

Public Goods

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Why public goods?

- Many goods and services are supplied by the government.
- Examples: Roads, bridges, public transportation, public utility, compulsory education, social insurance, police, national defense, etc.

Externality

- An *externality* is present whenever the well-being of a consumer or the production possibilities of a firm are directly affected by the actions of another agent in the economy.
- Example: environmental pollution, public goods.

Bilateral Externality

Agent 1

$$\max u(x_1)$$

Agent 2

$$\max u(x_1, x_2)$$

where x_1 is the consumption of agent 1,
 x_2 is the consumption of agent 2.

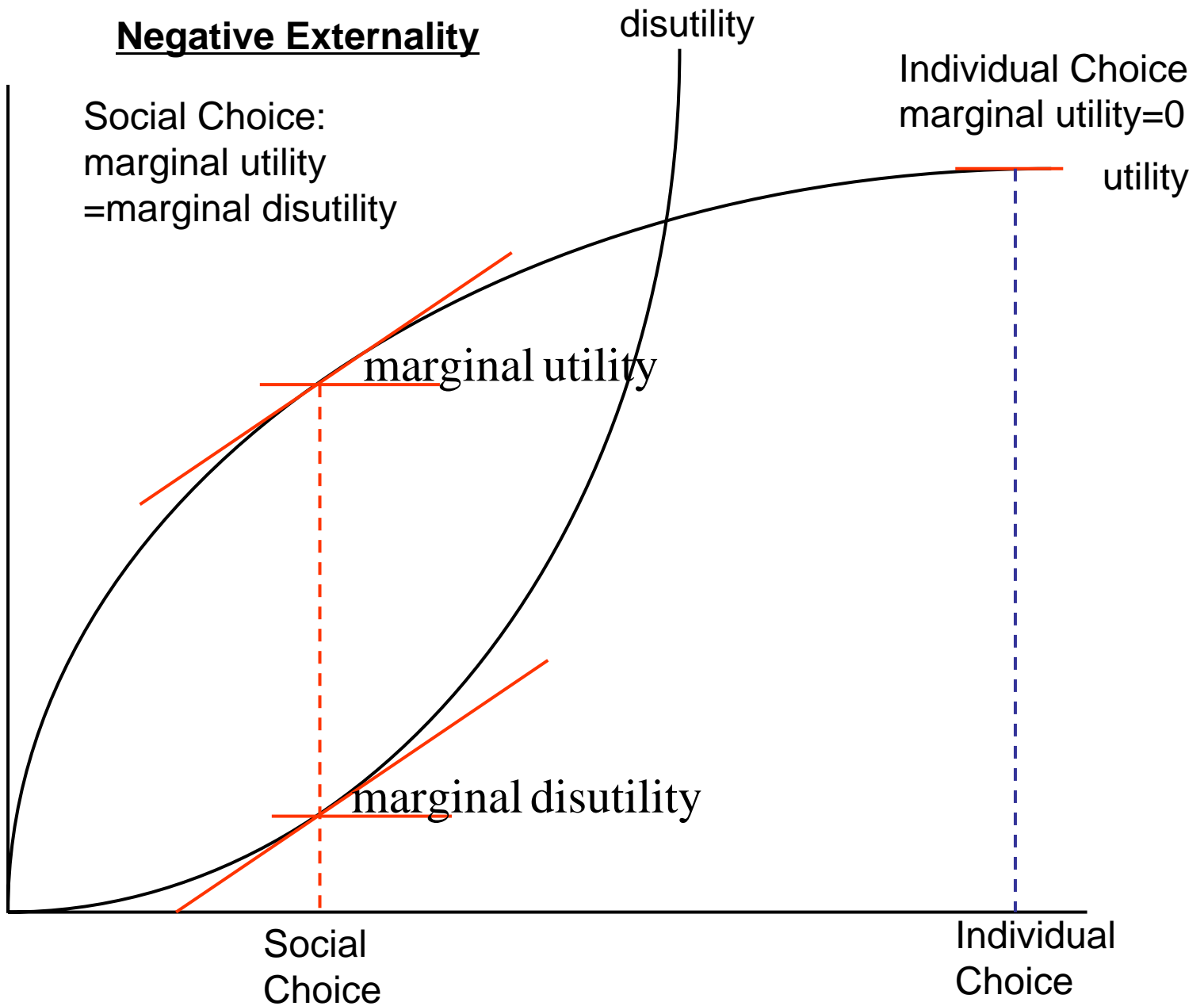
Individual and Society

- Each agent considers his own utility only, and neglects the influence his choice has on the other agent's utility.
- If agent 1's consumption has *negative* externality on agent 2's utility, agent 1's individual consumption is *larger* than its socially optimal level.
- If agent 1's consumption has *positive* externality on agent 2's utility, agent 1's individual consumption is *smaller* than its socially optimal level.

