

Chapter 8 – Externalities

***In this chapter,
look for the answers to these questions:***

- What is an externality?
- Why do externalities make market outcomes inefficient?
- What public policies aim to solve the problem of externalities?
- How can people sometimes solve the problem of externalities on their own? Why do such private solutions not always work?

Introduction

- One of the Ten Principles from Chapter 1:

Markets are usually a good way to organize economy activity.

In absence of market failures, the competitive market outcome is efficient, maximizes total surplus.

- One type of market failure:
externality, the uncompensated impact of one person's actions on the well-being of a bystander.
- Externalities can be **negative** or **positive**, depending on whether impact on bystander is adverse or beneficial.

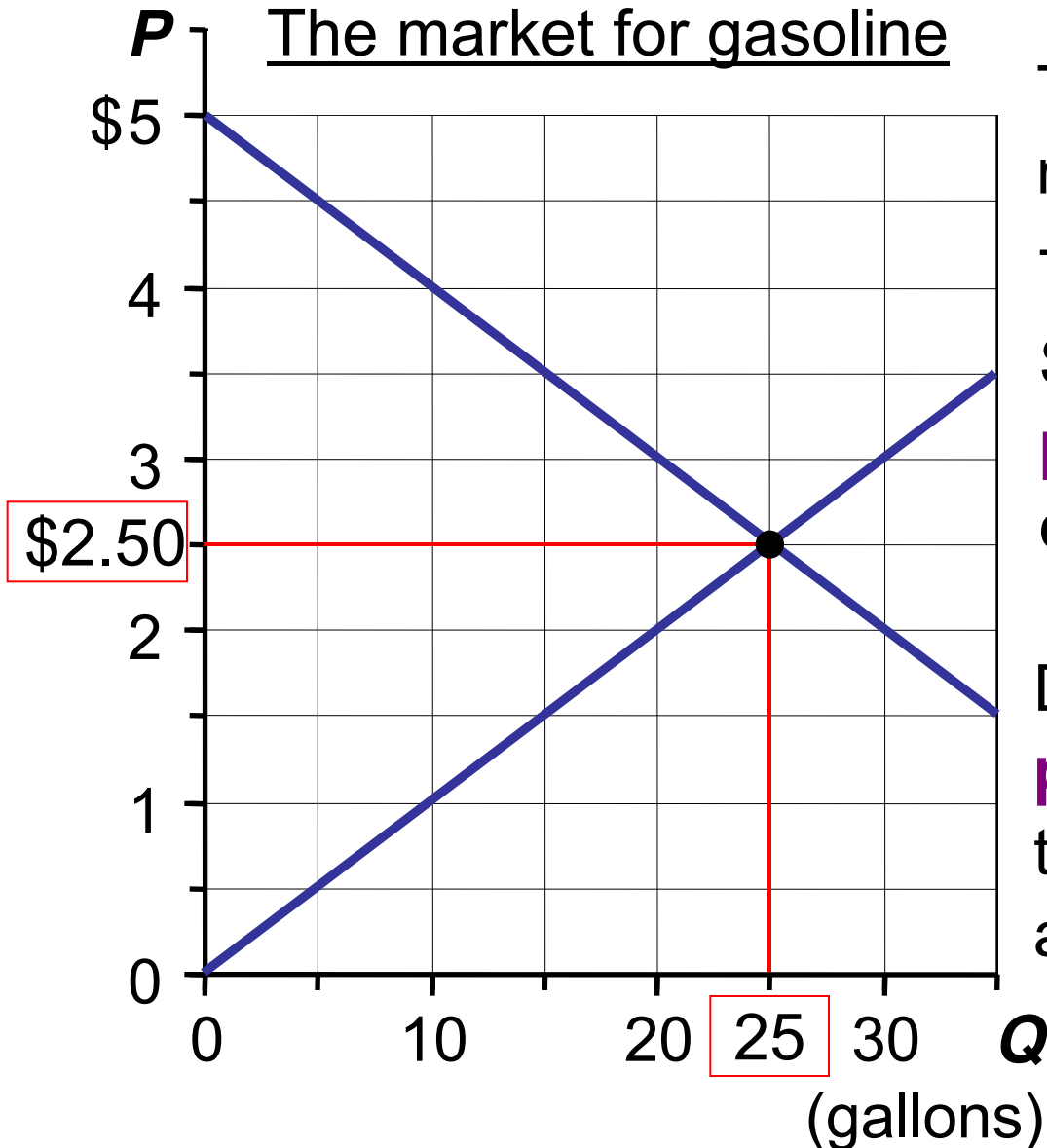
Examples of Negative Externalities

- Air pollution from a factory
- The neighbor's barking dog
- Late-night stereo blasting from the dorm room next to yours
- Noise pollution from construction projects
- Health risk to others from second-hand smoke
- Talking on cell phone while driving makes the roads less safe for others



