Overview of Public Economics and US Fiscal Policy

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Princeton
Spring 2020

Lecture 1

Outline

What is public economics?

Public Economics (or public finance) = study of the Role of the Government in the Economy

Government is instrumental in most aspects of economic life:

- **Taxes:** governments in advanced economies collect 35-50% of National Income in taxes
- **Expenditures:** taxes fund **public goods** (infrastructure, public order and safety, defense) and **welfare state** (Education, Retirement benefits, Health care, Income support)
- Government in charge of huge **regulatory** structure
- Macro-economic **stabilization** through central bank (interest rate, inflation control), fiscal stimulus, bailout policies

$\Rightarrow$ We pool a large share of our incomes through government

Three questions of public finance

- When should the government intervene in the economy? (Normative question)
- What is the effect of those interventions on economic outcomes? (Positive question)
- Why do governments choose to intervene in the way that they do? (Political economy)

Normative vs. Positive Public Economics

- **Normative Public Economics:** Analysis of How Things Should be (e.g., should the government intervene in health insurance market? how high should taxes be?, etc.)
- **Positive Public Economics:** Analysis of How Things Really Are (e.g., Does govt provided health care crowd out private health care insurance? Do higher taxes reduce labor supply?)

Positive Public Economics is a required 1st step before we can complete Normative Public Economics

What Are the Effects of Alternative Interventions?

- **Direct Effects:** The effects of government interventions that would be predicted if individuals did not change their behavior in response to the interventions.

  Direct effects are relatively easy to compute

- **Indirect Effects:** The effects of government interventions that arise only because individuals change their behavior in response to the interventions (sometimes called unintended effects)

  Empirical public economics analysis tries to estimate indirect effects to inform the policy debate.

Example: increasing top income tax rates mechanically raises tax revenue, but top earners might find ways to evade/avoid taxes, work less hard, etc, and thus pay less tax revenue relative to mechanical calculation.

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

Logistics and Goals

Logistics:

1. Class schedule
2. Precepts
3. Midterm and exam

Goals:

1. An institutional understanding of how fiscal policy actually works in the U.S.
2. A theoretical framework to think about how it should work
3. An appreciation for empirical concepts and evidence
4. An ability to connect applied economic models and evidence to assess policies

Example problem

EITC: Eissa Liebman 1996

1. Please describe what the EITC is and how the policy works
2. Please describe the empirical approach and identification assumptions of Eissa Liebman 1996
3. Please describe and evaluate the main results of Eissa Liebman 1996

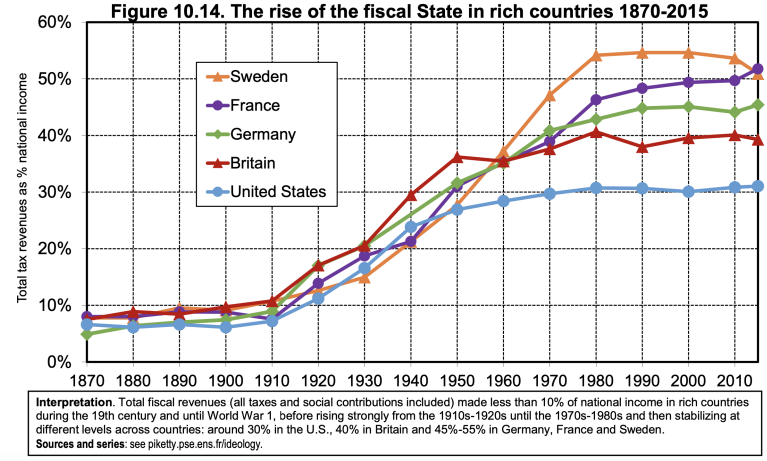
Course Outline

1. OZ: Overview of US fiscal policy, general framework
2. HK: Low-Income Support: EITC and Welfare
3. HK: Taxing the Rich: Inequality and Behavioral Responses
4. HK: Tax Evasion & Tax Avoidance
5. HK: Optimal Taxation and Redistribution
6. HK: Gender Inequality and Family Policies
7. HK: Social Insurance
8. OZ: US Health Insurance: Medicare and Medicaid
9. OZ: The distribution and taxation of wealth and capital income
10. OZ: Firms and tax policy
11. OZ: Public Goods and Externalities
12. OZ: State and Local Fiscal Policy and Place-based Policies
13. OZ: Social Security and Retirement

Key facts on the growth of government

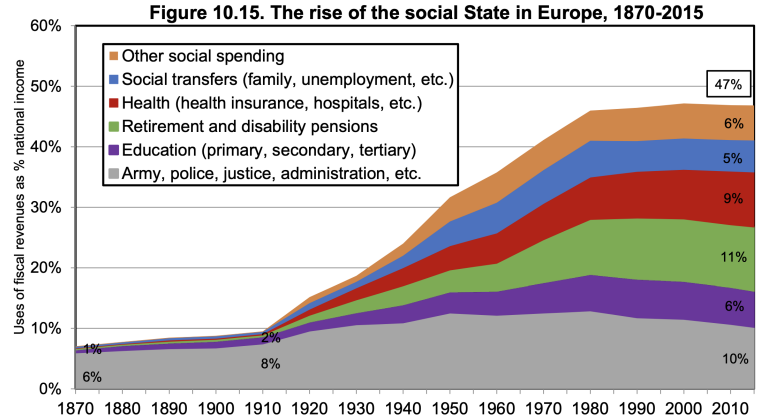
1. **Government Growth:** Size of government relative to National Income grows dramatically over the process of development from less than 10% in less developed economies to 30-50% in most advanced economies
2. **Government Size Stable** in richest countries after 1980
3. **Government Growth** is due to the expansion of the **welfare state:** (a) public education, (b) public retirement benefits, (c) public health insurance, (d) income support programs
4. **Govt spending** $>$ **Taxes:** Most rich countries run deficits and have significant public debt (relative to GDP), particularly during Great Recession of 2008-10