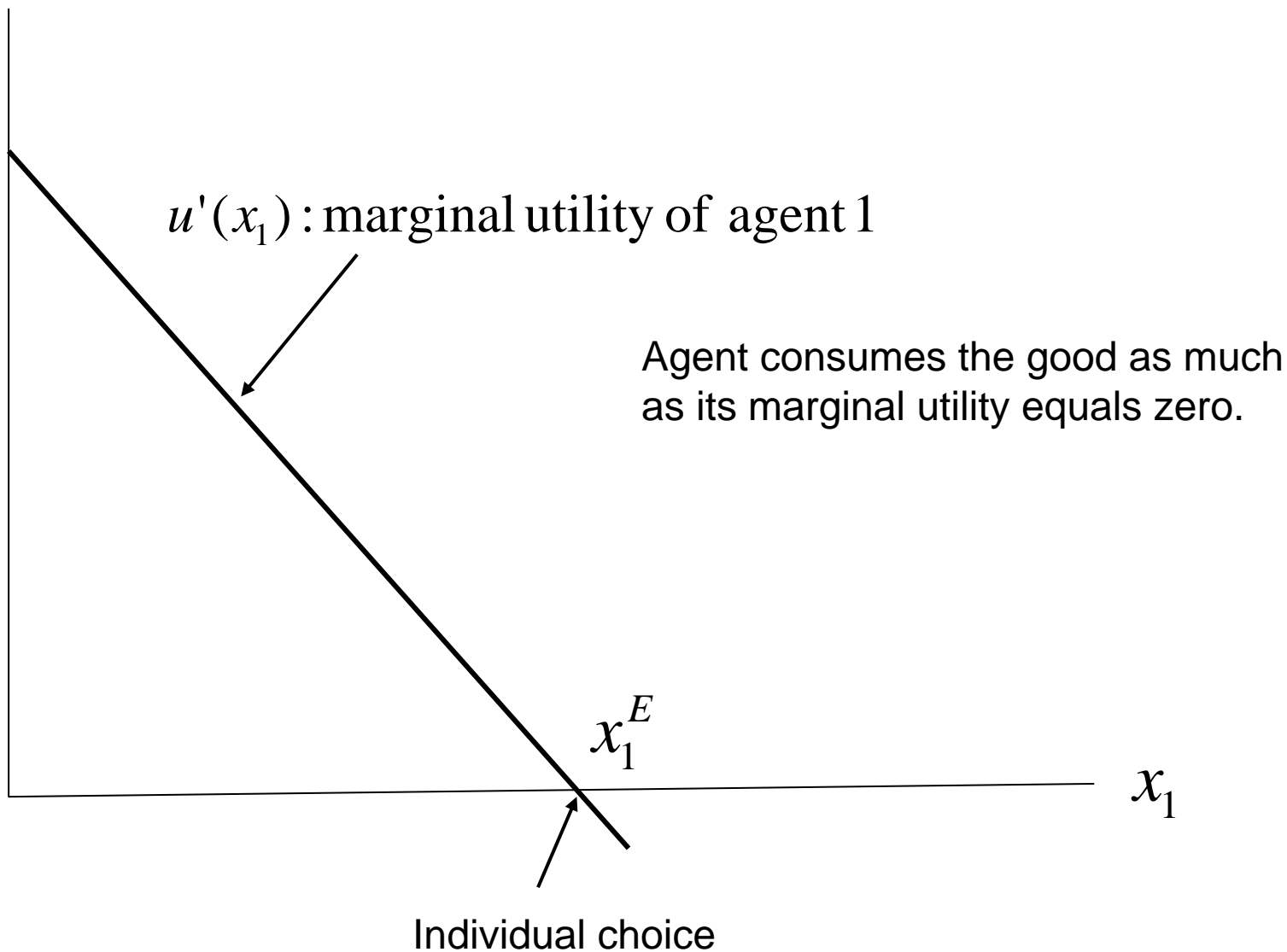
Negative Externality

- Pollution is a typical example of negative externality.
- Firms produce products that might worsen the environment, but they neglect these negative externalities.
- The firms' choice of pollution level is too large to maximize the social welfare.

