Lecture 1: Introduction to Public Economics

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Master APE and PPD
Paris – September 2018
Practical Informations

• **One course, three professors**
  - Antoine Bozio
  - Julien Grenet
  - Thomas Piketty

• **Related courses at PSE**
  - Economic History (Thomas Piketty)
  - Optimal Taxation (Stéphane Gauthier)
  - Ageing and Public Policy (Antoine Bozio)

• **How to reach me?**
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  - Please send an email to make sure I’m there
Practical Informations

- **Reading list in the syllabus**
  - Articles with * are mandatory reading
  - Feed your intellectual curiosity
  - Do read!

- **Ideas for master thesis**
  - Plenty of interesting subjects
  - Come early to discuss

- **Evaluation**
  - Problem sets in tutorials
  - Sit-down exam at the end of term
  - Material: slides and articles with *
  - Example of past exams on the web site
What is Public Economics?

- **What’s in a name?**
  - “Political economy” (18th c.)
  - “Public finance” (19th c.)
  - “Public economics” (1960s)

- **Public finance vs public economics**
  - In the U.S., still “public finance”, but very different from *finances publiques*
  - Public economics is about the economics of the public sector (cf. German *Staatswirtschaft*)

- **Aiming to answer two types of questions:**
  1. How do government policies affect the economy? *(positive approach)*
  2. How should government policies be designed to attain certain objectives? *(normative approach)*
Why choose Public Economics?

“I admit to more than only a scientific motivation; intelligent and civilized conduct of government and the delineation of its responsibilities are at the heart of democracy. (...) [It] requires an understanding of the economic relations involved; and the economist, by aiding in this understanding, may hope to contribute to a better society.”

Why choose Public Economics?

1. **Relevance**
   - Public economics is about improving economic welfare
   - Public economics is about good government
   - Public policies affect millions of people

2. **A dynamic academic field**
   - At the frontier in applied microeconomics: cf. “credibility revolution” (Angrist and Pischke, 2010)
   - Tight integration of theory and data
   - Large use of big data
   - Strong interactions with other fields: labour, behavioural economics, I.O., macro, etc.
Empirical methods in public economics

1 Quasi-experimental methods
   - Variety of methods: DiD, event-studies, RDD, RKD, bunching, etc.
   - Emphasis on non-parametric graphical techniques: "show me the graph!"
   - Public economics is a good way to learn practical lessons in applied econometrics

2 Sufficient statistics approach
   - Structural vs reduced-form debate (Rosenzweig and Wolpin, 2000)
   - Sufficient statistics: theory is used to derive formulas based on empirical estimates (Chetty, 2009)

3 Big data
   - Large datasets have transformed empirical research
     - Scanner data on consumer purchases
     - Administrative tax data
     - Administrative social security data
**Figure 1:** Use of Survey Data in top Journals, 1980–2010

**Source:** Chetty and Bruich (2012), Public Economics Lectures.

**Notes:** “Survey” datasets refer to micro surveys such as the CPS or SIPP and do not include surveys designed by researchers for their study. Sample excludes studies whose primary data source is from developing countries.
**Figure 2:** Use of Admin Data in top Journals, 1980–2010

**Source:** Chetty and Bruich (2012), Public Economics Lectures.

**Notes:** “Administrative” datasets refer to any dataset that was collected without directly surveying individuals (e.g., scanner data, stock prices, school district records, social security records). Sample excludes studies whose primary data source is from developing countries.
A broad set of skills required

- **Moral philosophy**
  - What is justice? What is fair?

- **Institutional knowledge**
  - Government policies are complex
  - Details matter

- **Economic theory**
  - Welfare economics: micro, macro, IO, etc.
  - Optimal tax theory

- **Empirical methods**
  - Reduced form vs structural approaches
  - Ex-ante vs ex-post policy evaluations
Historic overview of the field

- **Political Economy in the 18th c.**
  - Adam Smith, John Stuart Mill, David Ricardo, Karl Marx, etc. *(see Musgrave, 1985)*
  - Tariffs policy (international trade)
  - Public goods (A. Smith)
  - Taxation (Physiocrats, Mill)

- **Adam Smith in The Wealth of nations (1776)**

- “Canons of taxation”
  1. Equality
  2. Certainty
  3. Convenience of payment
  4. Economy of collection
National traditions of public finance