Growth of government in rich countries



Source: Piketty (2020)

Evolution of Government Expenditures



Source: Piketty (2020)

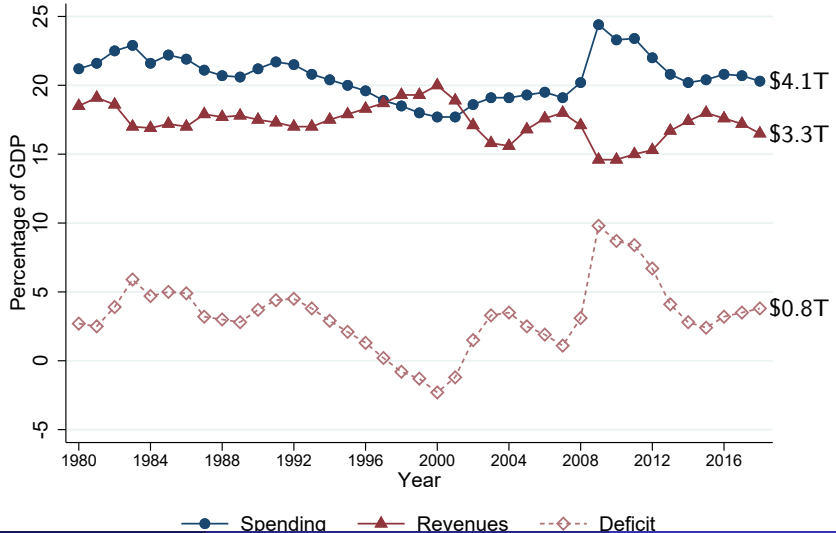
Fiscal Policy in the US

Fiscal Policy in the US

Outline:

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

Federal Revenue, Spending, and Deficits: 1980-2018



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

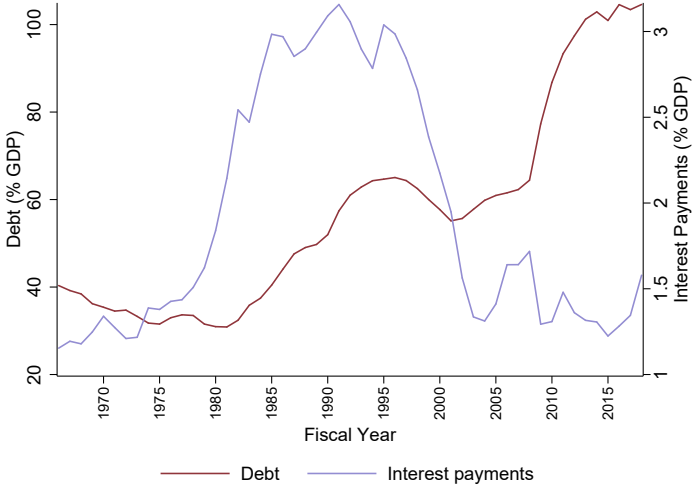
- **Debt**: The amount borrowed by government through bonds to individuals, firms, or foreign governments. Debt is a **stock**
- **Deficit**: government's spending + interest payments on debt minus government revenues in a given year. A negative deficit is called a surplus. Deficit is a **flow**
- Evolution 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