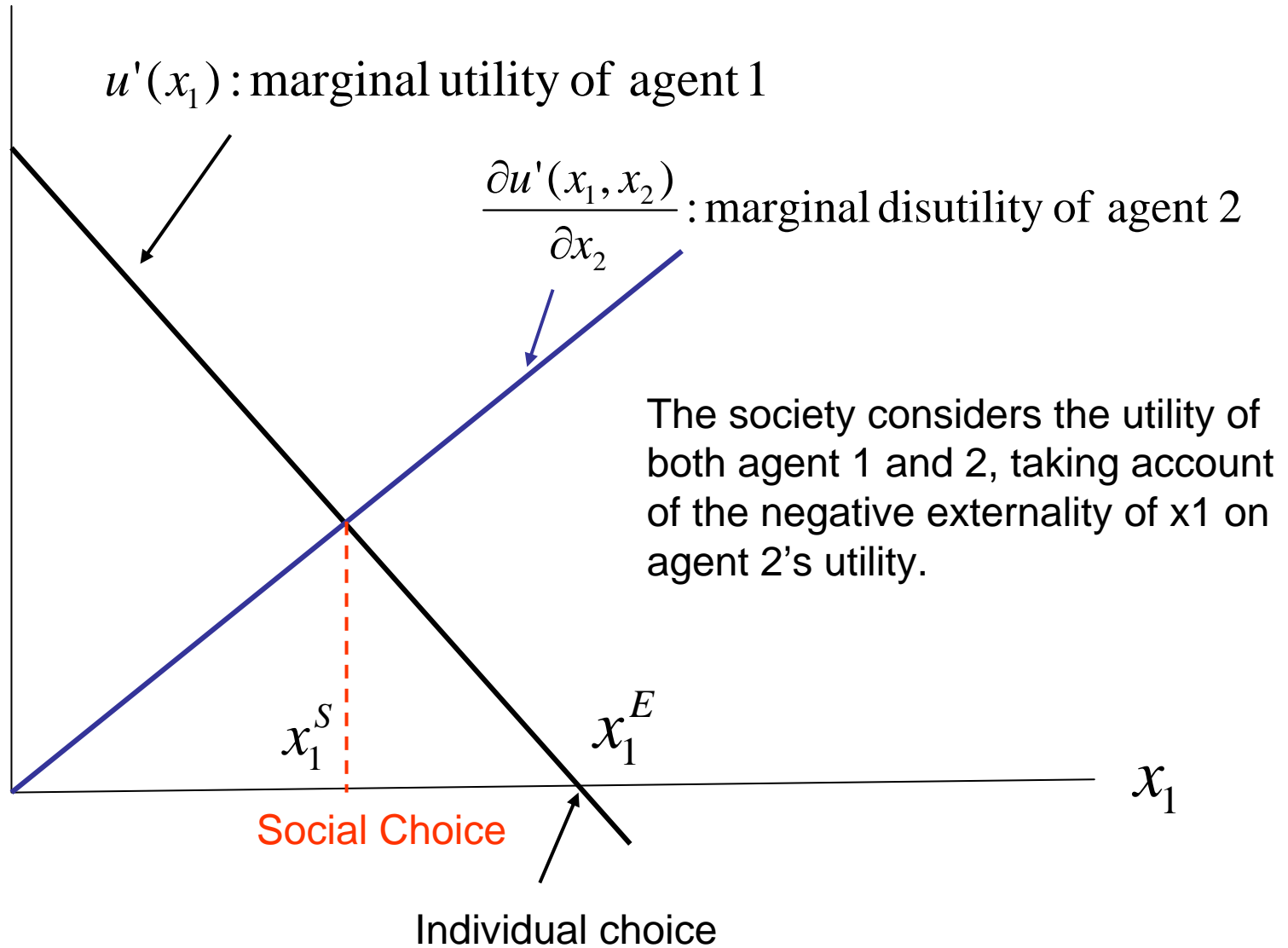
Negative Externality



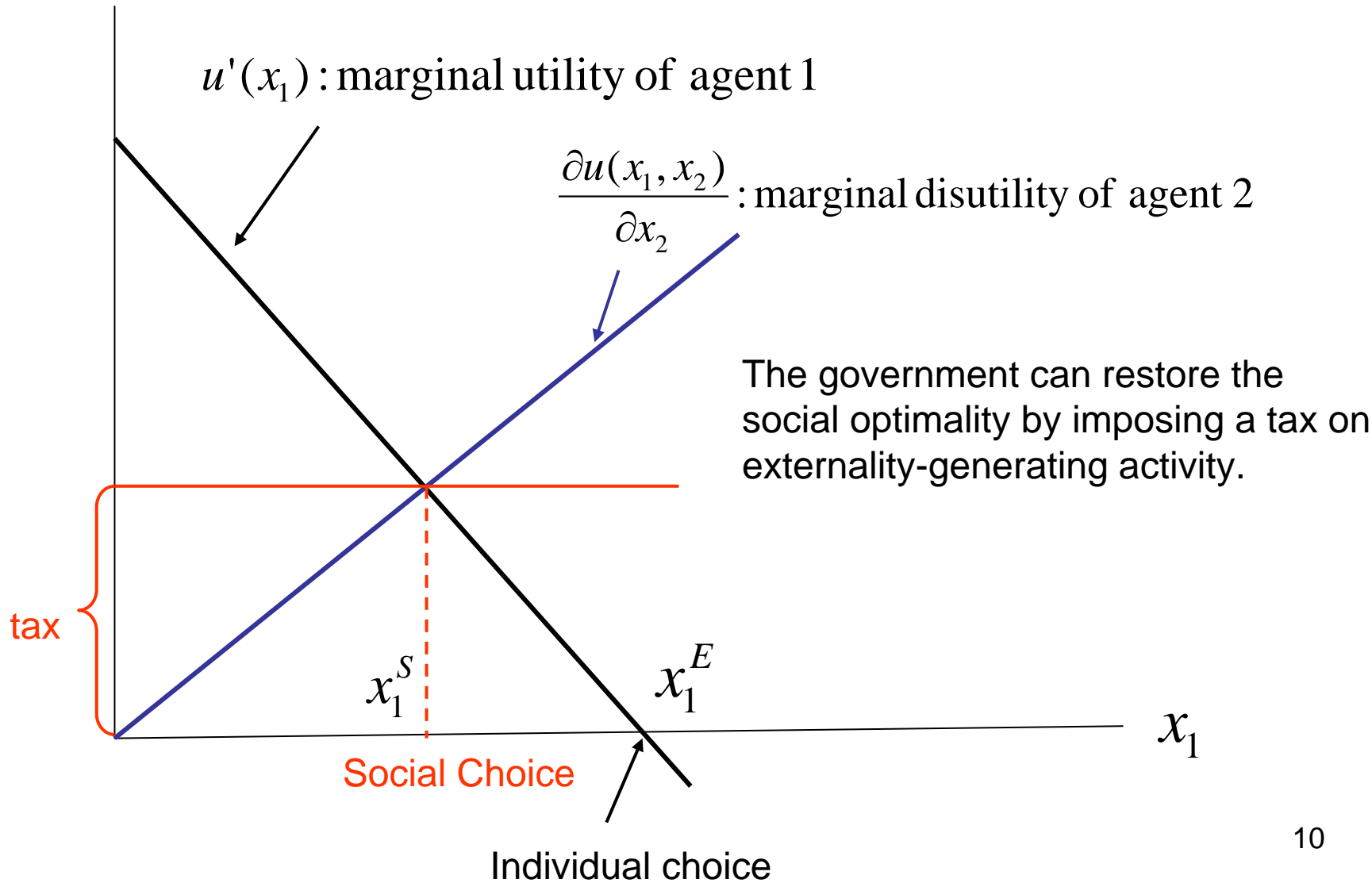
Individual Choice



Social Choice



The Remedy: Pigouvian Taxation