- **German school**
  - Dual economy *Staatswirtschaft vs Privatwirtschaft*
  - Economists more favorable to public sector, so-called pulpit socialists (*Kathedersozialismus*)
    e.g., Werner Sombart, Adolph Wagner

- **French school**
  - Engineers working in public utilities (Ponts, Mines, EDF, etc.)
  - Marginal calculus, public sector pricing, optimal taxation
    e.g., Jules Dupuit, René Roy, Maurice Allais, Marcel Boiteux (see Kolm, 2010)

- **Italian school**
  - Marginal utility
  - Panteleoni, de Viti de Marco (see Fossati, 2010)

- **Swedish school**
  - Wicksell, Lindahl
Historic overview of the field

- **Welfare economics**
  - See overview by Dreze (1995)
  - Development of public economics with Musgrave and Samuelson in the 1950s
  - Theoretical progress with mathematical analysis

- **Three “branches” of government (Musgrave 1959)**
  1. Resource allocation to address market failures
  2. Income redistribution
  3. Macroeconomic stabilization

- **Recent developments**
  - Split with macroeconomics
  - Focus on empirical approaches
Course outline

1. Introduction to public economics [A. Bozio]
2. Tools of welfare analysis [J. Grenet]
3. Externalities [J. Grenet]
4. Public good [J. Grenet]
5. Commodity taxation [A. Bozio]
6. Labour income taxation [A. Bozio]
7. Labour income taxation [A. Bozio]
8. Social insurance [J. Grenet]
9. Preferences aggregation and intertemporal justice [T. Piketty]
10. Wealth and property taxation [T. Piketty]
11. Optimal taxation of capital [T. Piketty]
12. Corporate taxation [A. Bozio]
What we do not cover

- Economics of property rights
- International aspects of taxation
- Local public goods
- Local taxation
- Public sector pricing and production
- Taxation/subsidies of housing
- Tax administration issues
- Cost-benefit analysis
- Political economy of taxation/spending
Lecture outline

I. Public spending and taxation
II. Normative theories of social justice
III. Rationales of government interventions
I. Public spending and taxation

1. Early history
2. Growth of the State
3. Theories aiming at explaining growth of the State
4. Background facts on public spending
5. Background facts on public taxation
Early history

- **Funding the army**
  - Most public spending before 19th c. is military spending
  - To fund the army: plundering, forced labor, enslavement, etc.

- **The invention of taxes**
  - Taxes are a “liberal invention” (*Ardant, 1971*)
  - Emergence of legal practices to state what is due to the ruler

- **The discovery of Genghis Khan**
  - Genghis Khan (1162-1227), Kansu campaign
  - Whether to exterminate or to tax?
  - The advices of Yelü Chucai.
The first taxes

- **As old as writing**
  - Mesopotamia: Sumerian tablets (2500 BC)
  - Egypt: in-kind taxes on farm production; tax complaints; tax shelters etc.

![Scribes registering in-kind taxes in Egypt. Tomb of Menna (2000 BC).](image)

- **Tax what you can see**
  - Production taxes
  - Import duties
  - Property taxes
The consent to taxes

- **England’s magna carta (1215)**
  - King John of England agreed to his barons: no new taxes without the consent of Parliament

- **Boston tea party (1773)**
  - Taxes on tea from the British Crown led to American independence war

![Boston tea party, “no taxation without representation”, US 1773.](http://etc.usf.edu/clipart

- **The French Revolution (1789)**
  - Louis XVI of France gathered an assembly to raise tax which led to the French Revolution

Source: John Gilmary Shea, *The Story of a Great Nation* (1886); credits from FCIT http://etc.usf.edu/clipart
Growth of the State

- **Minimal state in the 19th c.**
  - Public spending $\approx 10\%$ of GDP
  - Almost no social spending

- **Huge growth in the 20th c.**
  - Public spending today $\approx 40\%$ of GDP
  - In some European countries (e.g. France, Sweden) over 50\% GDP
  - Huge growth of size of government during the 20th century, with a strong acceleration during the period 1960-1980
  - See Lindert *Growing Public* (2004) for detailed documentation about this expansion
**Figure 3:** Public Spending (% of GDP), 1870-2014

Wars as driving force?