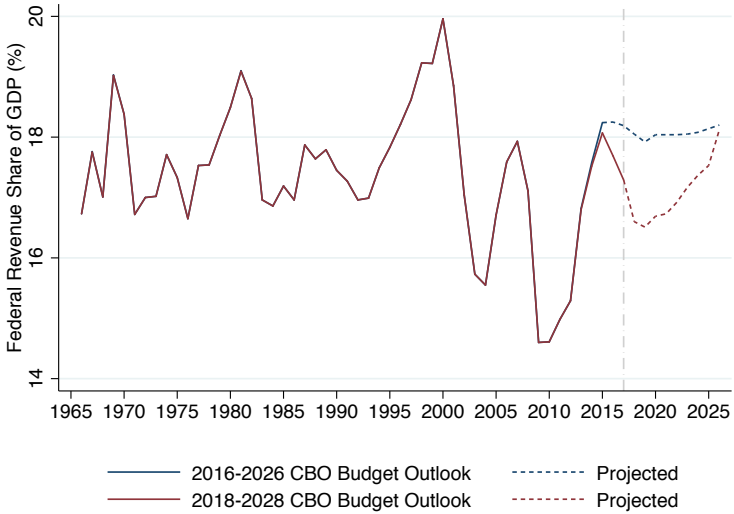
- Primary Deficit = Spending - Revenue

Debt and interest payments



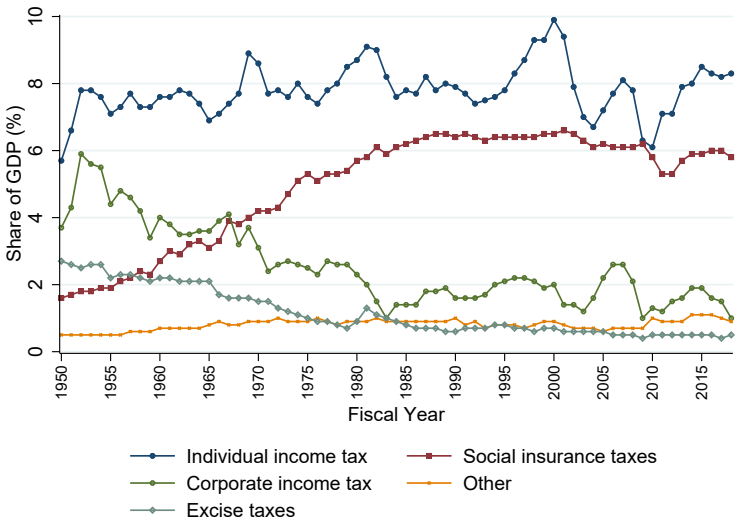
Data: FRED, CBO

Federal Revenue Projections: Pre and Post 2017 Tax Cuts Jobs Act

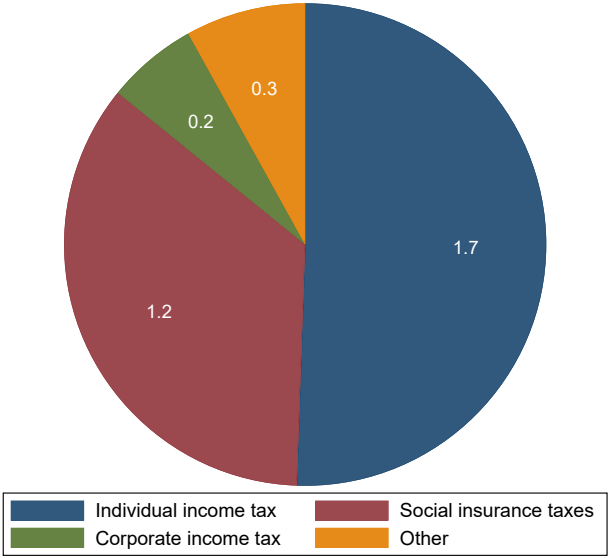


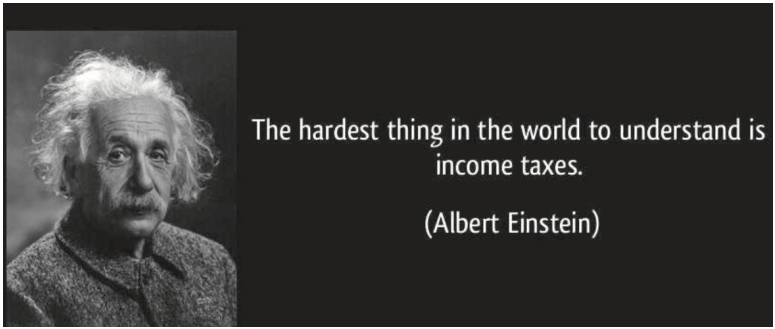
Federal Tax Revenue and Progressivity

Total Federal Revenue by Source (% of GDP)



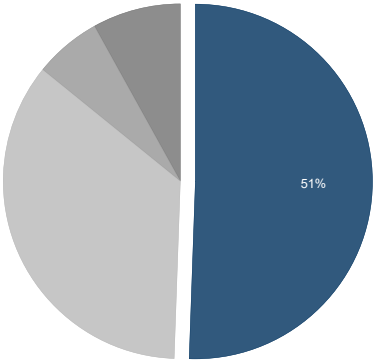
Total Federal Revenue by Source, 2018 ($T)





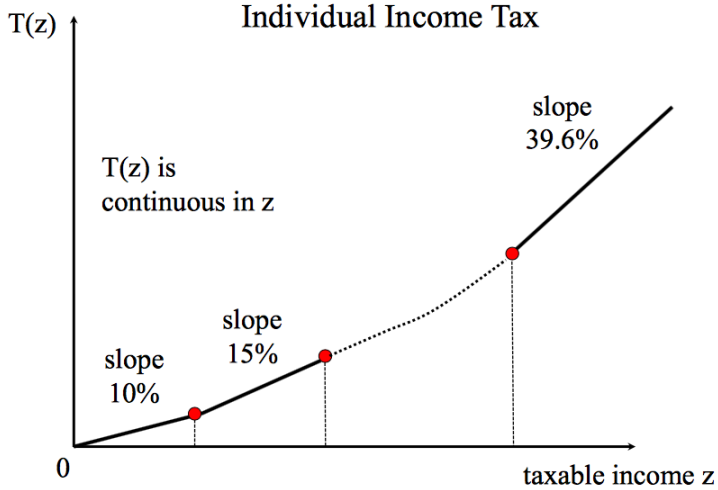
Credit to Heathcote Storesletten Violante (QJE, forthcoming) for the quote.

Federal Revenue: Individual Income Tax



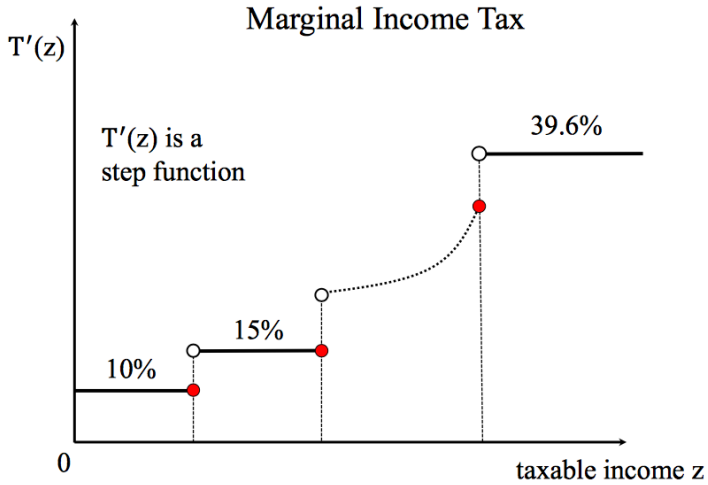
- **Revenue:** Accounted for $1.7T (8% of GDP) in 2018
- **Base:** Applied to wages, salaries, some investment earnings, profits of pass-through businesses
- **Structure:** Progressive. $24K standard deduction, additional income taxed at rates from 10-37%. High income households pay 3.8% surtax on income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

Federal US Income tax schedule (pre-TCJA)



Source: Saez.