Recap of Welfare Economics

The market for gasoline

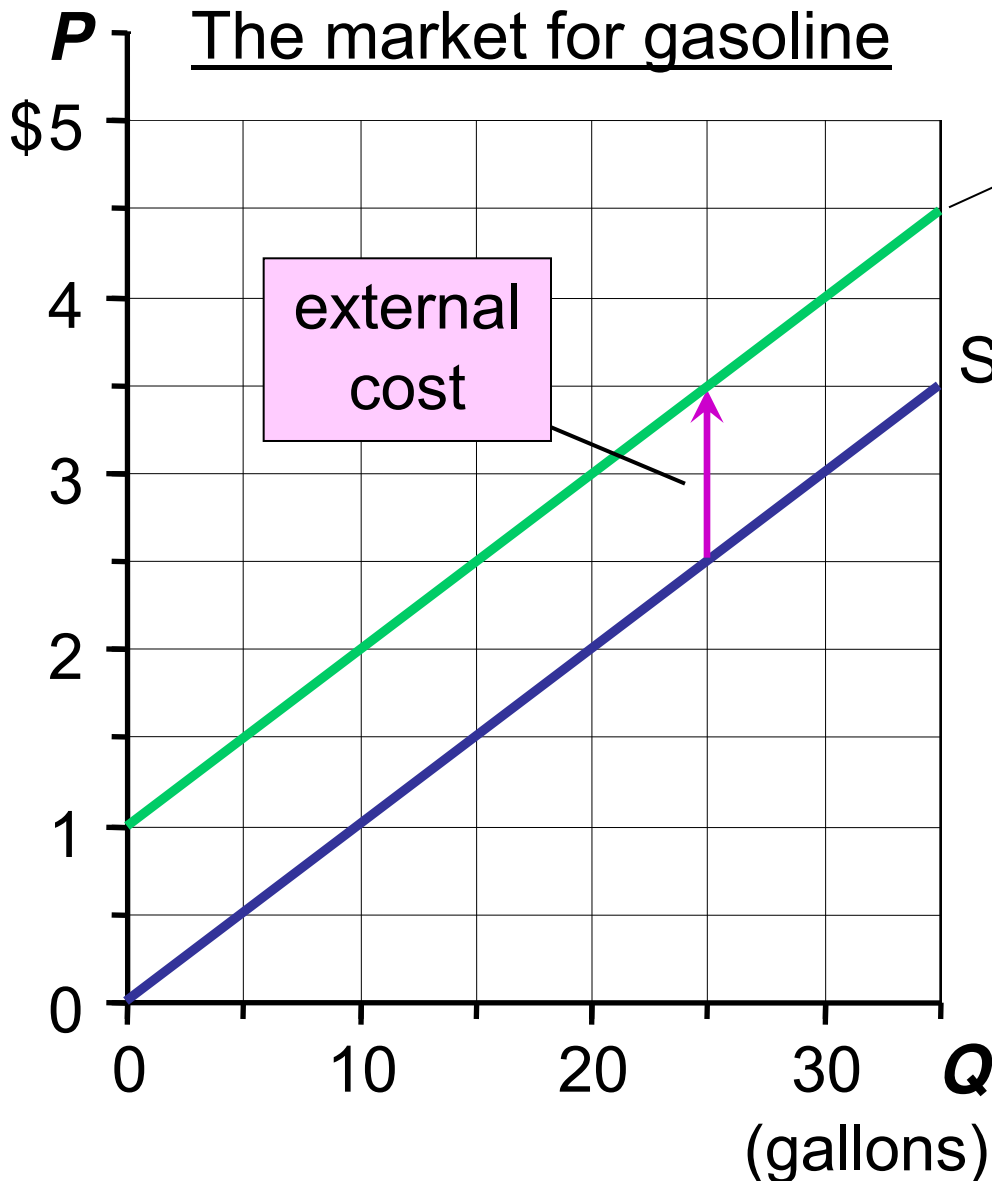


The market eq'm maximizes consumer + producer surplus.

Supply curve shows **private cost**, the costs directly incurred by sellers.