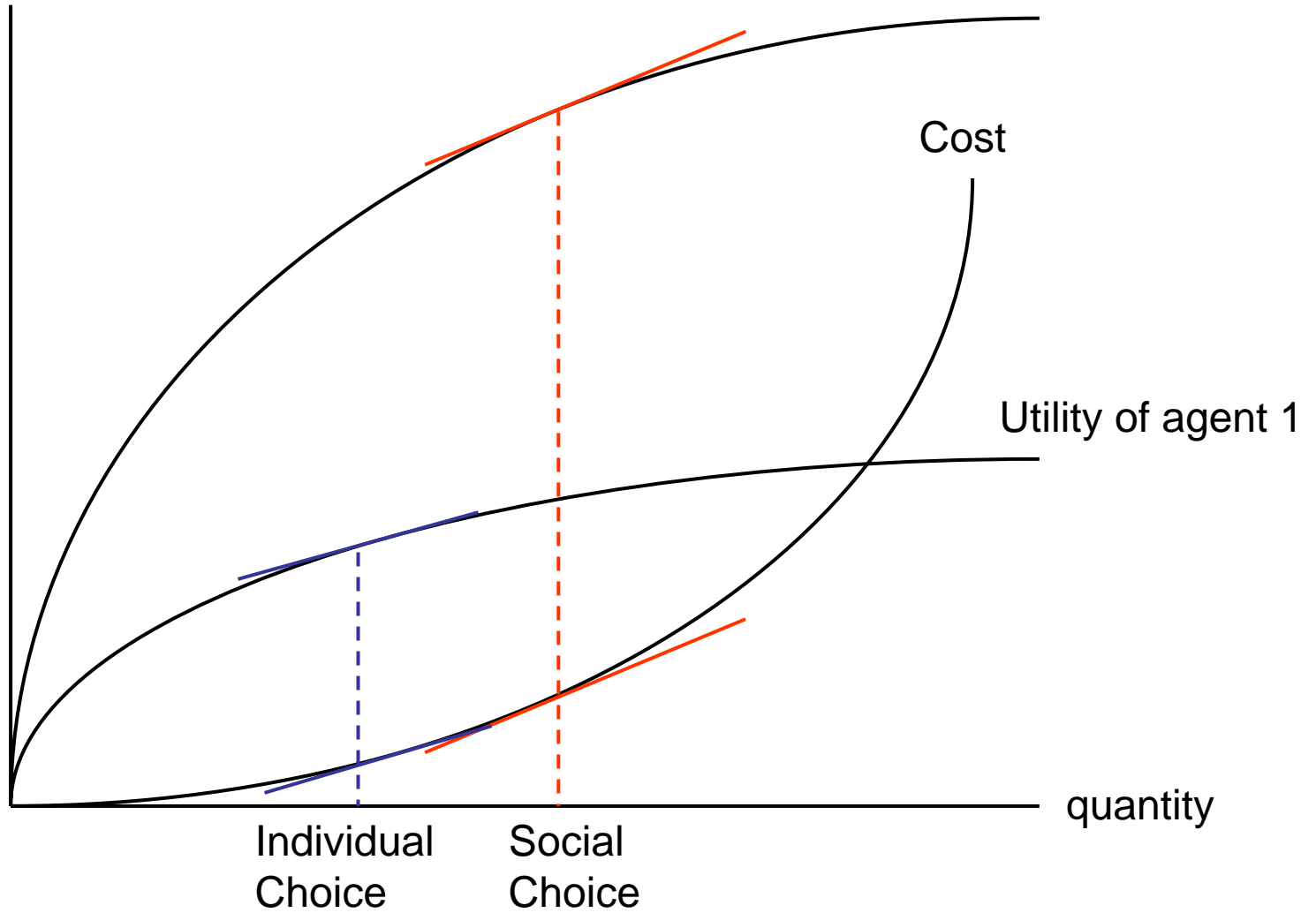


Positive Externality

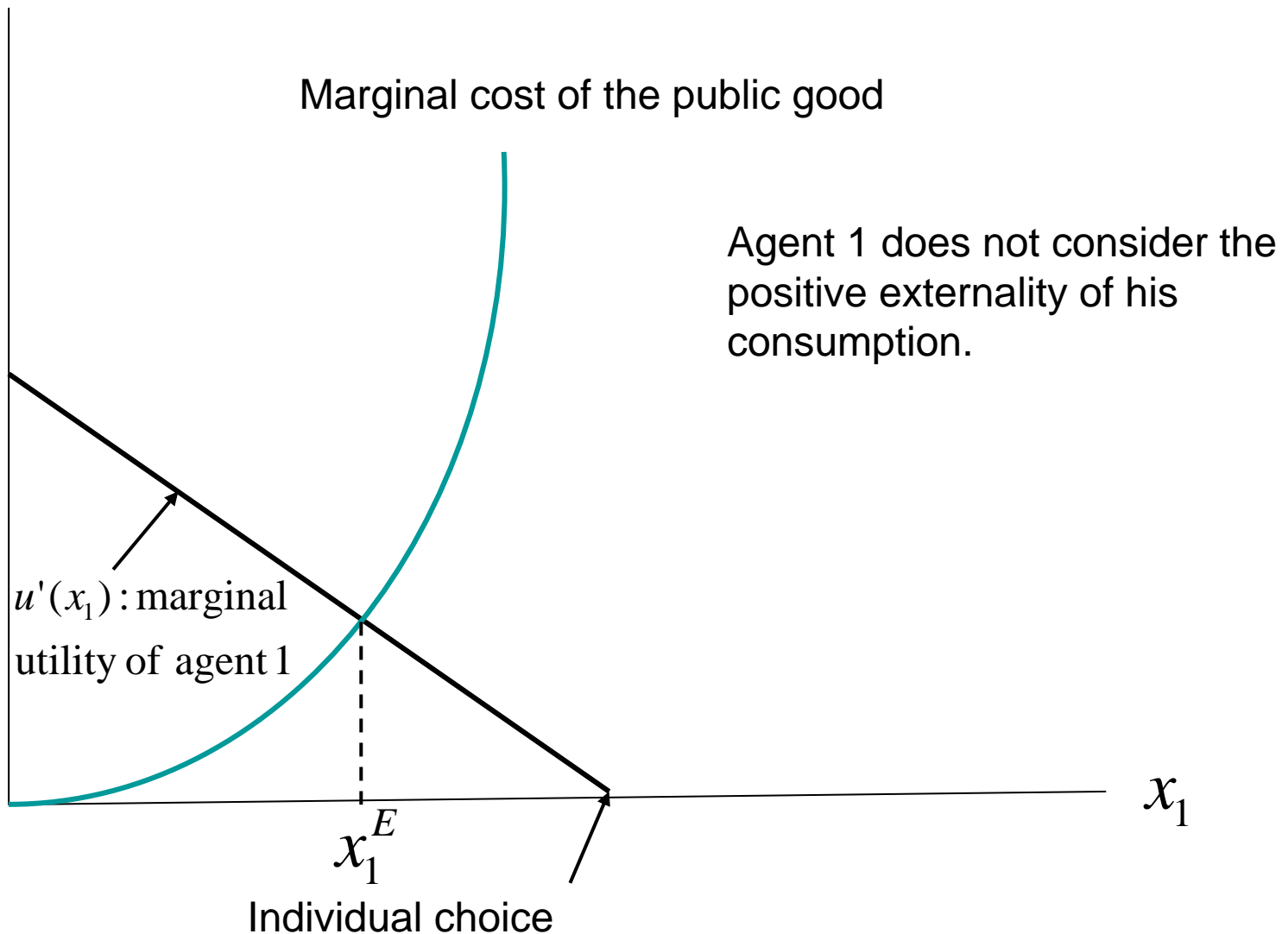
- Many public goods (to be defined later), such as roads, bridges, compulsory education, police, national defense, have positive externality.
- When you walk on the street, your walking is to consume the road, but in most cases, your walking does not prohibit other people from walking.
- Police provides a secure living environment. However, your security is, in most cases, your neighborhood's security as well.