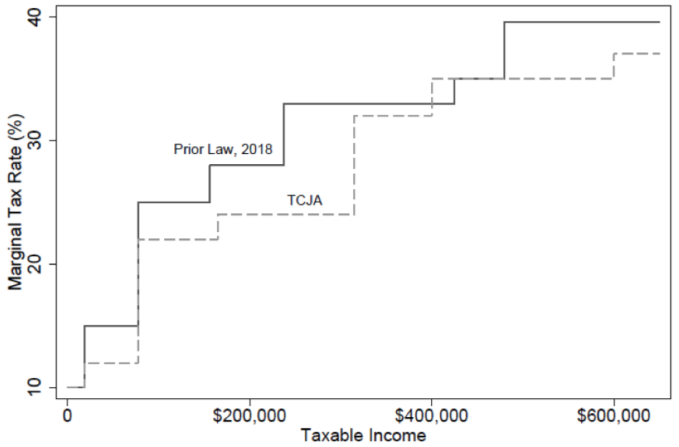
Federal US Income marginal tax schedule (pre-TCJA)



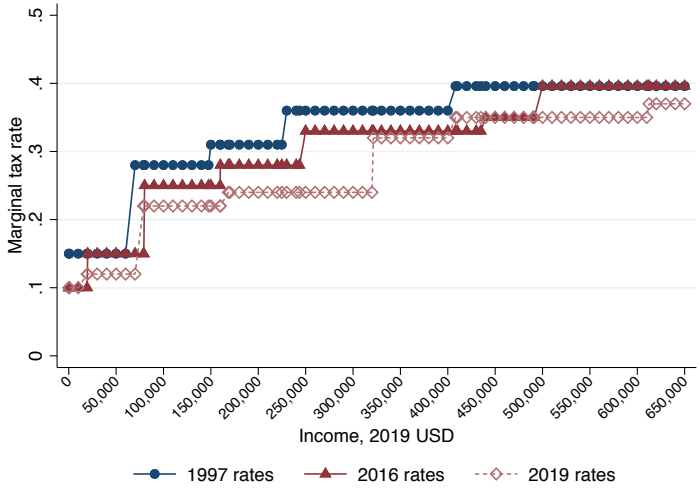
Source: Saez.

TCJA change in top marginal rates

FIGURE 1
Marginal Tax Rate by Taxable Income

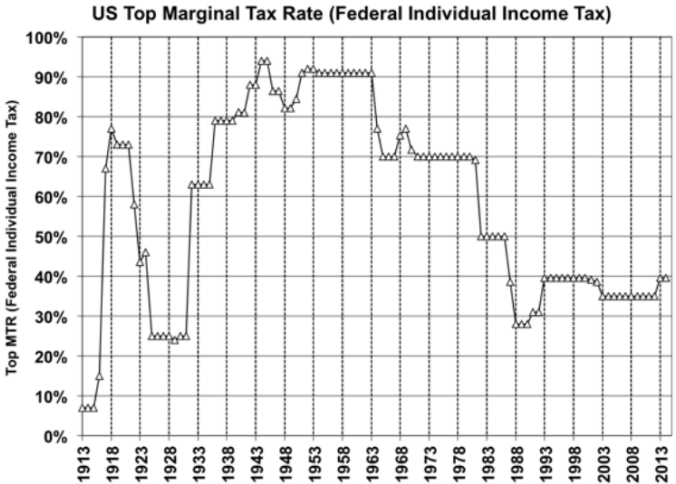


Changes in income tax schedule since late 1990s



Source: Zidar Zwick (2019).

Federal US top income tax rate



Federal Revenue: Individual Income Tax (part 2)

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

Calculating Federal US Income tax liabilities

- US income tax assessed on **annual family** income (not individual) [most other OECD countries have shifted to individual assessment]
- Sum all cash income sources from family members (both from labor and capital income sources) = called **Adjusted Gross Income (AGI)**
- Main exclusions: fringe benefits (health insurance, pension contributions), imputed rent of homeowners, unrealized capital gains

Federal US Income tax (pre-TCJA)

- Taxable income = AGI - personal exemptions - deduction
- personal exemptions = \$4K * # family members (in 2016)
- deduction is max of standard deduction or itemized deductions
- Standard deduction is a fixed amount depending on family structure (\$12.6K for couple, \$6.3K for single in 2016)
- Itemized deductions: (a) state and local taxes paid, (b) mortgage interest payments, (c) charitable giving, various small other items
- About 10% of AGI lost through itemized deductions, called tax expenditures

Going back to 1997+ Distributional Table

Table 4. Conventional distributional measures, 2022

	Baseline			Proposal					
Income group	Average expanded income	Average federal tax liability	Average after-tax income	Average tax change	Share with tax increase	Percent change in after tax income	Share of tax change	Share of federal taxes paid	Change in share of federal taxes paid
Bottom quintile	$3,150	-$155	$3,305	-$145	1%	4.4%	-1%	0%	-0.2%
Second quintile	$25,385	$230	$25,155	-$775	8%	3.1%	-5%	0%	-1.0%
Middle quintile	$53,415	$5,370	$48,045	-$110	46%	0.2%	-1%	6%	-1.6%
Fourth quintile	$98,395	$13,040	$85,355	$2,120	81%	-2.5%	11%	16%	-1.0%
80-90%	$160,910	$26,590	$134,320	$5,770	100%	-4.3%	13%	14%	-0.3%
90-95%	$234,445	$43,780	$190,665	$12,810	100%	-6.7%	13%	11%	0.4%
95-99%	$405,360	$88,535	$316,825	$29,930	100%	-9.5%	24%	19%	1.2%
99-99.9%	$1,222,415	$340,825	$881,585	$128,295	100%	-14.6%	23%	17%	1.5%
Top 0.1%	$10,389,425	$2,916,660	$7,472,765	$1,054,650	100%	-14.2%	23%	18%	1.1%

Source: Zidar Zwick (2020).