Demand curve shows **private value**, the value to buyers (the prices they are willing to pay).

Analysis of a Negative Externality



Social cost

= private + external cost

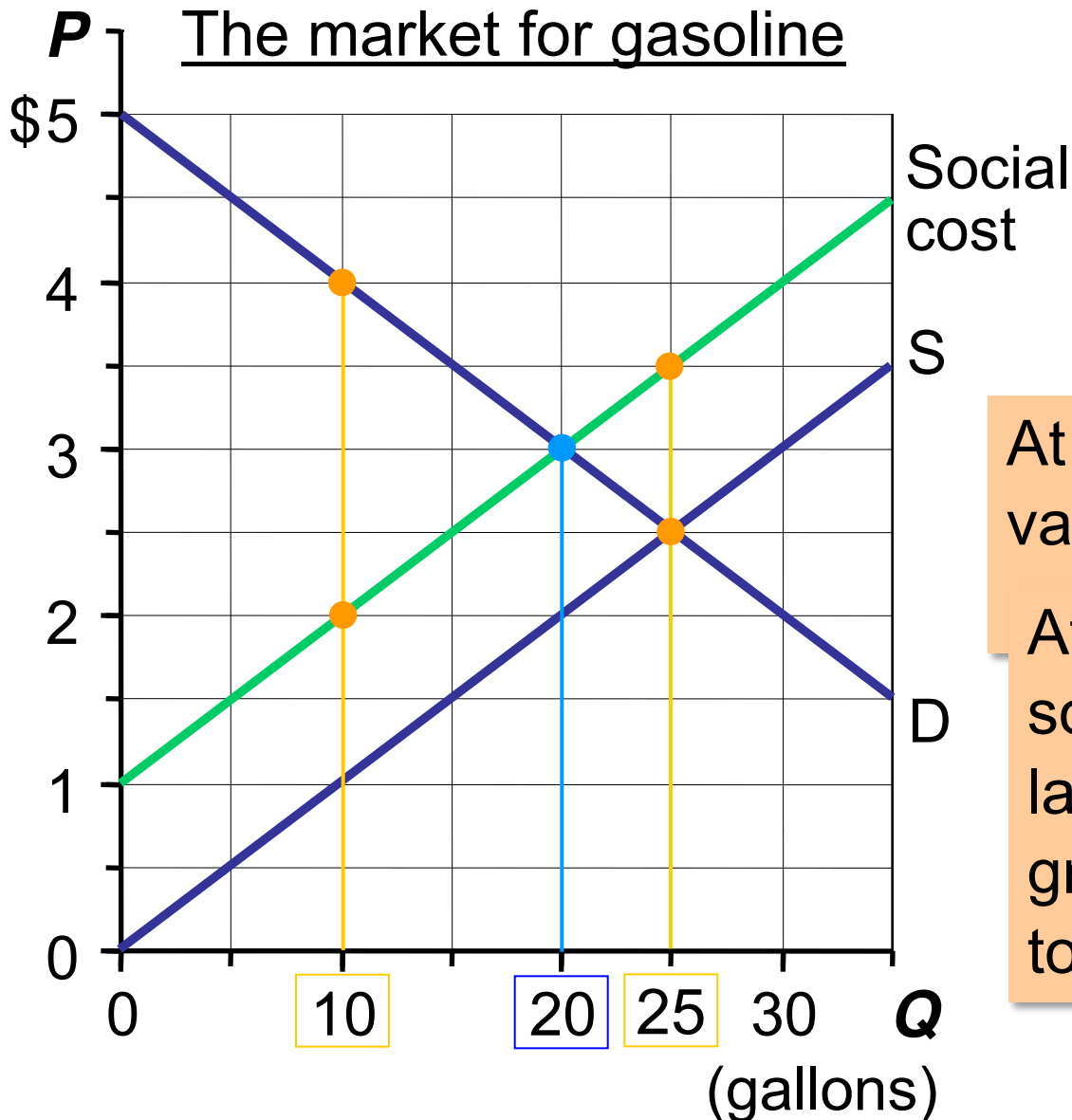
Supply (private cost)

