Introduction to Public Economics

Matteo Paradisi

(EIEF)

Public Economics – Lecture 1

Advance Public economics - Rules of the game

Class days: Thursdays 11:30-1:00, Fridays 11:30-1:00

Grading rules

1. **Two class assignments (weeks 4 and 8):** solved individually
   1.1 50% of the grade if you take the exam on the first available date (I appello)
   1.2 20% of the grade if you take the exam later

2. **Paper presentation (week 10):** individual presentations (I choose papers)
   2.1 30% of the grade

3. **Final exam:** TRUE/FALSE questions (with motivation) + analytical exercise
   3.1 20% of the grade if you take it on the first available date (I appello)
   3.2 50% of the grade if you take it later

Public economics - Definition

Public Economics = Study Role of the Government in the Economy

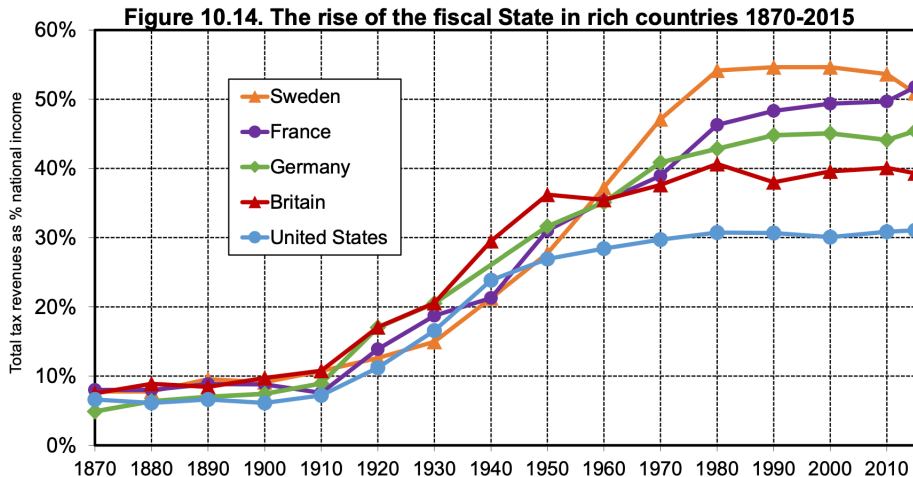Government is instrumental in most aspects of economic life:

1. Government in charge of huge regulatory structure

2. Taxes: advanced economies collect 30-50% of National Income in taxes

3. Expenditures: taxes fund
   - public goods (infrastructure, public order and safety, defense)
   - social state (Education, Retirement benefits, Health care, Income support)

4. Macro-economic stabilization fiscal stimulus, bailout policies

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

Some facts about taxes and spending

- **Government Growth:** Size of government grows over development
  - $< 10\%$ (of National Income) in less developed economies, 30-50% in advanced

- **Government Size Stable** in richest countries after 1980

- **Government Growth** due to expansion of the social state
  - (a) public education, (b) public retirement benefits,
  - (c) public health insurance, (d) income support programs

- **Govt spending $>$ Taxes:** Richest countries run deficits, have high debt-to-GDP
  - particularly during Great Recession of 2008-10 and Covid 2020-21

Fiscal State has increased in advanced economies

Figure 10.14. The rise of the fiscal State in rich countries 1870-2015

Legend:
- Sweden
- France
- Germany
- Britain
- United States

Y-axis: Total tax revenues as % national income (0% to 60%)
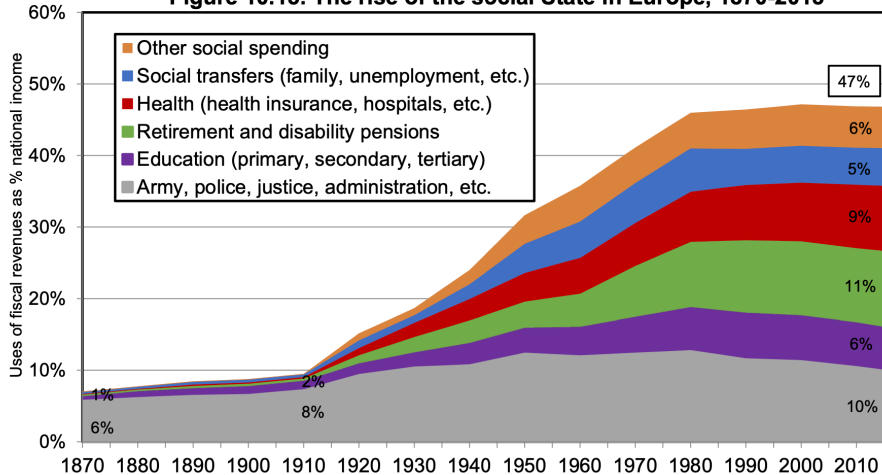X-axis: 1870 to 2010

Interpretation. Total fiscal revenues (all taxes and social contributions included) made less than 10% of national income in rich countries during the 19th century and until World War 1, before rising strongly from the 1910s-1920s until the 1970s-1980s and then stabilizing at different levels across countries: around 30% in the U.S., 40% in Britain and 45%-55% in Germany, France and Sweden.
Sources and series: see piketty.pse.ens.fr/ideology.