- **Wars lead to large increases in public spending**
  - WWI: enormous spending for European countries
  - WWII: U.S. federal spending 9.6% GDP in 1940, to 42.7% in 1944
  - Often funded with mixed of public debt and taxes

- **Higher taxes during war times**
  - Napoleonic wars led to the creation of income taxes in the UK (1802)
  - WWI: taxes are increased (the top marginal income tax rate 77% in 1918)
  - After WWII: UK top marginal tax rate 97.5% (on unearned income), US 94%

- **Post-war needs**
  - Reconstructions, public investment, etc.
  - But war does not explain well the 1960s growth
Figure 4: Social Spending (% of GDP), 1880-1930

Notes: Social spending includes welfare, unemployment, pensions, health and housing subsidies.
Figure 5: Social Spending (% of GDP), 1880-2016

The rise of the social State

- **Emergence of welfare states**
  - Bismarck’s social insurances in Germany (1883)
  - Beveridge National insurance plan (1941) in the UK
  - Sécurité sociale in France (1945)

- **Variations in welfare states**
  - Different models of welfare states ([Esping-Andersen, 1990](#))
  - Social insurance vs means-tested benefits
  - Public social insurance spending explains a large part of overall differences in public spending (notably pension spending)
Retreat or stabilization?

• The Thatcherite revolution (1980s)
  • Cut in income taxes
  • Followed in the US by Reagan, and later in Europe
  • Slight reversal with Clinton and Blair, but not much: new consensus?

• Globalization
  • Higher mobility of capital and labour
  • Tax competition

• Financial crisis (2008-9)
  • Increased public debt
  • Increased taxation and reduction in public spending?

• Population ageing
  • Increased life expectancy
  • Increased health spending
Larger view of public interventions

- **Narrow focus of public economics**
  - Public spending and taxation

- **Overlooked aspects of Government**
  - Political rights, civil rights, political regimes
  - Property regimes, Workers’ rights, Labour law
  - Monetary regimes

- **Where is the State biggest? China vs Denmark**
  - Public spending: 27% GDP vs 57% GDP
  - Large public ownership of firms vs little
Theories of State growth

- **A political process**
  - Taxes reflect the evolution of states
  - Taxes reflect the political process
  - Taxes are influenced by moral values

- **Technical constraints**
  - Ability to tax depends on the development of the economy
  - Technical innovations (money, IT...)

- **External constraints**
  - Wars
  - Macroeconomic shocks
  - Globalization
Growth of the State literature

1. Wagner’s law (Adolph Wagner (1835-1917))
   - Demand for public goods grows with income \((elasticity > 1)\)

2. Baumol’s cost disease (Baumol 1967)
   - Public services are labour intensive
   - Cost to provide them will increase faster than prices

3. “Ratchet effect theory” (Peacock and Wiseman 1961)
   - Wars increase government spending and taxation
   - Government’s intervention is not reversed

4. Leviathan theory (Brennan and Buchanan 1980)
   - Governments are controlled by self-interested politician-bureaucrats
Growth of the State literature

5 Political economy
- Democratization, increased political power of the poor
- Increased demand for public goods, redistribution etc.
- Public spending changes matches changes in those with voice (Lindert, 2004)

6 Technology and enforcement (Kleven, Kreiner and Saez 2009)
- Development of firm accountancy, computerization
- Third party reporting (banks, employers, VAT)
- Case of Nordic countries (Kleven, 2014)
**Figure 6:** Evasion by Fraction of Income Self-Reported in Denmark

**Source:** Kleven (2014), Fig. 1, from work based on Kleven, Knudsen, Kreiner, Pedersen, and Saez (2011).
Background Facts: Distribution of Spending

- United Nations’ Classification of the functions of government (COFOC):
  - Defence
  - Public order and safety
  - General public services
  - Economic affairs
  - Social Protection
  - Health
  - Education
  - Housing and communities amenities
  - Recreation and culture
  - Environment protection
**Figure 7:** Government Spending by Function in the U.S.: 2010 vs. 1960

Source: Bureau of Economic Analysis, NIPA Table 3.16
**Figure 8:** Government Spending by Function: France, U.S., South Korea (2010)