External cost

= value of the
negative impact
on bystanders

= \$1 per gallon
(value of harm
from smog,
greenhouse gases)

Analysis of a Negative Externality

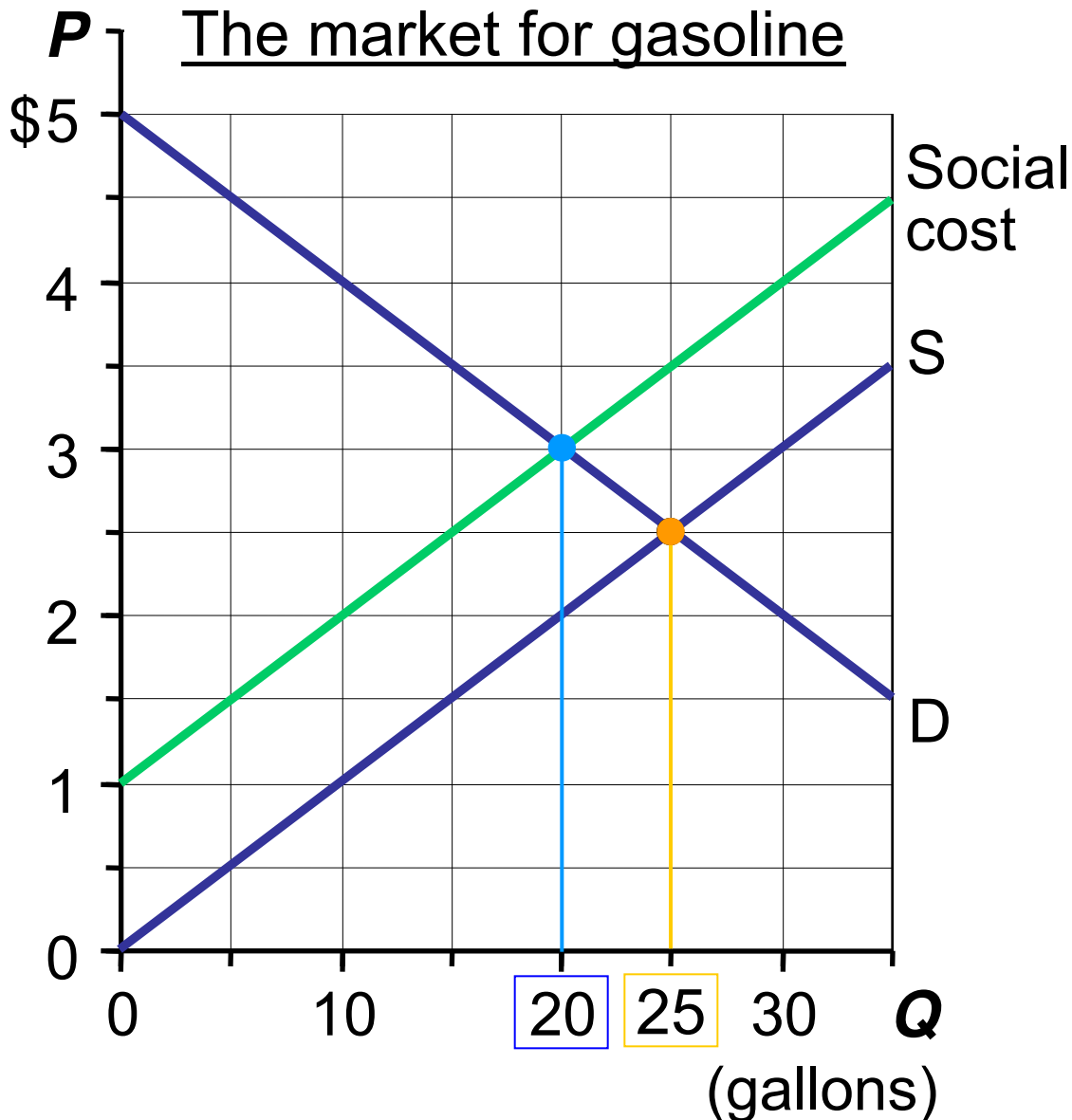


The socially optimal quantity is 20 gallons.

At any $Q < 20$, value of additional gas