Fiscal State has increased due to expansion of the social state

Figure 10.15. The rise of the social State in Europe, 1870-2015

Legend (Uses of fiscal revenues as % national income):
- Other social spending
- Social transfers (family, unemployment, etc.)
- Health (health insurance, hospitals, etc.)
- Retirement and disability pensions
- Education (primary, secondary, tertiary)
- Army, police, justice, administration, etc.

2015 values shown: 47% total; 6% Other social spending; 5% Social transfers; 9% Health; 11% Retirement and disability pensions; 6% Education; 10% Army, police, justice, administration.

1870 values shown: 1%, 6%. 1910 values shown: 2%, 8%.

Interpretation. In 2015, fiscal revenues represented 47% of national income on average in Western Europe et were used as follows: 10% of national income for regalian expenditure (army, police, justice, general administration, basic infrastructure: roads, etc.); 6% for education; 11% for pensions; 9% for health; 5% for social transfers (other than pensions); 6% for other social spending (housing, etc.). Before 1914, regalian expenditure absorbed almost all fiscal revenues. **Note.** The evolution depicted here is the average of Germany, France, Britain and Sweden (see figure 10.14). **Sources and séries**: see piketty.pse.ens.fr/ideology.

Three questions in public economics

1. When should the government intervene in the economy?

2. What is the effect of those interventions on economic outcomes?

3. [Why do governments choose to intervene in the way that they do?]

When should the government intervene in the economy?

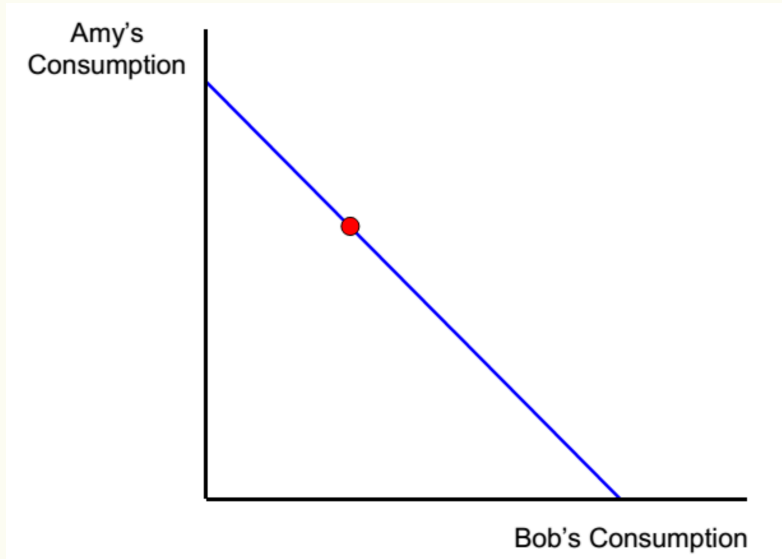Economists' two general rules for government intervention

