4. Provision of Public Goods
4.1. Public Goods vs Private Goods

- Private goods:
  - Rivalry
  - Excludable

- (Pure) Public goods
  - Non-Rivalry
  - Non-Excludable
  - Lighthouse

- Impure Public Goods:
  - Non-rival, but excludable
  - Toll road

- Impure Public Goods:
  - Non-excludable, but rival
  - Common fishing ground

Consumption properties of goods
4.2. Public Goods and Market Failure

- **The Case of Pay TV**
  - **Non-rival:**
    - MC = 0 → P = 0
    - Consume until MU = 0
  - But, excludable:
    - P > 0
    - Consume before MU = 0

- Thus, two basic forms of market failure associated with public goods, i.e.
  - Under-consumption
  - Under-supply

- When goods with non-rival in consumption is charged P > 0 → under-consumption

- If charged P = 0, none will supply the goods → undersupply
4.3. Fact about Provision of Public Goods

- Production of public goods not always by the government, but many public goods produced by private sector.

  - Example ➔ Toll provided by private sector ➔ User fee
4.4. Public Provision of Public Goods
Collective Demand for Public Goods  ➔ Vertical (not horizontal) summation of individual demand

- Price,  ➔  \( P = Pa + Pb \)
- Quantity  ➔  \( Q = Q_A = Q_B \)
Efficient Provision of Public Goods: Lindahl Equilibrium

- Derive "Collective" demand curve \( \Rightarrow \) Simply by asking WTP of individuals

\[
\text{Pa} + \text{Pb} = \text{P}
\]

\( \text{G} \) is the Efficient Production point, where MC = MB.

\( \text{Ge} \) is the Pareto efficiency point, where WTP is honest.

But, dishonesty about WTP?!
Paying for Public Goods: User Fees

- User Fees if exclusion possible
  - Users are directly charged → fairer
  - Less consumed

Bridge Use paid by User Fee → Under-consumption

Toll Fee

Toll Demand

P > 0

Qe

Qm

Qc

Number of Trips
Paying for Public Goods: Public Tax

- Public tax if exclusion not possible
- Users are not directly charged, but taxpayers
- \( P = 0 \)
- Over-consumed

Bridge Use paid by Taxpayers \( \rightarrow \) Over-consumption

Toll Fee

Demand

Bridge Capacity

\[ Q_e = Q_m \]

Number of Trips

\[ P = 0 \]
The Government’s Mechanism to Overcome Free Rider Problem

- Non-Excludability ➔ Free ride strategy by users

- Financing public provision of the goods by the government ➔ individual users must be forced to support through user fee ➔ E.g. Airport tax
4.5. Private Provision of Public Goods
Free Rider Problem

- Under-provision of public goods by private sector

- Can private sector control free ride problem, at least partially?

- It is more likely if there are individuals with high income or high demand for the public goods, individuals who are altruistic, or individuals who derive a “warm glow” from their contribution
4.6. Problems Faced by Public Provision of Public Goods

- Crowding out of private provision
  - As the government provide more public goods, the private sector will provide less

- Effectively reflecting the public’s demand for public goods
  - Publics do not reveal their true preference for public goods. Demand in Lindahl’s equilibrium is subjective since it is based on willingness to pay approach of individuals

- Determining costs and benefits of public goods
  - (See Benefit-cost analysis in chapter 7 on this issue)
4.6. Efficient Government as a Public Goods (1)

- The management of government as public goods
  - All citizens benefit from a better, more efficient and responsible government.
  - It is difficult and undesirable to exclude any individual from the benefits of a better government.
4.6. Efficient Government as a Public Goods (2)

- A politician works for better government gains only a fraction of his effort (?
  - All benefited from his work, but not all vote to support him
  - All supporting him benefits as much as other not supporting him (free riders)
- Thus, efficient government posses both the characters of public goods (namely, non-rival and non-excludable consumption)
4.7. Readings