At any $Q > 20$, social cost of the last gallon is greater than its value to society.

Analysis of a Negative Externality



Market eq'm
($Q = 25$)
is greater than
social optimum
($Q = 20$).

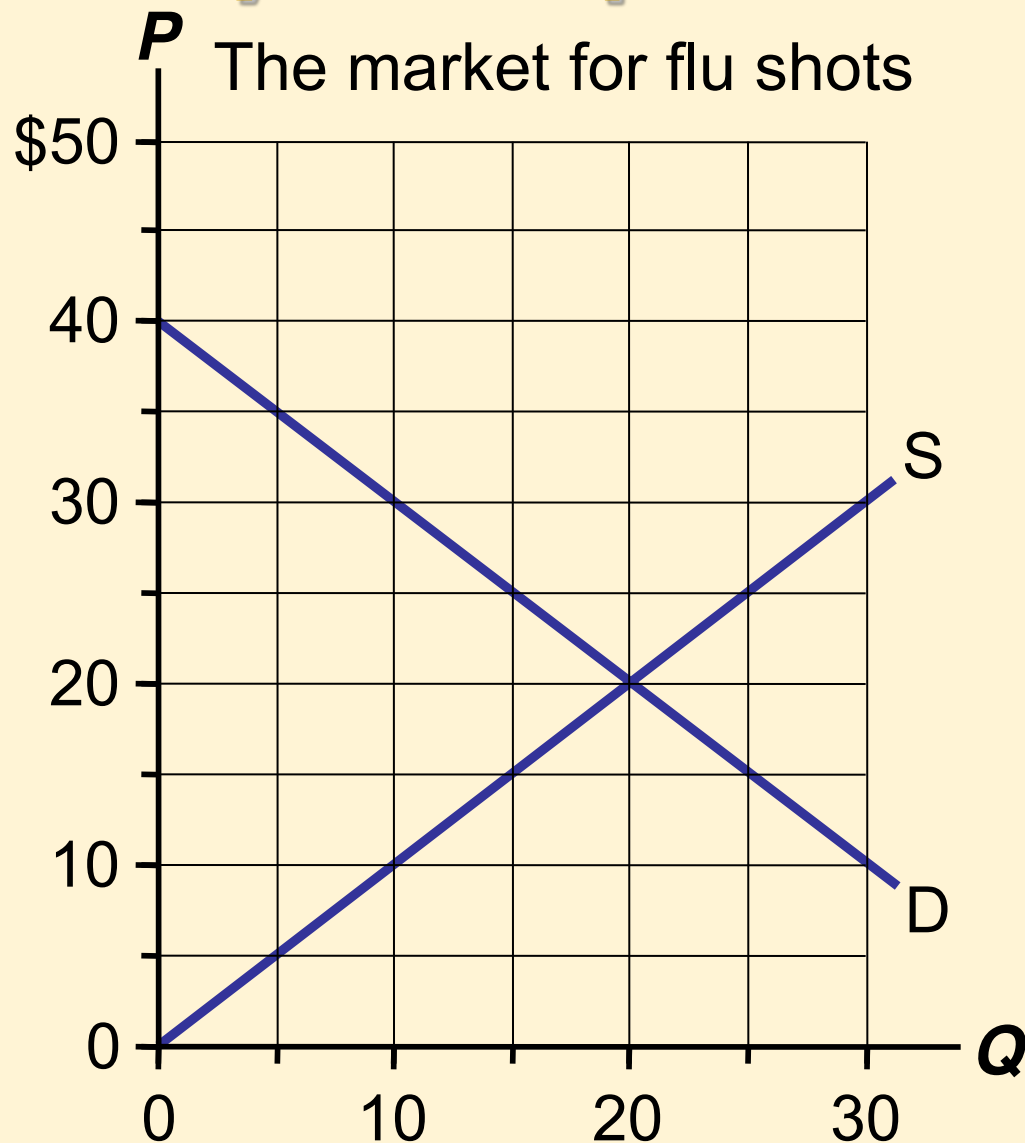
One solution:
tax sellers
\$1/gallon,
would shift
 S curve up \$1.