1. **Failure of 1st Welfare Theorem:**
   - Government intervention can help if there are market or individual failures
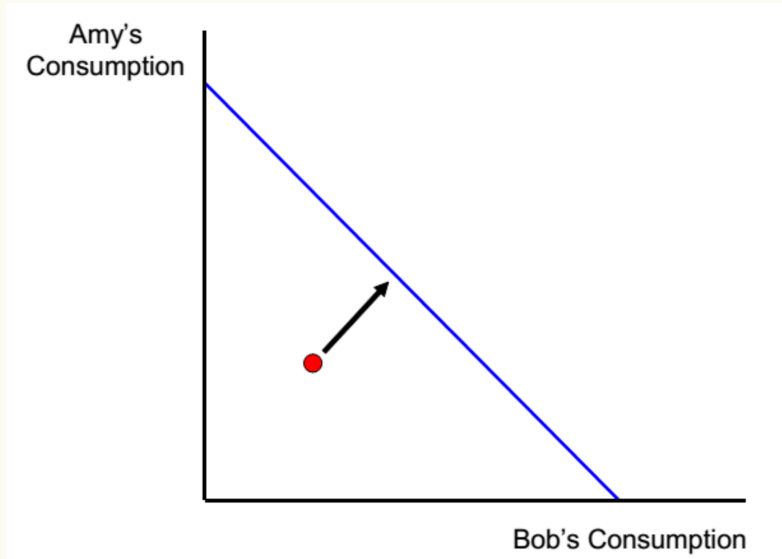
2. **Fallacy of the 2nd Welfare Theorem:**
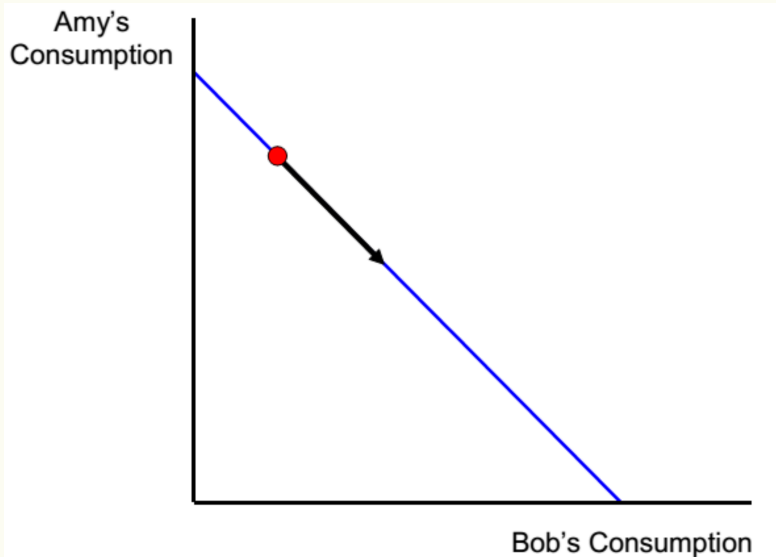   - Distortionary Government intervention is required to reduce economic inequality

Efficient private market allocation of goods

First role for government: Improve efficiency

Second role for government: Improve distribution

Government's role 1: 1st Welfare Theorem

1st Welfare Theorem: If (1) no externalities, (2) perfect competition, (3) perfect information, (4) agents are rational, then private market equilibrium is Pareto efficient

Hence, government intervention may be desirable if:

1. **Externalities require government interventions**
   - Pigouvian taxes/subsidies, public good provision

2. **Imperfect competition requires regulation**
   - (typically studied in Industrial Organization)

3. **Imperfect or Asymmetric Information**
   - e.g., adverse selection may call for mandatory insurance

4. **Agents are not rational (= individual failures, analyzed in behavioral economics)**
   - e.g., myopic or hyperbolic agents may not save enough for retirement

Failure 1: Externalities

- Markets may be incomplete due to lack of prices (e.g. pollution)

- Achieving efficient Coasian solution requires 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: Imperfect competition

▶ **When markets are not competitive, there is role for govt. regulation**

- suboptimal quantities, higher prices, lower consumer surplus
- Ex: natural monopolies such as electricity and telephones

▶ **Traditionally left to courses on industrial organization, not covered in this course**

Failure 3: Asymmetric information

When some agents have more information than others, markets fail

- ► Ex. 1: Adverse selection in health insurance
  - Healthy people drop out of private market → unraveling
  - Mandated coverage could make everyone better off

- ► Ex. 2: capital markets (credit constraints) and subsidies for education

Failure 4: Individuals are not rational

If agents do not optimize, government intervention may be desirable

- ▶ (e.g. by forcing saving via social security)

This is an "individual failure" rather than a market failure

Conceptual challenge: how to avoid paternalism critique

- ▶ Why does govt. know better what is desirable for you?
- ▶ (e.g. wearing a seatbelt, not smoking, saving more)

Difficult but central issues for optimal policy design

Government's role 2: 2nd Welfare Theorem

Even with no market failures, free market might generate substantial inequality

Society, through its government, may want to reduce it

2nd Welfare Theorem: Any Pareto Efficient outcome can be reached by

1. Suitable redistribution of initial endowments
   - [individualized lump-sum taxes based on indiv. characteristics and not behavior]

2. Then letting markets work freely

In these circumstances, no conflict between efficiency and equity [1st best taxation]

However, redistribution of initial endowments is not feasible (imperfect information)

▶ ⇒ need to use distortionary taxes and transfers based on economic outcomes (income, consumption, wealth)

▶ ⇒ Trade-off between efficiency and equity [2nd best taxation]

