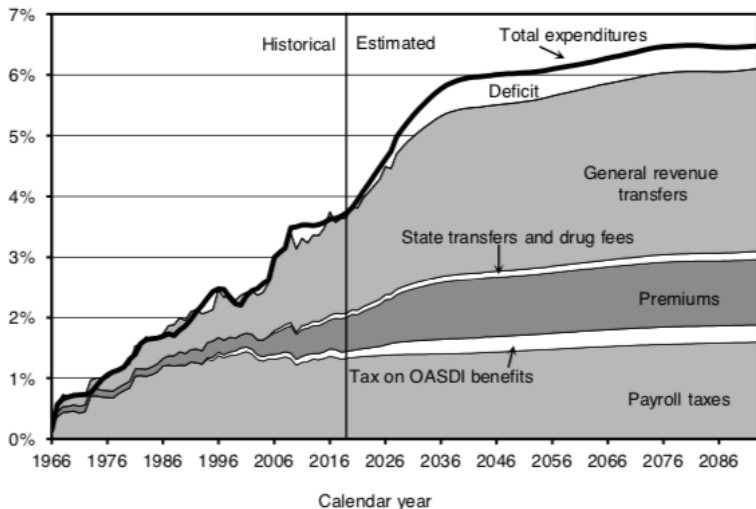Major federal programs include gross Medicare, Medicaid, CHIP, and exchange subsidies. Credit: William Gale

1. Medicaid, CHIP, Veterans' Health funded by general revenues
2. Medicare Parts B, C, D funded by general revenue and participant premiums
3. Medicare Part A funded by Medicare trust fund, which runs out in 2026
4. Options for Part A when trust fund runs out: raise payroll taxes, use general revenue, or cut benefits by 9% in 2026

Figure II.D1.—Medicare Expenditures as a Percentage of the Gross Domestic Product

https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/ReportsTrustFunds/Downloads/TR2019.pdf

Figure II.D2.—Medicare Sources of Non-Interest Income and Expenditures as a Percentage of the Gross Domestic Product

https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/ReportsTrustFunds/Downloads/TR2019.pdf

Healthcare: Why are costs increasing?

1. **Technological innovation:** Newly developed procedures and drugs raise quality of care but boost costs

2. **Health insurance expansion:** Insurance reduces consumer costs, encouraging consumption. Out-of-pocket healthcare costs have remained at 2% of GDP over past 60 years even as total costs rise

3. **Fee-for-service plans:** Incentivize medical providers to provide more services than necessary

4. **Trends in income, aging, and health:** More people living with chronic conditions. Americans with ≥ 3 chronic conditions ($1/4$ of pop) account for $2/3$ of healthcare spending

5. **Administrative costs:** Have risen dramatically, driven by complexity of navigating different insurers' billing procedures and requirements

Healthcare: Why are Costs Higher in the U.S. than in Other Countries?
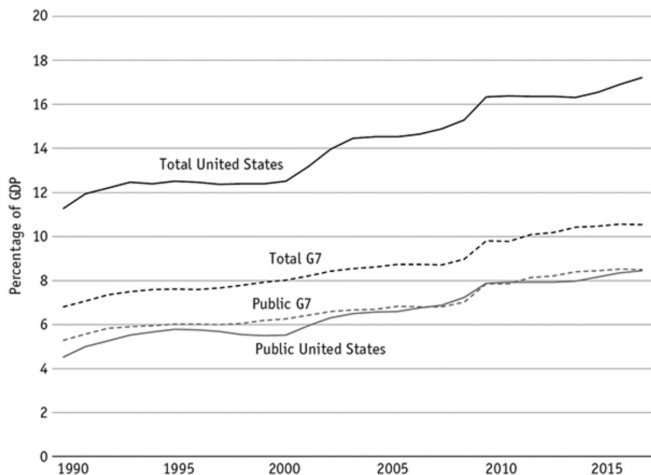
Total and Public Healthcare Spending, US vs. G7. G7 average excludes US.
Credit: William Gale

Healthcare: Why are Costs Higher in the U.S. than in Other Countries?

1. **Less government involvement:** in other G7 countries, national health insurance and/or cost controls slow growth of healthcare costs
2. **Higher administrative costs:** fragmented, mostly private healthcare market in U.S. generates high administrative costs relative to single payer systems (8% of health expenditures in U.S. vs. 1-5% in other high-income countries)
3. **Possible other factors:** Deregulation, greater income inequality, and lower social spending in U.S.