TCJA Distributional Table

TABLE 4

Conference Agreement for H.R. 1, The Tax Cuts and Jobs Act
Distribution of Federal Tax Change by Expanded Cash Income Percentile
2018; Summary Table; Baseline: Current Law

Expanded cash income percentile [a,b]	Tax Units		Percent change in after-tax income[c]	Share of total federal tax change	Average federal tax change ($)	Average Federal Tax Rate[d]	
	Number (thousands)	Percent of total				Change (% points)	Under the proposal
Lowest quintile	48,780	27.7	0.4	1.0	-60	-0.4	3.7
Second quintile	38,760	22.0	1.2	5.2	-380	-1.1	7.6
Middle quintile	34,290	19.5	1.6	11.2	-930	-1.4	12.4
Fourth quintile	28,870	16.4	1.9	18.4	-1,810	-1.6	15.8
Top quintile	24,300	13.8	2.9	65.3	-7,640	-2.2	23.3
All	176,100	100.0	2.2	100.0	-1,610	-1.8	18.1
Addendum							
80–90	12,490	7.1	2.0	13.1	-2,970	-1.6	18.5
90–95	6,020	3.4	2.2	9.6	-4,550	-1.8	20.2
95–99	4,650	2.6	4.1	22.1	-13,480	-3.1	22.2
Top 1 percent	1,140	0.7	3.4	20.5	-51,140	-2.3	30.3
Top 0.1 percent	120	0.1	2.7	7.9	-193,380	-1.8	31.6

Source: Urban-Brookings Tax Policy Center Microsimulation Model (version 0217-1).

Notes: Calendar year. Baseline is current law. Excludes effects of reduction in ACA Individual Shared Responsibility Payment to zero.
http://www.taxpolicycenter.org/taxtopics/Baseline-Definitions.cfm

Number of AMT Taxpayers (millions). Baseline: 5.2; Proposal: 0.2

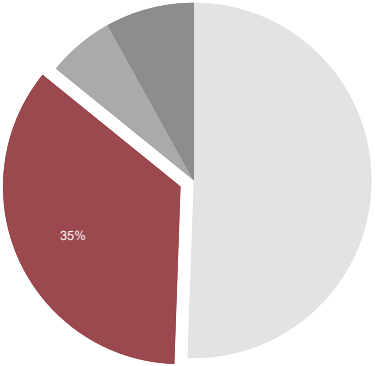
(a) Includes both filing and nonfiling units but excludes those that are dependents of other tax units. Tax units with negative adjusted gross income are excluded from their respective income class but are included in the totals. For a description of expanded cash income, see http://www.taxpolicycenter.org/TaxModel/income.cfm

(b) The income percentile classes used in this table are based on the income distribution for the entire population and contain an equal number of people, not tax units. The breaks are (in 2017 dollars): 20% $25,000; 40% $48,600; 60% $86,100; 80% $149,400; 90% $216,800; 95% $307,900; 99% $732,800; 99.9% $3,439,900.

(c) After-tax income is expanded cash income less: individual income tax net of refundable credits; corporate income tax; payroll taxes (Social Security and Medicare); estate tax; and excise taxes.

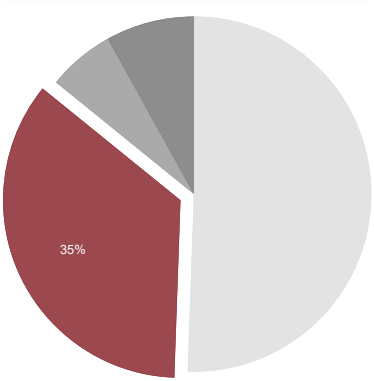
(d) Average federal tax (includes individual and corporate income tax, payroll taxes for Social Security and Medicare, the estate tax, and excise taxes) as a percentage of average expanded cash income.

Federal Revenue: Social Insurance Taxes



- **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

Federal Revenue: Social Insurance Taxes

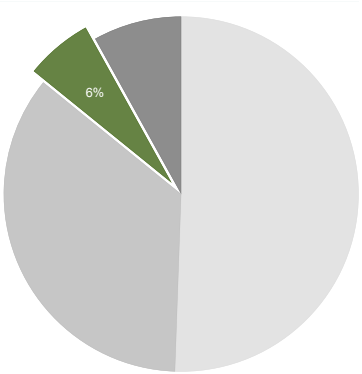


How payroll taxes differ from income taxes:

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

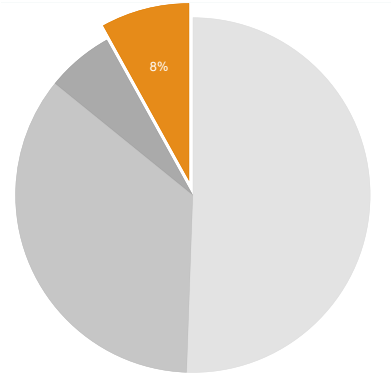
Payroll taxes exceed income taxes among the bottom 80% of income distribution on average

Federal Revenue: Corporate Income Taxes



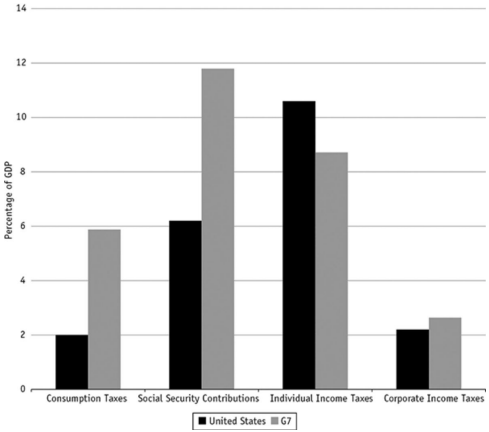
- **Revenue:** $242B in 2018
- Return to this later in the course

Federal Revenue: Other Taxes



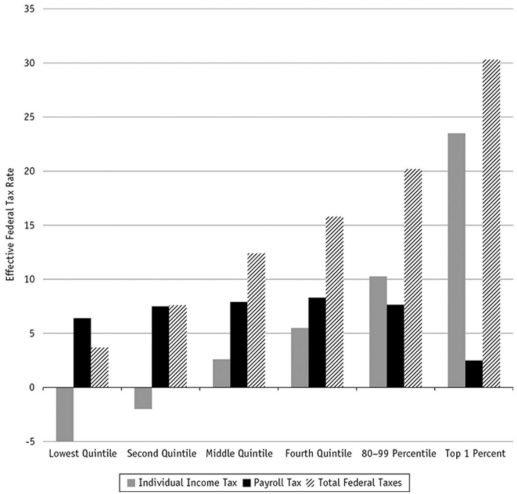
- **Revenue:** $278B
- **Examples:**
  - Gas tax: 18.4 ¢/gallon unleaded, 24.4 ¢/gallon diesel
  - Alcohol and tobacco ("sin") taxes
  - Estate tax: First $22.4M exempt for married couple, so paid by fewer than 1/1000 people who die
  - Gift tax