(a) France  
(b) U.S.  
(c) South Korea

Sources: Bureau of Economic Analysis (NIPA Table 3.16); Eurostat (COFOG); OECD.Stat (COFOG)
Background Facts on Taxation

- **Growing share of government revenue**
  - From less than 10% in 1880 to 25-30% in 1960
  - Between 1965 and 2010 in the OECD area as a whole, the tax burden has risen from 25.5% to 33.8% of GDP

- **But large dispersion in 1970s-80s**
  - Stabilization of low tax countries around 25% GDP (US, Japan)
  - Mid-level for UK, Germany around 35%
  - Higher level for Nordic and France, around 45%
Figure 9: Tax Revenue (as % of GDP), 1870-2014

Source: Piketty (2013) for France; Kleven, Kreiner and Saez (2014), Fig. 2 for UK, US and Sweden, based on Flora (1983); OECD Revenues Statistics since 1965.
Tax burden as a share of GDP

Sources: OECD Tax Revenues (2008)
Tax burden as a share of GDP

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Tax burden as a share of GDP

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Issues around the measure of tax burden

1. Not a measure of governments’ intervention
   - High tax countries can have low borrowing
   - Low tax countries can have high regulation

2. Not a measure of individual’s tax burden
   - Compulsory pension systems (private or public)
   - Progressivity of the tax system

3. Other measurement issues
   - Use of tax expenditures
   - Taxes paid by Government to itself
   - Taxes paid on transfer payments
   - See Adema et al. (2011) for details assessment of OECD data
What constitutes a tax?

- **OECD definition**: “Compulsory unrequited payments to general government”

- **A tax or a user fee?**
  - User fee: a fee to use a service e.g. road fees, passport/ID fee...
  - TV licence: tax or user fee?

- **Pension contributions: tax or mandatory savings?**
  - UK’s National Insurance Contribution
  - Sweden’s notional accounts
  - Singapore’s Central Provient Fund (CPF)
Taxonomy of taxes

**Indirect taxes**

- **General consumption taxes**
  - Custom duties
  - Sales tax
  - VAT: Value-Added Tax

- **Specific goods**
  - Excise tax
  - Taxes on transactions

- **Environmental taxes**
  - Carbon taxes
  - Taxes on vehicle fuel
  - Taxes on flights
Taxonomy of taxes

**Direct taxes**

- **Individual income**
  - Payroll tax
  - Income tax
  - Capital gains tax (CGT)

- **Corporate income**
  - Corporation tax

- **Wealth/property**
  - Wealth taxes
  - Property taxes
  - Inheritance tax
  - Transfer tax
Five main components of government revenue:

- Personal income tax
- Corporate income tax
- Social security contributions
- Consumption taxes
- Property taxes

Since the early 1960s, declining share of consumption and property taxes vs. growing share of social security contributions

Tax structure varies widely across countries
Figure 10: Structure of Government Revenue: OECD Average, 2010 vs. 1965

Source: OECD Revenue Statistics (2012), Table C
**Figure 11:** Structure of Government Revenue: France, Denmark, Mexico (2010)

(a) France

(b) Denmark

(c) Mexico

Source: OECD Revenue Statistics (2012), Tables 6, 10 and 12
II. Normative theories of social justice

1. What is a normative approach?
2. Theories of social justice
3. Social welfare functions
What is a normative approach?

- **Normative views**
  - Normative views represent value judgement
  - Economics is agnostics on these views

- **The structure of arguments**
  - Normative analysis does not answer the question “what ought the government do?” but “what ought the government do given a particular objective?”

  It aims “to illuminate the relationship between objectives and conclusions” (Atkinson and Stiglitz, 1980, p. 334)

- **Objectives/instruments**
  - Objectives are given by moral philosophy and democracy
  - Instruments are given by practical or political feasibility
What is a normative approach?

