Intermediate Microeconomics
Government

Agribusiness Teaching Center

Easter Term 2015

Government

Why Do Governments Exist?

Role of Government

Mancur Olson theory of state:

- Origins of government

Role of Government

Mancur Olson theory of state:

- Origins of government
- Roving Bandits vs Stationary Bandits

Role of Government

Market inefficiencies

- **Property rights and coordination failures**
  - ownership, side of driving, production chains
- **Public good**
  - non-excludable and (non-)rivalrous, free-riding
- **Externalities**
  - (Pigouvian) taxes, education
- **Monopoly and imperfect competition**

Redistribution

- Robin Hood?

Market intervention

Good Characteristics
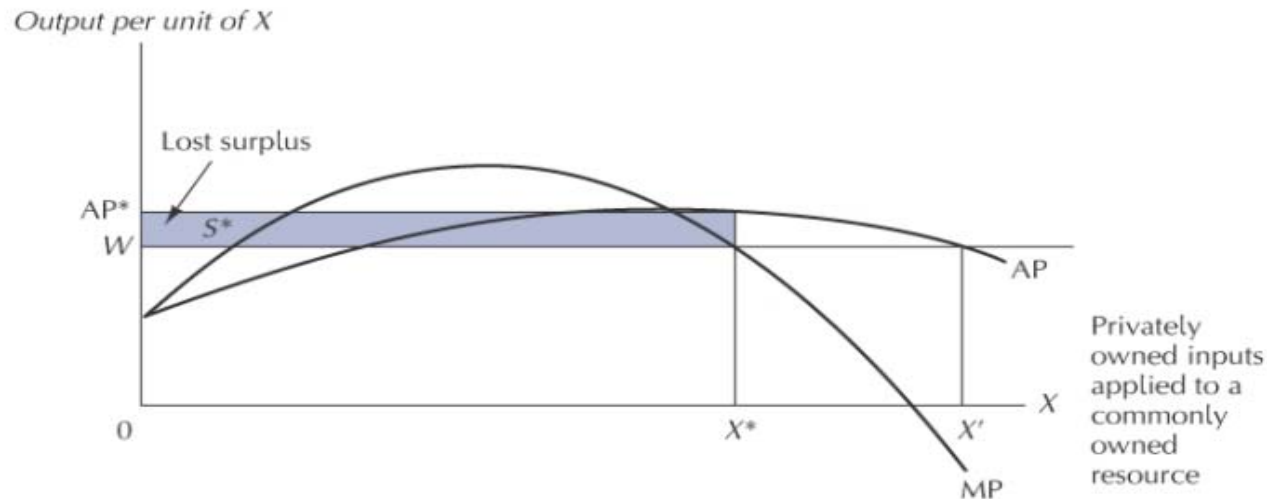## Excludability and Rivalry

Exclusive

		Yes	No
Rival	**Yes**	Private Goods (Hot dogs, Automobiles, Houses)	Common Goods (Fishing ground Public grazing land, Clean air)
	No	Club Goods (Bridges Swimming pools)	Public Good (Mosquito control Justice, Ideas)

Tragedy of Commons
… or One More Reason for Communism to Fail

Output per unit of X

Lost surplus

AP*
W
S*

AP

X*   X'   X

MP

Privately
owned inputs
applied to a
commonly
owned
resource

$$\max f(c) - ac$$

$$\max \left\{ \frac{f(c+1)}{c+1} > a \right\}$$

$$f'(c) = a$$

$$\frac{f(c)}{c} = a$$

Tragedy of Commons
… or One More Reason for Communism to Fail

Ingredients:

- common property (graze field or fishing pond)
- diminishing returns to scale production
- many people
- social vs. personal optimisation
    - What about Nepotism?

Externalities as source for inefficiency

Definition

There is a **consumption externality** if one consumer cares directly about another agent's production or consumption.

Definition

There is a **prodcution externality** if the production possibilities of one firm are influenced by the choices of another firm.

Externality

Definition

External economy in production (consumption) or positive production (consumption) externality is an increase in production possibilities (utility) form others' production or consumption.

Definition

External dis-economy in production (consumption) or negative production (consumption) externality is a decrease in production possibilities (utility) form others' production or consumption.