International Comparison: Government Revenue (2015)



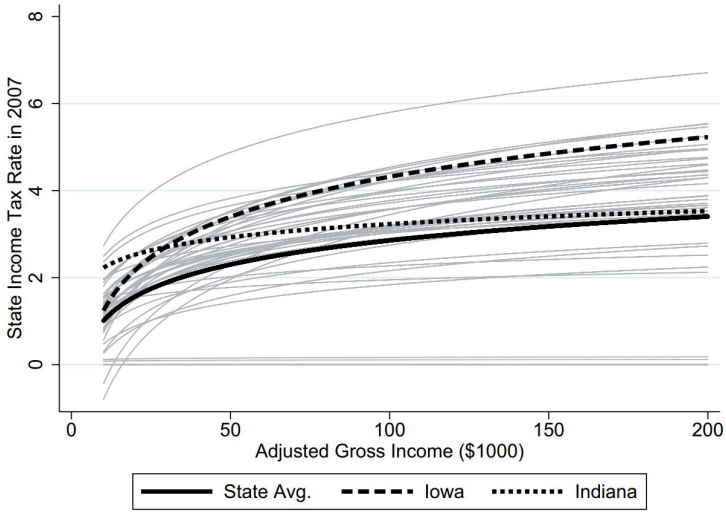
Source: William Gale

Federal Revenue: Progressivity (2018)



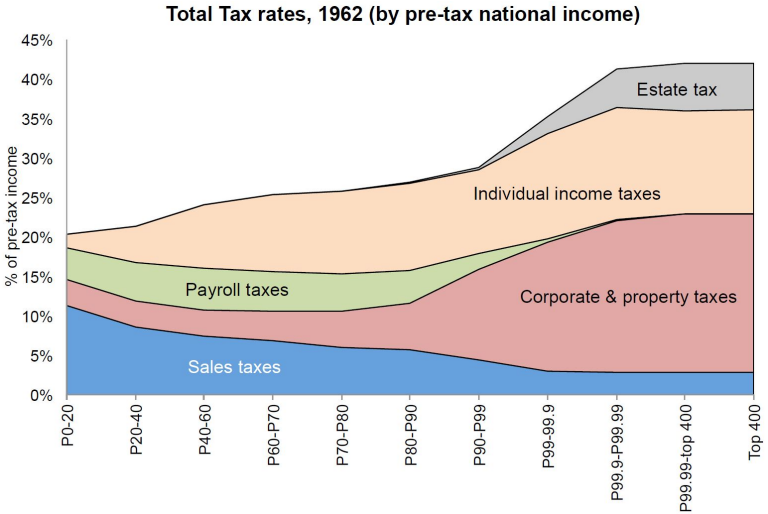
Source: William Gale

State Income Tax Progressivity



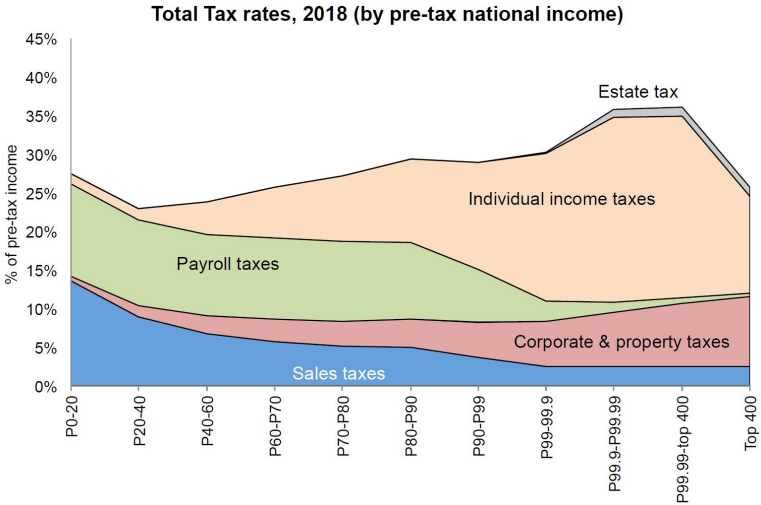
Source: Fajgelbaum et al, 2019

Progressivity over Time



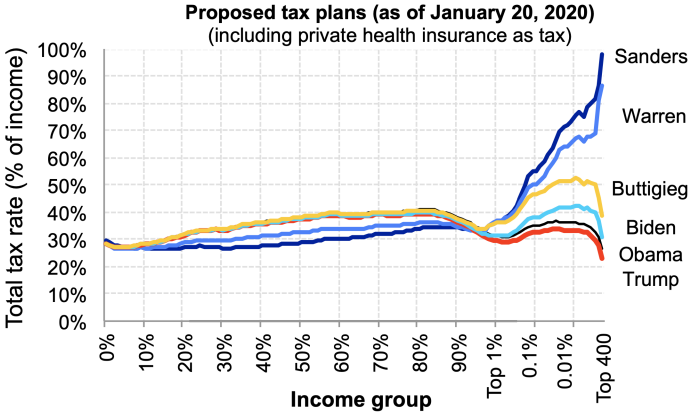
Source: Saez Zucman (2019)

Progressivity over Time



Source: Saez Zucman (2019)