- **Value judgments are inescapable**
  - Economics is not a value-neutral science
    - “Economics is a moral science” (Atkinson, 2009)
  - Policy advices rely on welfare judgments, hence on welfare criteria

- **Welfare economics**
  - Welfare economics prominent in the 1950s and 1960s: Pigou, Kaldor, Samuelson, Baumol, etc.
  - “Strange disappearance” (Atkinson, 2001)

- **Re-engaging with political philosophy**
  - Classical economics in 18th c. considered as part of political philosophy (e.g., Adam Smith)
  - Need to be explicit about moral philosophy underpinning welfare judgments (Sandel, 2013)
Theories of social justice

- Overview of different normative views
  1. Utilitarianism
  2. Welfarism
  3. Egalitarianism
  4. Libertarianism
  5. Rawlsian approach
  6. Sen’s capabilities approach

- This is not a political philosophy course!
  - Check main references: Rawls, Sen, Roemer, etc.
  - Easy read: Sandel (2010, 2012) or watch justiceharvard.org
Utilitarianism

Jeremy Bentham (1748-1832)
English moral philosopher
founder of University College London (UCL) and utilitarianism

The right policy should maximise “the greatest good for the greatest number of people”
Utility is whatever produces pleasure or happiness

- John Stuart Mill (1806-1873)
  - *On Liberty* (1859), *Utilitarianism* (1861)
  - Maximizing utility over the long run implies protecting individual freedom
  - Higher pleasures are more desirable from lower ones
Welfarism

- **Welfarist approach**
  - Social welfare depends only on individual’s utility or well-being $u_i(x)$ and nothing else.
  - Bergson-Samuelson welfare function (Bergson, 1938)
    
    $$SW(x) = W(u_1(x), ..., u_n(x))$$
  - Welfarism is a form of consequentialism, as opposed to deontology (e.g., Kant)

- **Utilitarianism is a form of welfarism**
  - No account of income distribution
  - Close to maximizing GDP (adjusting for labour supply)
Issues with utilitarianism/welfarism

1. Does more people mean higher happiness?
   - Do you want to maximize GDP or GDP/per capita?
     e.g., is China happier than Switzerland?

2. No respect for fundamental human rights?
   - Can the majority derive utility in exploiting the minority?
     e.g., enjoying killing slaves/criminals
   - Can utility for the many justify anything?
     e.g., torturing terrorists’ children

3. Can you measure utility?
   - Income is not utility
     e.g., consumption, disutility of hours of work
   - Other non-monetary elements of well-being
     e.g., health, inequality, environment, friendship, etc.
   - Debate about other indicators of well-being than GDP
     (e.g., Stiglitz-Sen-Fitoussi report)
Egalitarianism

- **Specific egalitarianism (Tobin, 1970)**
  - Some goods necessary for life and citizenship should be provided with strict equality
    - e.g., access to justice, vote, food in war time, etc.
  - Or minimum provision should be guaranteed
    - e.g., education, health, housing, etc.

- **The rights-based approach**
  - most appropriate to account for the historical rise of the social state
    - e.g., access to free education, to free health care, etc.

- **Absolute limits to inequalities**
  - Necessary limits to wealth and poverty for avoiding civil disintegration (Plato, *Laws*, V)
  - Debate about absolute distance
    - e.g., ratio 4 : 1 (Plato); CEO to average worker’s pay
Libertarianism

- **Liberty and self-ownership**
  - Right to do what we want with what we own, provided we respect other people’s right
  - Individuals own their labour, their wealth, their body
    - e.g., right to buy/sell sex (if consensual)
    - e.g., right not to fasten seatbelt

- **Justice as a process**
  - Justice is defined as the process that generate an income distribution
  - It requires also justice in the initial endowments

- **Main references**
Libertarian public policies

• **The night-watchman State**
  - “a minimal state, limited to the narrow functions of protection against force, theft, fraud, enforcement of contracts” (Nozick, 1974, p. ix)
  - No redistribution: taxing is akin to theft, forced labour or slavery

• **Reparations for past wrongs**
  - Inherited wealth could be the result of past injustice e.g., wealth of descendants from slave owners
  - Libertarian case for reparations

• **Policy by unanimous consent only**
  - Governments can carry out only unanimously approved activities (Buchanan and Tullock, 1962)
  - Only Pareto improvements are possible
Rawlsian social justice


**Choice “behind the veil of ignorance”**
- Need to make social choice free of current status (money, power, intelligence, etc.)
- Hypothetical agreement in an initial situation of equality

**Two principles of justice**
(i) “Each person is to have an equal right to the most extensive basic liberty compatible with a similar liberty for others”

(ii) “Social and economic inequalities are to be arranged so that they are to be of the greatest benefit to the least-advantaged members of society” (maximin)
Rawlsian social justice