Positive Externality

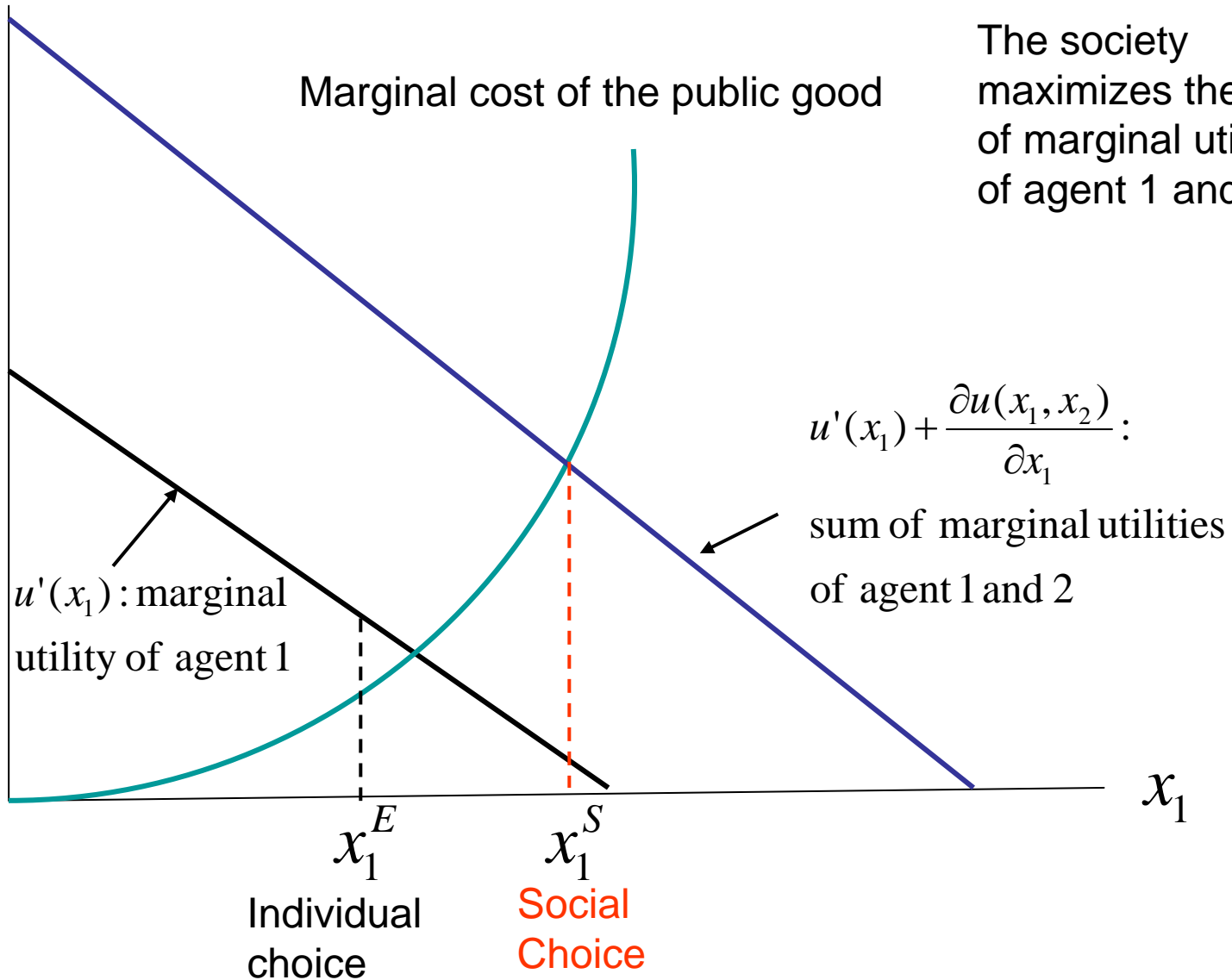
Sum of utilities of agent 1 and agent 2



Individual Choice



Social Choice



Internalize the externality (Pigouvian Taxation and Subsidy)

- If there is negative externality, the individual choice is larger than the social choice. The government can restore the social optimality by *taxing on* the externality-generating action.
- If there is positive externality, the individual choice is smaller than the social choice. The government can restore the social optimality by *subsidizing* the externality-generating action.

Public Goods

- A *public good* is a commodity for which use of a unit of the good does not preclude its use by other agents.
- The provision of a public good faces a serious problem. It is difficult to know the people's evaluation of the public good.

The Optimality

- The social planner maximizes the sum of the utilities of individuals.
- The sum of marginal utility (and disutility) must be equalized to the marginal cost.

There are n agents.

If x units of the private good is provided, the optimality satisfies

$$\sum_{i=1}^n \frac{\partial u_i(x)}{\partial x} = \frac{\partial c(x)}{\partial x}.$$

Public Corporations

- In Japan, so many private goods have been supplied by public corporations, which are owned and/or managed by the government.
- Examples: banks and financial services, public transportation, real estate developers.

Government Financial Institution

- Postal saving systems provide much more convenient services (huge number of branches, competitive interest rate on deposits, no maintenance fees).
- Government Housing Loan Corporation (GHLC) accounts for 40% of all home mortgage loans.
- The public has not been convinced that the government-sponsored financial institutions have large downward pressure on the profitability of private sectors.

Privatization

- Since 1980s, the government has been privatizing public corporations.
- National Railroads was privatized in 1985.
- NTT, the telecommunication giant, was privatized in 1988.
- Now the Koizumi government prepares for the privatization of the Postal Saving System.