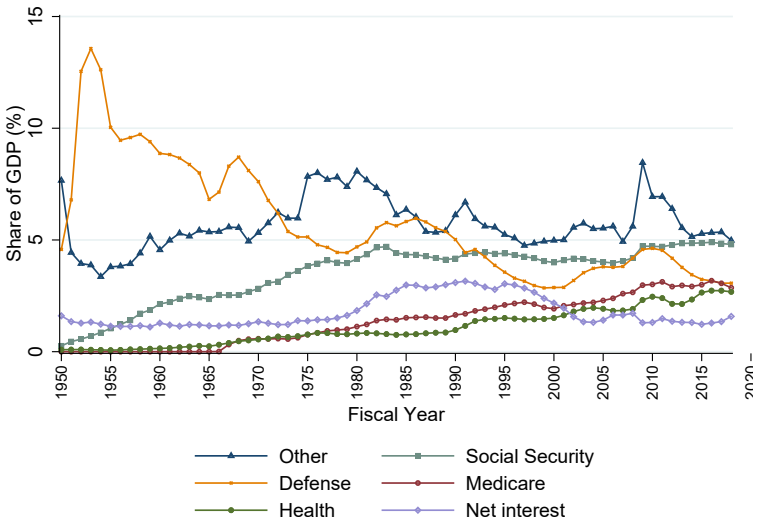
Simulated Progressivity of Presidential Candidates Tax Plans



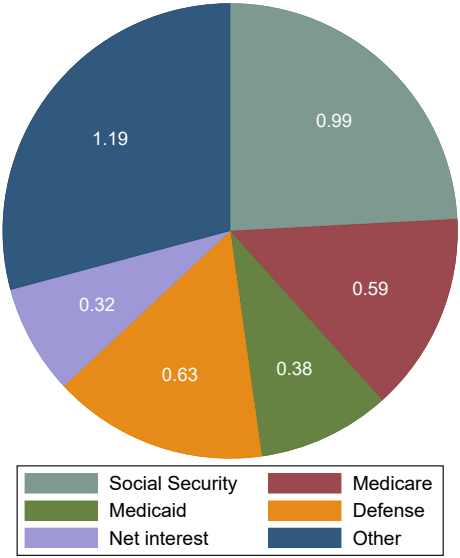
Source: Saez Zucman (2020). See here for details: `https://eml.berkeley.edu/~saez/taxsimsummary_v2.pdf`

Federal Government Spending

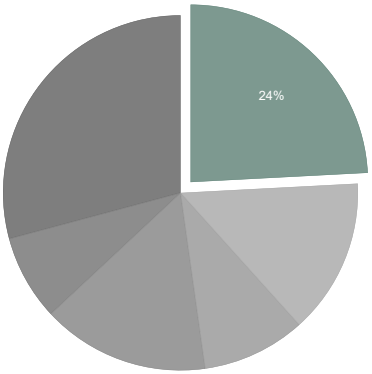
Total Federal Spending by Function (% of GDP)



Total Federal Spending by Function, 2018 ($T)

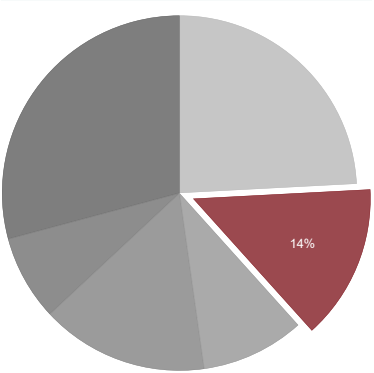


Federal Spending: Social Security



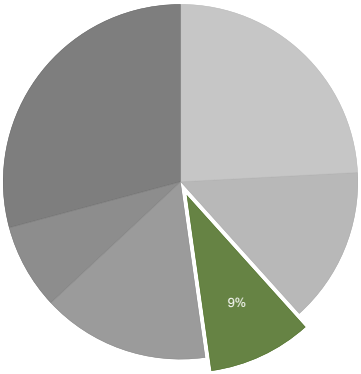
- $967B in 2018
- Composed of Old-Age and Survivors Insurance (1935) and Disability Insurance (1956)
- 60M Americans ($\approx 1/5$ of pop) get benefits each year, mostly through retirement program
- In 2016, Social Security helped 26M people avoid poverty
- Program provides majority of retirement income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

Federal Spending: Medicare



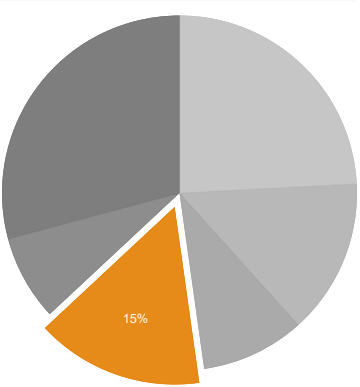
- $583B in 2018
- Began 1965 to provide elderly with basic health insurance
- George W. Bush added prescription drug coverage (Medicare Part D) in 2003
- Covers 60M beneficiaries in a given year
- Financed through combination of payroll taxes, insurance premiums, and general tax revenue

Federal Spending: Medicaid



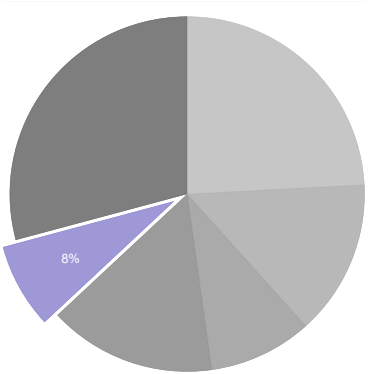
- $583B in 2018
- Began 1965 to provide medical coverage to some low-income families ($1/3$ of spending), disabled people, and the elderly
- Covered 74M beneficiaries in 2018
- Funded jointly by federal and state governments, administered by states
- Separate but related programs:
  - Subsidies to buy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