- **Non-welfarist approach**
  - Principle i) is non welfarist: basic liberty cannot be put into question by utility maximisation
  - Principle ii) is welfarist with equality objectives

- **Human rights and Rawlsian maximin**
  - Article 1 of *Déclaration des droits de l’homme et du citoyen* (1789): “Les hommes naissent et demeurent libres et égaux en droits. Les distinctions sociales ne peuvent être fondées que sur l’utilité commune”
    
    [Trad. Men are born and remain free and equal in rights. Social distinctions can only be based upon common utility]
  - Sentence 2 can be interpreted as Rawlsian maximin
Rawlsian social justice

- **Is Rawlsian justice meritocratic?**
  - Meritocracy defends a fair equality of opportunity (not only formal equality)
  - Rawls rejects meritocracy as it “still permits the distribution of wealth and income to be determined by the natural distribution of abilities and talents”
- **Difference principle**
  - Outcomes from the natural talents should be shared by the community
  - Differences in situations should be allowed only if they benefit the least fortunate
    “Those who have been favored by nature, whoever, they are, may gain from their good fortune only on terms that improve the situation for those who have lost out.”
Sen’s capabilities

Amartya Sen
Indian economist,
Nobel Prize 1998
*Commodities and capabilities* (1985)
*On Economic Inequality* (1997)

- **Capabilities and functionings**
  - Functionings (cf. *εργον* of Aristotle) are the functions of an human being
    - e.g., nourishment, shelter, physical mobility, ability to take part in the life of the community, etc.
  - Capabilities are the substantive freedom to achieve different functionings, i.e., the capability set
Debate around welfarism

- **Non-welfarism violates the Pareto principle**
  - Non-welfarism imply making sometimes everyone worse off (Kaplow and Shavell, 2001)

- **Welfare is a broad notion**
  - Welfare is a broad notion and subjective notion
  - Rawls’ liberties or Sen’s capabilities should be part of welfare

- **Practical vs theoretical level**
  - Welfare is hard to measure
  - Horizontal equity or due process are good guides for well-being
Markets and social justice

• **What money can’t buy**
  - Use of welfarism leads to the application of market solutions to a wider range of moral problems (*Sandel, 2012; Besley, 2013; Sandel, 2013*)
    e.g., paying to skip the queue

• **Issues**
  1. Every transaction does not always reflect voluntary exchange
     e.g., poverty induced prostitution, kidney selling, etc.
  2. Market solution can induce corruption of activity
     e.g., paying kids for good grades can reduce the self-interest in education
  3. Crowding out of social norms
     e.g., fee for being late at child care (*Gneezy and Rustichini, 2000*)
Social welfare functions (SWF)

- **Definition**
  - A $SWF(x)$ provides the complete description of the evaluation of all social states or policies $x$.
  - Social planner maximizes $SWF(x)$ by selecting optimal policy $x$.

- **Utilitarian SWF**
  - Social welfare $SW$ according to Bentham would be:
    \[
    SWF(x) = \sum_{i=1}^{n} u_i(x)
    \]

- **Maximin SWF**
  - The maximin principle maximizes the welfare of the least advantaged:
    \[
    SWF(x) = \min_{i} u_i(x)
    \]
Social welfare functions (SWF)

- **General SWF**
  - Concave transformation of utility $V(u_i)$ determines collective preference for redistribution

  $$SWF(x) = \sum_{i}^{n} V(u_i(x))$$

- **Preference for equality parameter $\varepsilon$**

  $$SWF(x) = \frac{1}{1 - \varepsilon} \frac{1}{n} \sum_{i}^{n} u_i(x)^{1-\varepsilon} \text{ with } \varepsilon \neq 1$$

  - Utilitarian, no concern for inequality $\Rightarrow \varepsilon = 0$
  - Rawlsian maximin $\Rightarrow \varepsilon = +\infty$
Social welfare functions (SWF)

- **Concavity of utility** $u(x)$
  - Maximization of expected utility “behind the veil of ignorance” (Vickrey, 1945; Harsanyi, 1953)
  - More risk-averse individuals will prefer more redistribution (concavity of $u$)

  $$u(c) = \frac{1}{1 - \rho} c^{1-\rho} \text{ with } \rho \neq 1$$

  $\rho$ is here the coefficient of relative risk aversion

- **Adding incentive costs to redistribution**
  - Without incentive costs (i.e., fixed output), then total equality is always optimal if $\varepsilon > 0$
  - With incentive costs, then total equality is generally not optimal even if $\varepsilon = +\infty$
Social welfare functions (SWF)