External dis-economy (modelling)

- Producing firm:

$$\max_{s,x} p_s s - c_s(s, x)$$

- Conditions:

$$\frac{\partial c_s}{\partial x} < 0$$

$$p_s = \frac{\partial c_s(s^*, x^*)}{\partial s}$$

$$0 = \frac{\partial c_s(s^*, x^*)}{\partial x}$$

- Consuming firm:

$$\max_f p_f f - c_f(f, x)$$

- Conditions:

$$\frac{\partial c_f}{\partial x} > 0$$

$$\frac{\partial c_i}{\partial i} > 0$$

$$p_f = \frac{\partial c_f(f^*, x^*)}{\partial f}$$

External dis-economy (modelling)

$$p_s = \frac{\partial c_s\left(s^*, x^*\right)}{\partial s}$$

(overproduction, low costs)

$$0 = \frac{\partial c_s\left(s^*, x^*\right)}{\partial x}$$

(mis-production, missing market)

$$p_f = \frac{\partial c_f\left(f^*, x^*\right)}{\partial f}$$

(underproduction, too high costs)

External dis-economy

Socially optimal production: Internalising

Joint production:

$$\max_{s,f,x} p_s s + p_f f - c_s(s,x) - c_f(f,x)$$

- Optimality conditions:

$$p_s = \frac{\partial c_s(\bar{s}, \bar{x})}{\partial s}$$

$$p_f = \frac{\partial c_f(\bar{f}, \bar{x})}{\partial f}$$

$$0 = \frac{\partial c_s(\bar{f}, \bar{x})}{\partial x} + \frac{\partial c_f(\bar{f}, \bar{x})}{\partial x}$$

External dis-economy
Socially optimal production: Internalising

Internal

$$p_s = \frac{\partial c_s\left(\bar{s}, \bar{x}\right)}{\partial s}$$

$$p_f = \frac{\partial c_f\left(\bar{f}, \bar{x}\right)}{\partial f}$$

$$0 = \frac{\partial c_s\left(\bar{f}, \bar{x}\right)}{\partial x} + \frac{\partial c_f\left(\bar{f}, \bar{x}\right)}{\partial x}$$

External

$$p_s = \frac{\partial c_s\left(s^*, x^*\right)}{\partial s}$$

$$p_f = \frac{\partial c_f\left(f^*, x^*\right)}{\partial f}$$

$$0 = \frac{\partial c_s\left(s^*, x^*\right)}{\partial x}$$

External dis-economy
Socially optimal production: Internalising

Internal

$$p_s = \frac{\partial c_s\left(\bar{s}, \bar{x}\right)}{\partial s}$$

$$p_f = \frac{\partial c_f\left(\bar{f}, \bar{x}\right)}{\partial f}$$

$$0 = \frac{\partial c_s\left(\bar{f}, \bar{x}\right)}{\partial x} + \frac{\partial c_f\left(\bar{f}, \bar{x}\right)}{\partial x}$$

External

$$p_s = \frac{\partial c_s\left(s^*, x^*\right)}{\partial s}$$

$$p_f = \frac{\partial c_f\left(f^*, x^*\right)}{\partial f}$$

$$0 = \frac{\partial c_s\left(s^*, x^*\right)}{\partial x}$$

External dis-economy
Solutions

Generally, 3 ways of eliminating externalities

- Internalising
- Pigouvian Tax
- Redefining Property Rights

External dis-economy
Arthur Cecil Pigou

Pigouvian Tax:

$$\max_{s,x} p_s s - c_s\left(s, x\right) - tx$$

- Optimality conditions:

$$p_s - \frac{\partial c_s\left(s, x\right)}{\partial s} = 0$$

$$-t - \frac{\partial c_s\left(s, x\right)}{\partial x} = 0$$

External dis-economy

Pigouvian taxes vs Internalisation

$$\text{Assume: } t = \frac{\partial c_f(f, x)}{\partial x}$$

Internalisation

$$p_s = \frac{\partial c_s(\bar{s}, \bar{x})}{\partial s}$$

$$p_f = \frac{\partial c_f(\bar{f}, \bar{x})}{\partial f}$$

$$0 = \frac{\partial c_s(\bar{f}, \bar{x})}{\partial x} + \frac{\partial c_f(\bar{f}, \bar{x})}{\partial x}$$

Pigouvian tax

$$p_s = \frac{\partial c_s(s, x)}{\partial s}$$

$$p_f = \frac{\partial c_f(f, x)}{\partial f}$$

$$-t = \frac{\partial c_s(s, x)}{\partial x}$$

$$t = \frac{\partial c_f(f, x)}{\partial x}$$

External dis-economy
Defining Property Rights

- Producing firm:

$$\max_{s,x} p_s s - c_s(s, x) - qx$$

- Conditions:

$$p_s = \frac{\partial c_s(s^*, x^*)}{\partial s}$$

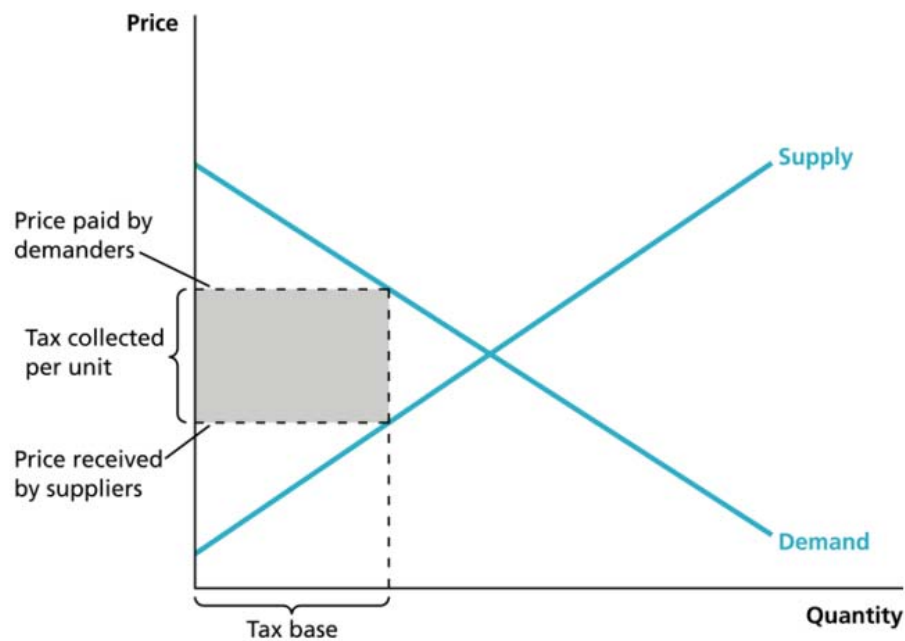$$q = -\frac{\partial c_s(s^*, x^*)}{\partial x}$$

- Consuming firm:

$$\max_{f,x} p_f f - c_f(f, x) + qx$$

- Conditions:

$$p_f = \frac{\partial c_f(f^*, x^*)}{\partial f}$$

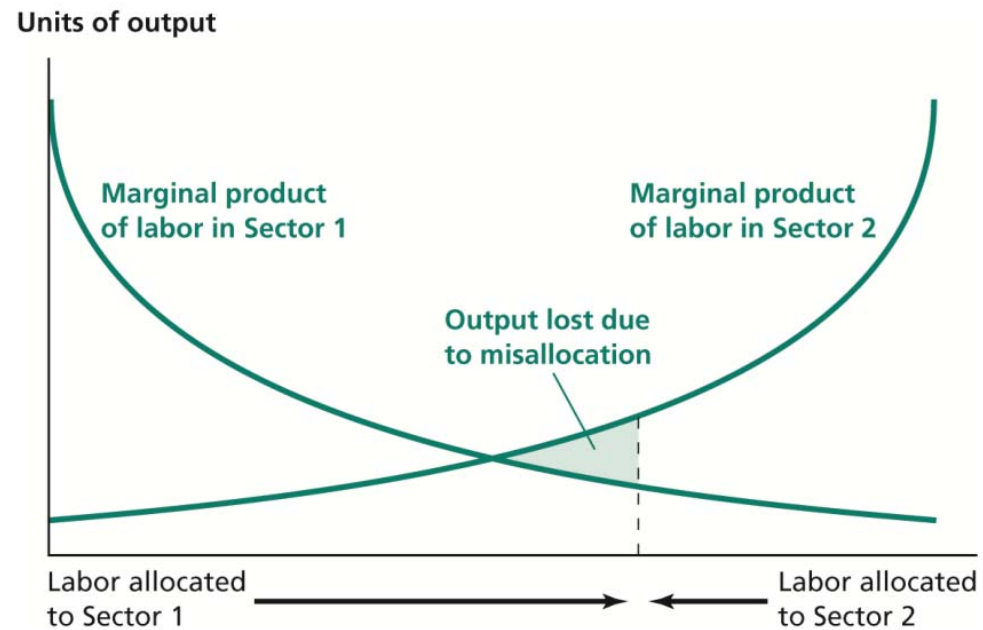$$q = \frac{\partial c_f(f^*, x^*)}{\partial x}$$

Government related problems

Deadweight loss of taxation

Government Related problems

- ## Industrial policy

Units of output

Marginal product of labor in Sector 1

Marginal product of labor in Sector 2

Output lost due to misallocation

Labor allocated to Sector 1

Labor allocated to Sector 2

- Subsidies to sectors, wage controls, import monopolies, ISI, and the like

Government related problems

- Corruption
- Kleptocracy
- Self-preservation