Federal Spending: Defense



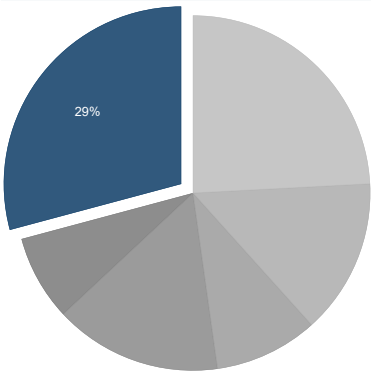
- $622B in 2018
- 20% of core Defense Dep't budget (excludes cost of overseas operations) goes to procurement
- Rest of core budget: operations, maintenance, personnel, R&D

Federal Spending: Interest



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

Federal Spending: Everything Else



- **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

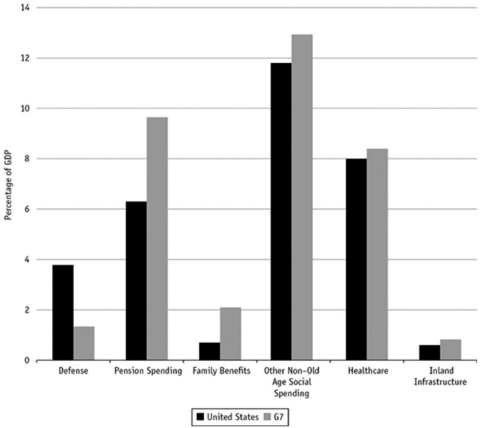
Program	Monthly Beneficiaries	Annual Cost
Veterans' benefits	5.0M	$81.6B
SNAP	40.9M	$69.2B
Suppl. Security Income (SSI)	8.3M	$54.7B
Unemployment insurance (UI)	10M	$46.5B
Housing assistance	5.4M	$28.7B
TANF	3.6M	$16.5B

- 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.

International Comparison: Government Spending (2013)



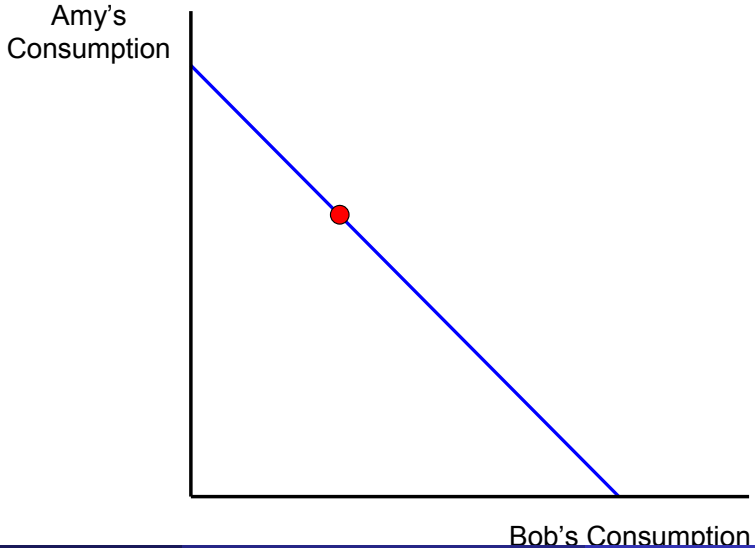
Source: William Gale

Government Intervention

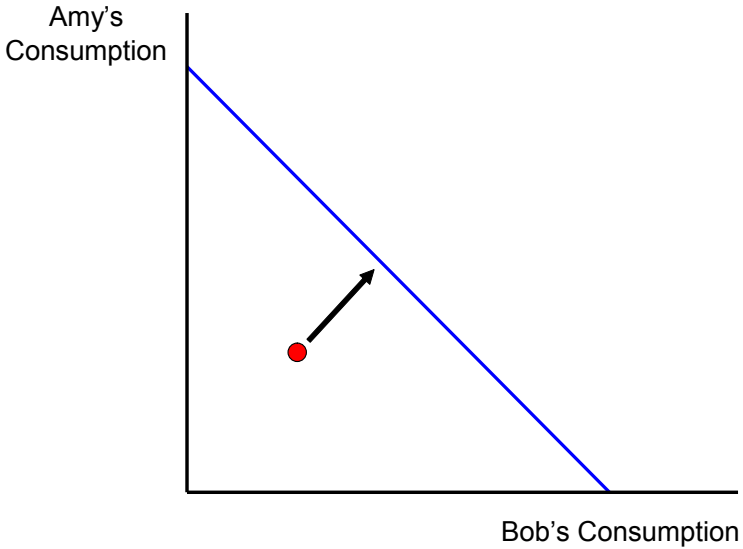
Government Intervention in the Economy

- 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?

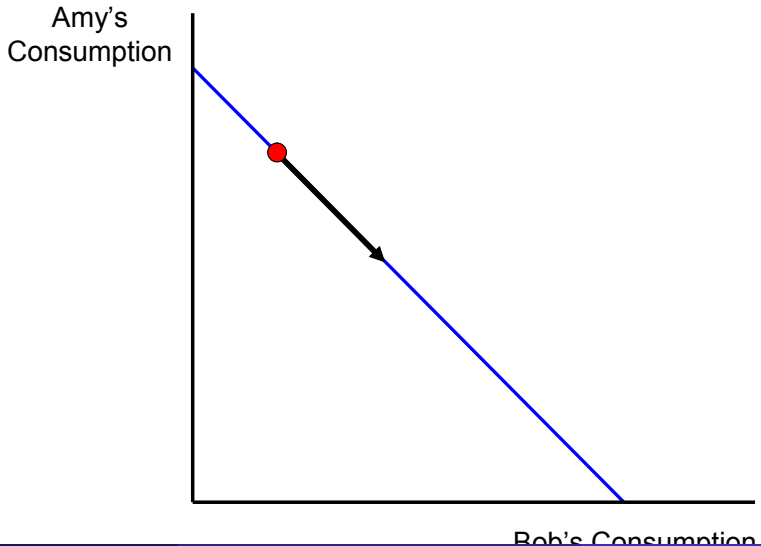
Efficient Private Market Allocation of Goods



First Role for Government: Improve Efficiency



Second Role for Government: Improve Distribution



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