- **Range of SWF (Kaplow 2008)**
  - E, egalitarianism
  - R, rawlsian maximin
  - U, utilitarian
  - L, libertarian
  - X, concentration of wealth into the hands of the ruler

- **Generalised SWF (Saez and Stantcheva, 2016)**
  - Extending SWF to non-welfarist criteria (see lecture 7 for applications in optimal taxation)
III. Rationales for Government Intervention

1. Fundamental Theorems of Welfare Economics
   (i) Failure of first welfare theorem
   (ii) Fallacy of second welfare theorem

   References: (Arrow, 1951; Debreu, 1959)

2. Roles of Government
   (a) Enforcement of property rights and contracts
   (b) Correction of market failures
   (c) Correction of individuals’ failures
   (d) Redistribution
The Basic Criteria of Welfare Analysis

- **Two basic criteria**
  1. *Efficiency*: how well resources are allocated (size of the pie)
  2. *Equity*: how resources are distributed among individuals

- **Optimal taxation approach**
  - Specify SWF and describe policy $x$ which maximizes the $SWF(x)$
  - Optimal taxation approach ([Mirrlees, 1970](#))
  - More general approach in public economics ([Kaplow, 2008](#))
Failure of the First Welfare Theorem

- **First Theorem**: any competitive equilibrium is Pareto efficient if
  1. no externalities or public goods
  2. perfect information
  3. perfect competition
  4. rational individuals

- **Rationales for government interventions**
  1. Enforcing contracts and property rights
  2. Externalities require government interventions
     - e.g., Pigouvian taxes/subsidies, public good provision
  3. Imperfect or asymmetric information
     - e.g., adverse selection may call for mandatory insurance
  4. Imperfect competition requires regulation
  5. Agents are not rational
     - e.g., hyperbolic agents may not save enough
Second Welfare Theorem Fallacy

- **Theorem 2**: any efficient allocation can be achieved as a competitive equilibrium
  - (i) same conditions as theorem 1
  - (ii) lump-sum taxes/transfers are feasible

- **Why fallacy?**
  - Lump-sum tax/transfers are not available
  - Hence we do not live in First Best world
Lump-sum taxes and transfers

- **Definition**
  - Lump-sum taxes are fixed in amount and are such that no action can reduce their burden.
  - e.g., poll tax (possibly by age and sex)

- **Lump-sum taxes are rare because of information constraints**
  - Intrinsic characteristics are not observable
  - e.g., ability is not observable, income is
  - Possible lump-sum taxes are usually unfair
  - e.g., poll tax

- **Policy as a second-best problem**
  - First best : use of lump-sum taxation
  - Second best : use of other taxes that might be distortionary

⇒ Public Economics starts here!
Roles of Government

I. Improving efficiency
   1. Enforcement of property rights and contracts
   2. Correcting externalities
   3. Remedying to market failures from asymmetric information
   4. Regulating imperfectly competitive markets
   5. Correct individual failures (or internalities)

II. Redistribution
Enforcement of property rights and contracts

- **Markets do not exist ex abstracto**
  - Reputation mechanisms can work on small scale ([Greif, 1993](#))

- **Markets require secured property rights**
  - Need for legal code, police and justice to ensure that private contracts are enforceable
  - Government intervention is critical on a larger scale when economic exchanges become impersonal ([Dixit, 2004](#))
  - The enforcement of broad-based property rights is a key determinant of economic growth ([Acemoglu, Johnson and Robinson, 2001](#))
**Figure 12:** OLS Relationship Between Secured Property Rights and GDP per Capita

Source: Acemoglu, Johnson and Robinson (2001), Figure 2
**Figure 13**: Settler Mortality, Protection of Property Rights and GDP per Capita

(a) Settler Mortality and Property Rights

(b) Settler Mortality and GDP per Capita

Source: Acemoglu, Johnson and Robinson (2001), Figures 1 and 3
Market Failure 1: Externalities and Public Goods

