

## Lecture 12

### Fiscal Policy

(Based on Chapter 12 of Perkins et al.)

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# Government Budget

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- Expenditure
  - Government machinery
    - Size of the government
  - Public goods
  - Subsidies
    - Pressure groups
  - Transfers
    - Social security
  
- Revenue
  - Taxes
  - Profits of public sector enterprises
  - User fees
    - Public goods

# Public Goods .... 1

- Features
  - Non-rival consumption
  - Non-excludability

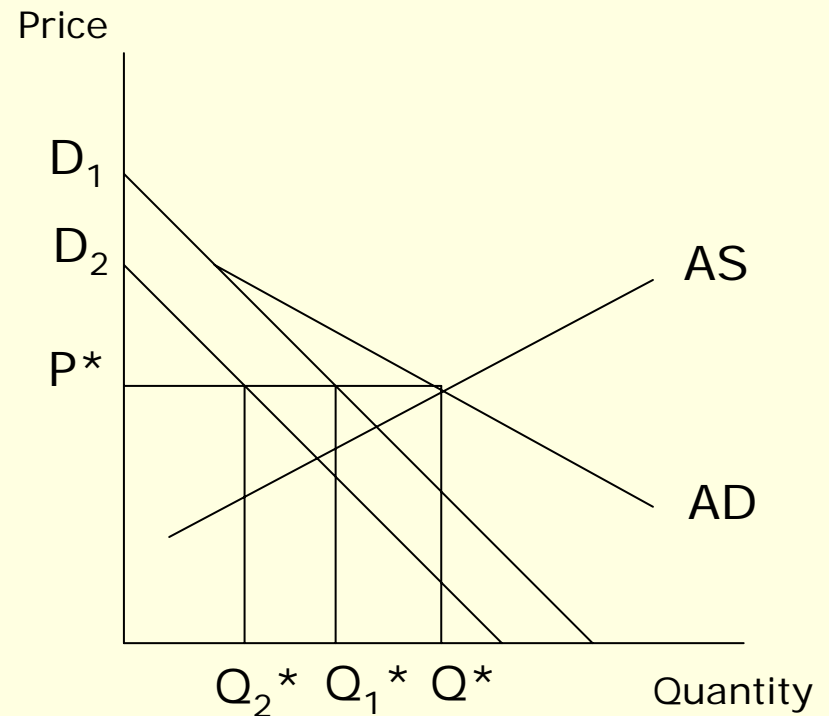
Consumption	Exclusion	
	Feasible	Not feasible
Rival	Private good	
Non-rival	Public good	

# Public Goods .... 2

- Market for private good

- Individual demand
  - $D_1, D_2$
- Aggregate demand
  - AD
- Aggregate supply
  - AS
- Equilibrium
  - $P^*, Q^*$
  - $Q_1^* + Q_2^* = Q^*$

- Market for private good



# Public Goods .... 3

- Market for public good

- Individual demand

- $D_1, D_2$

- Aggregate demand

- AD

- Aggregate supply

- AS

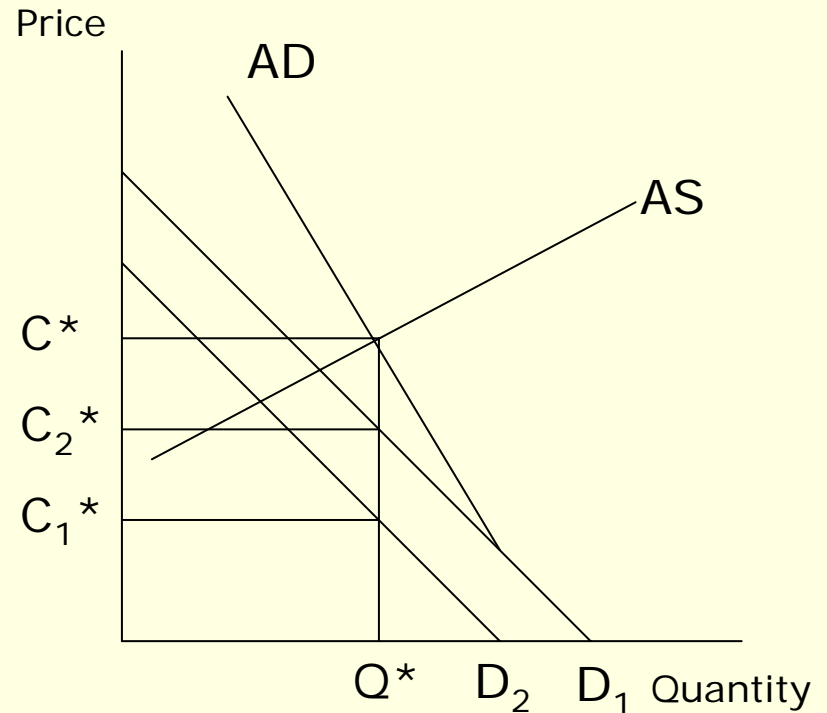
- Equilibrium

- $Q^*, C^*$

- Cost sharing

- $C_1^* + C_2^* = C^*$

- Market for public good



# Public Goods .... 3

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- Private good
  - Both consumers pay same price and consume different quantities.
  - In equilibrium, marginal cost equals marginal benefit of each consumer.
  
- Public good
  - Both consumers pay different prices and consume same quantity.
  - In equilibrium, marginal cost equals the sum of the benefit of the two consumers.

# Project Appraisal .... 1

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- Net present value
  - $$\text{NPV} = \sum_{t=1}^T \frac{R_t}{(1+r)^t} - C$$
- Internal rate of return
  - Value of  $r$  when  $\text{NPV} = 0$
  
- Viability of project
  - High NPV
  - High internal rate of return

# Project Appraisal .... 2

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## ■ Example

### ■ Data

- $C = 100, R_1 = 50, R_2 = 200, R_2' = 150,$   
 $r = 0.1$

### ■ NPV

- Case 1:  $[50/(1+0.1)] + [200/(1+0.1)^2] - 100$
- Case 2:  $[50/(1+0.1)] + [150/(1+0.1)^2] - 100$

### ■ Internal rate of return

- Case 1:  $[50/(1+r)] + [200/(1+r)^2] - 100 = 0$
- Case 2:  $[50/(1+r')] + [150/(1+r')^2] - 100 = 0$



# Project Appraisal .... 3

- Benefit-Cost ratio

- $$\text{BCR} = \frac{\sum_{t=1}^T B_t / (1+r)^t}{\sum_{t=i}^T C_t / (1+r)^t}$$

- NPV = 0 implies BCR = 1

- Issues

- Externalities

- Costs and benefits

- Opportunity costs

- Shadow prices