Equity-efficiency tradeoff
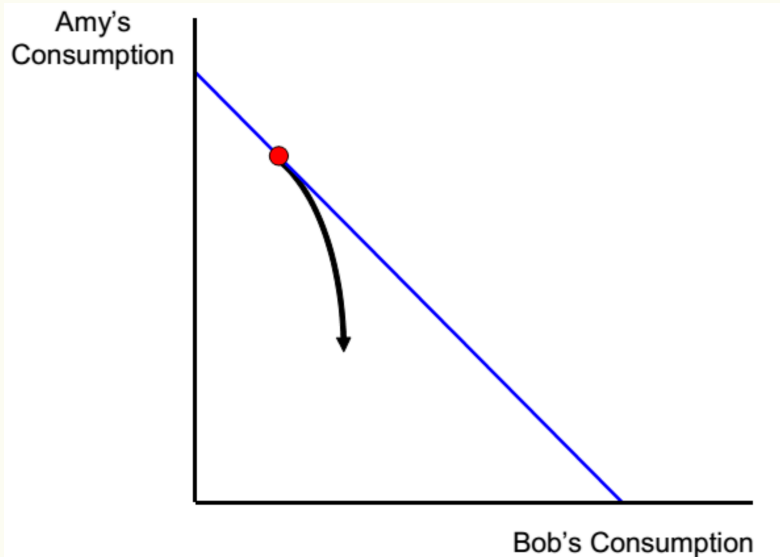
Example of 2nd Welfare Theorem fallacy

Economy setup:
- ► **50% people unable to work (hence they earn \$0)**
- ► **50% people who can work and earn \$100**

Free market outcome: **unable have \$0, able have \$100**

2nd welfare thm: **govt can tell apart unable from the able [even if the able do not work]**
⇒ **tax able \$50 [regardless of whether they work] to give \$50 to each unable person**
⇒ **the able keep working [otherwise they'd have zero income and still have to pay \$50]**

Real world: **govt can't tell apart unable from non working able**
⇒ **\$50 tax on workers + \$50 transfer on non workers destroys all incentives to work**
⇒ **govt can no longer do full redistribution**
⇒ **Trade-off between equity and size of the pie**

What is the effect of government interventions on economic outcomes?

In response to government interventions:

Direct Effects: effects predicted if individuals did not change their behavior
- ► they are relatively easy to compute
- ► we will call them "mechanical"

Indirect Effects: arise because individuals change their behavior
- ► (sometimes called "unintended effects")
- ► we will call them "behavioral"

Empirical public economics tries to estimate indirect effects to inform the policy debate
Some overlap with labor economics

Example: increasing top income tax rates
1. mechanically raises tax revenue
2. but top earners might find ways to evade/avoid taxes, reducing tax revenue

Why do governments do what they do?

Political economy: Theory of how the political process produces decisions that affect individuals and the economy

- ► **Example: Understanding how the level of taxes and spending is set through voting and voters' preferences in a democracy**

- ► **In public economics: which social preferences can rationalize an existing tax schedule?**
    - • we will discuss some of this when thinking about "inverse optimum" in optimal tax

Normative vs positive public economics

► **Positive Public Economics:** **Analysis of How Things Really Are**
- e.g., Does govt provided health care crowd out private health care insurance?
- e.g., Do higher taxes reduce labor supply?
- e.g., Do higher top marginal tax rate induce tax avoidance?

► **Normative Public Economics:** **Analysis of How Things Should be**
- e.g., should the government intervene in health insurance market?
- e.g., how high should taxes be?

► **Positive public economics is a 1st step before we can complete Normative**

► **Positive is primarily empirical, Normative is primarily theoretical**

This course

1. **Positive analysis:** tax incidence
   - effect of taxes on prices and utilities

2. **From positive to normative analysis:** efficiency cost of taxation, welfare metrics
   - focus on effects of taxes on quantities

3. **Normative analysis:** optimal taxation
   - commodity taxation (Ramsey tax)
   - optimal income taxation (Mirrlees taxation)

4. **Facts on inequality trends** and challenges for the future

Advance Public economics - Schedule

Week 1: Introduction, tax incidence

Week 2: Preliminary tools, tax incidence

Week 3: Tax incidence, tax efficiency

Week 4: Tax efficiency (PS1 out)

Week 5: Tax efficiency, PS1 correction (PS1 due)

Week 6: Empirical welfare, linear taxation and externalities

Week 7: Optimal income taxation, topics on inequalities

Week 8: Topics on inequalities (PS2 out)

Week 9: Tax evasion and elusion, PS2 correction (PS2 due)

Week 10: Presentations

Week 11-12: Auctions and public procurement (Prof. Albano)