- Markets do not provide optimally public goods or goods associated with externalities.
- **Public Goods**: goods that are non-rival and non-excludable in consumption (e.g. national defence)
  - Because of free riding, too little public goods are produced.
- **Externalities**: when the effect of production or consumption of goods and services imposes costs or benefits on others, which are not reflected in the prices charged for the goods and services being provided.
  - Too much of negative externality-generating goods, (e.g. pollution); too little of positive externality-generating goods (e.g. R&D).
Market Failure 2 : Asymmetric Information

- When some agents have more information than others, markets can fail

**Ex 1 :** The market for second-hand cars or “lemons” (Akerlof, 1970). Sellers have private information on the quality of their cars, which is unknown to buyers → sellers of high quality cars withdraw from the market

**Ex 2 :** Adverse selection in health insurance markets. Healthy people drop out of the private insurance market → mandated coverage could make everyone better off

**Ex 3 :** Credit constraints in the education market → subsidies for education
Market Failure 3: Imperfect Competition

- When *markets are not competitive*, there is a role for public intervention.
  - Ex 1: natural monopolies such as electricity or railways
  - Ex 2: anticompetitive practices such as collusion between firms or abuse of dominant position (e.g., predatory pricing)

- This topic is traditionally left to courses on *industrial organization* and is not covered in this course.
  - M1 PPD: Competition and Regulation (D. Spector)
  - M2 APE: Industrial Organization and Applications to Antitrust and Regulation (D. Spector)
Correction of “Individual Failures”

- A recent addition to the list of potential failures that motivate public intervention: **people are not fully rational**
- Examples of bounded rationality have been identified by **behavioral economics** (cf. Kahneman and Tversky, 1979):
  - Hyperbolic discounting (Laibson, 1997)
  - Overconfidence (Della Vigna and Malmendier, 2006)
  - Default options (Madrian and Shea, 2001)
  - Inattention (Lacetera, Pope and Sydnor, 2012)
- These are **individual failures** rather than traditional market failures
- **Public intervention** (e.g. by forcing saving via social security, enforcing the use of seatbelts for drivers) may be desirable
- Conceptual challenge: how to avoid the **paternalism critique**?
**Figure 14:** Raw Average Sale Price of Used Cars by Odometer Mileage

Source: Lacetera, Pope and Snydor (2012), Figure 4
Limitations of Government Intervention

- **Problem**: optimal policies to address market failures are not always implementable
- **Collective choice problems**: governments face the difficult problem of aggregating the preferences of millions of citizens into a coherent set of policy decisions
- **Commitment problems**: some policies may not be perceived as credible by economic agents (e.g. announced government policy of never negotiating with terrorists over the release of hostages)
- Because of **information constraints**, first-best policies can be difficult or impossible to implement, and governments often have to rely on instruments which distort incentives (behavioral responses in the private sector)
  - → **Second-best policies**
Second Role for Government : Improve Distribution

- Even when the private market outcome is efficient, it may not have good **distributional properties** : markets generally seem to deliver very large rewards to a small number of people.

- The choice between different efficient outcomes raises the tricky issue of making interpersonal comparisons, which involve **value judgements**.

- A common way of representing such value judgements is the **social welfare function**, a function that maps the set of individual utilities in society into an overall social utility function.
Figure 15: Utilitarian Social Welfare Function

Utilitarian SWF = \( U_A + U_B \)

Utilitarian social indifference curve
Figure 16: Rawlsian Social Welfare Function

Rawlsian SWF = min(\(U_A, U_B\))

Utility of person B
Utility of person A

Rawlsian social indifference curve

\[45^\circ\]
Figure 17: General Social Welfare Function

General SWF = V(U_A) + V(U_B)

Utility of person B
Utility of person A
General social indifference curve
Course outline

1. Introduction to public economics [A. Bozio]
2. Tools of welfare analysis [J. Grenet]
3. Externalities [J. Grenet]
4. Public good [J. Grenet]
5. Commodity taxation [A. Bozio]
6. Labour income taxation [A. Bozio]
7. Labour income taxation [A. Bozio]
8. Social insurance [J. Grenet]
9. Preferences aggregation and intertemporal justice [T. Piketty]
10. Wealth and property taxation [T. Piketty]
11. Optimal taxation of capital [T. Piketty]
12. Corporate taxation [A. Bozio]
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