Public Economics

Lec 2: Equity, efficiency and welfare economics

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AM’s reminders

- “Home assignments”

- **Deadline for essay**
  - March 6\(^{th}\) (Sunday), midnight
  - Details will follow (next lecture)
  - **Suggestion:** form the groups (3 people) ASAP
Today’s reading list

- Rosen & Gayer ch. 3
Tool to evaluate public policies: desirable outcome

- Normative analysis

1. Define the target
   - Individual utility as criterion
   - Efficiency, equity, a combination of the two?

2. Evaluate impact of intervention

3. Weight it according to preferences
First criterion: efficiency

Benchmark

- Efficient consumption
- Efficient production
Efficient consumption: Edgeworth box
Efficient consumption: Edgeworth box
Efficient consumption: **Edgeworth box**
Efficient consumption: **Edgeworth box**

![Edgeworth box diagram]
Efficient consumption: Edgeworth box
Efficient consumption: **Edgeworth box**
Efficient consumption: **Edgeworth box**

![Edgeworth box diagram](image)

The diagram illustrates the concept of efficient consumption using the Edgeworth box framework. The box represents the possible combinations of two goods or services, in this case, Horses and Goats. The points `v`, `x`, and `a` on the boundary of the box represent various allocations of resources. The shaded area within the box indicates the set of efficient allocations, where no further reallocation of resources would benefit one party without harming another. Points outside the shaded area are inefficient, and points inside are non-inferior alternatives.
Efficient consumption: Edgeworth box
Efficient consumption: **Edgeworth box**

\[
\frac{MU_h^T}{MU_g^T} = \text{MRS}_{hg}^T = \text{MRS}_{hg}^O = \frac{MU_h^O}{MU_g^O}
\]
Production economy
- Production possibilities curve
- $v$: Initial allocation
- $\text{MRT}_{hg} = \frac{\text{MC}_h}{\text{MC}_g}$
Efficient production

Production economy
- Production possibilities curve
- $v$: Initial allocation
- $v^*$: Efficient allocation with transformation
- $\text{MRT}_{hg} = \frac{MC_h}{MC_g}$
- $\text{MRT}_{hg} = \text{MRS}_{hg}$
Efficient allocation

Pareto efficiency

- Efficient consumption
  - Marginal Rate of Substitution of (MRS): ratio between marginal utilities (MU)
  - **Contract curve:** $MRS^T = MRS^O$

- Efficient production
  - Marginal Rate of Substitution (MRT): ratio between marginal costs (MC)
  - **Efficient allocation** $MRS_{hg}^T = MRS_{hg}^O = MRT_{hg}$
Goal: efficiency. Assume

1. **Perfect competition** (both consumers and producers)
   - No market power

2. **A market exists for every commodity**
   - No market failures

⇒ The economy achieves a Pareto efficient allocation of resources
First fundamental theorem of welfare economics

**Intuition**

- (1) implies that people are price-takers

- Consumer theory: if consumer are price takers, the optimal consumption at $MRS_{hg} = P_h/P_g$

- Production side: if firms are price takers, profits are maximized at $MC_h/MC_g = P_h/P_g$

- True for both Odin and Thor and production side

- Reach $MRS_{hg}^T = MRS_{hg}^O = MRS_{hg}$, which is necessary and sufficient condition for Pareto efficiency

**Awesome!**

Role for the government?
Well, there’s that detail of assumptions ¹ & ² . . .

Plus . . .


“In fact,” said Mustapha Mond, “you’re claiming the right to be unhappy.”

“All right then,” said the Savage defiantly, “I’m claiming the right to be unhappy.”

*A Brave New World*, A. Huxley
Second criterion: Equity and fairness

\[
\frac{MU_T^H}{MU_T^G} = MRS_{hg}^T = MRS_{hg}^O = \frac{MU_O^H}{MU_O^G}
\]
Max. social welfare

- **Utility possibilities curve** as constraint
Max. social welfare

- **Utility possibilities curve** as constraint
Max. social welfare

- Utility possibilities curve as constraint
- Utilitarian: \( F = \sum U_j \)
Social welfare functions

Max. social welfare

- **Utility possibilities curve** as constraint
- **Utilitarian**: \( F = \sum U_j \)
- **Rawlsian**: \( F = \text{Min}(U_j) \)
Social welfare function: to keep in mind

\[ W = f(U_1, U_2, \ldots, U_i, \ldots, U_n) \]

- **Not necessarily regular shape (synergies)**
- **Underlying assumption:** goal of the state is individual happiness
  - Theocracies? Kingdoms?
Goal: achieve desired utility distribution

- **Affect/interfere with prices?**
  - Very costly, inefficient

- If conditions hold (perfect competition + existence of markets)

  Any desired distribution in equilibrium achievable by changing initial allocation of resources and then letting people trade freely
Role for government

1st theorem conditions: correct market failures

1. Market power
   - Monopolies
   - Oligopolies
   - (Monopsony...)

2. Non-existing markets
   - Public goods
   - Externalities
   - Asymmetric information
Public intervention is often expensive - in efficiency terms
Taxes are generally distortionary

- **Redistribution of initial allocation is inefficient**
  - Carrying water with a leaking bucket
  - Trade-off between equality & efficiency

- **Public intervention for correction of market failures**
  - Trade-off between inefficiency and efficiency
  - Can be that public intervention increases both efficiency and equality
Optimal public policy

- **MBPF**: Marginal Benefit of Public Financing
- **MCPF**: Marginal Cost of Public Financing
- **Optimal condition**: $\text{MCPF} = \text{MBPF}$
Home assignment

- RG, ch.3, ex 1
- RG, ch.3, ex 14