Positive Externalities

- In the presence of a positive externality, the **social value** of a good includes
 - **private value** – the direct value to buyers
 - **external benefit** – the value of the positive impact on bystanders
- The socially optimal **Q** maximizes welfare:
 - At any lower **Q** , the social value of additional units exceeds their cost.
 - At any higher **Q** , the cost of the last unit exceeds its social value.

ACTIVE LEARNING 1

Analysis of a positive externality

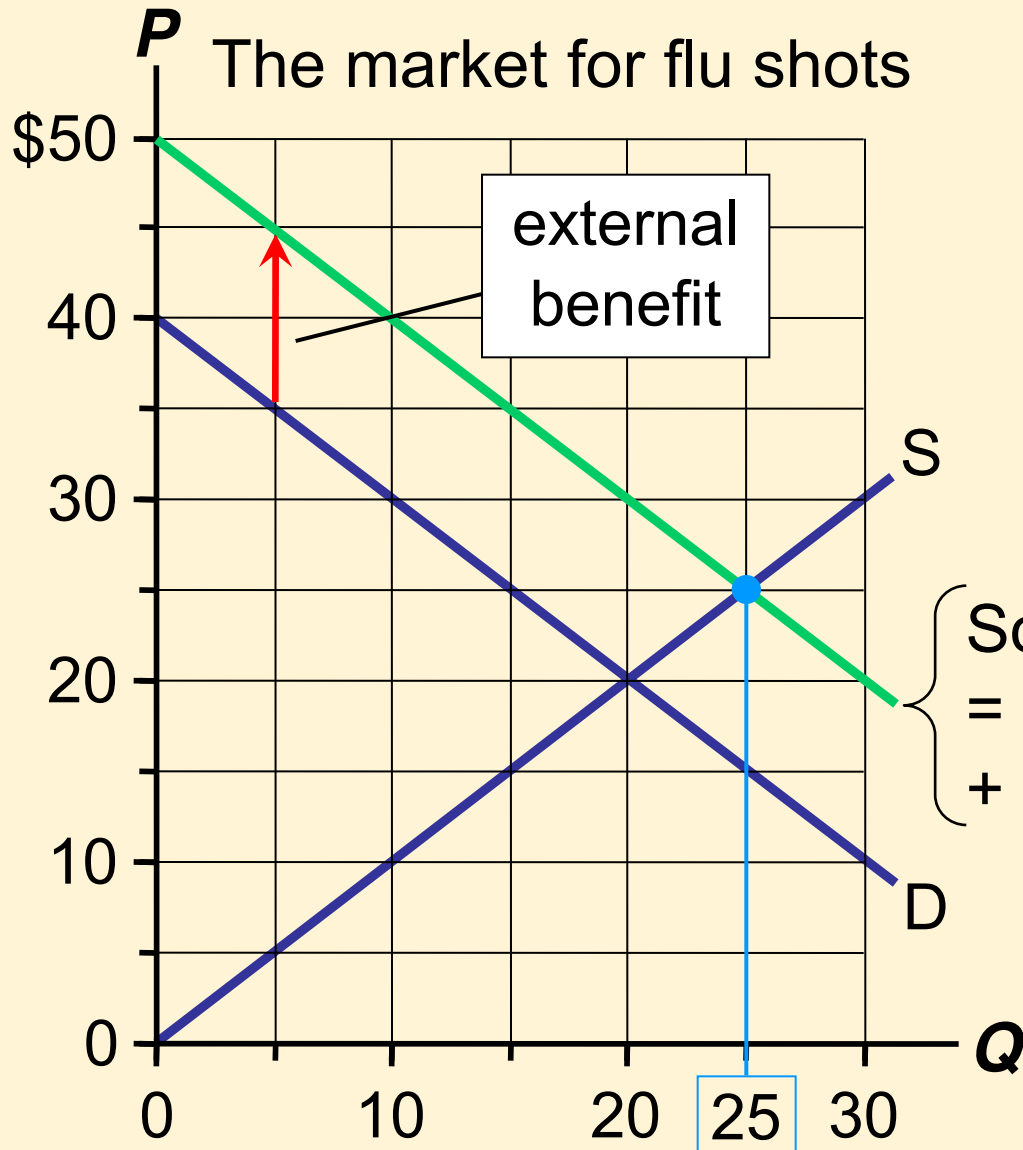


External benefit
= \$10/shot

- Draw the social value curve.
- Find the socially optimal **Q**.
- What policy would internalize this externality?

ACTIVE LEARNING 1

Answers



Socially optimal Q
= 25 shots.

To internalize the
externality, use
subsidy = \$10/shot.

Effects of Externalities: Summary

If negative externality

- market quantity larger than socially desirable

If positive externality

- market quantity smaller than socially desirable

To remedy the problem,
“internalize the externality”

- tax goods with negative externalities
- subsidize goods with positive externalities

Public Policies Toward Externalities

Two approaches:

- **Command-and-control policies** regulate behavior directly. Examples:
 - limits on quantity of pollution emitted
 - requirements that firms adopt a particular technology to reduce emissions
- **Market-based policies** provide incentives so that private decision-makers will choose to solve the problem on their own. Examples:
 - corrective taxes and subsidies
 - tradable pollution permits

Corrective Taxes & Subsidies

- **Corrective tax**: a tax designed to induce private decision-makers to take account of the social costs that arise from a negative externality
- Also called **Pigouvian taxes** after Arthur Pigou (1877-1959).
- The ideal corrective tax = external cost
- For activities with positive externalities, ideal corrective subsidy = external benefit

Why Private Solutions Do Not Always Work

1. Transaction costs:

The costs parties incur in the process of agreeing to and following through on a bargain. These costs may make it impossible to reach a mutually beneficial agreement.

2. Stubbornness:

Even if a beneficial agreement is possible, each party may hold out for a better deal.

3. Coordination problems:

If # of parties is very large, coordinating them may be costly, difficult, or impossible.

SUMMARY

- An externality occurs when a market transaction affects a third party. If the transaction yields negative externalities (e.g., pollution), the market quantity exceeds the socially optimal quantity. If the externality is positive (e.g., technology spillovers), the market quantity falls short of the social optimum.

SUMMARY

- Sometimes, people can solve externalities on their own. The Coase theorem states that the private market can reach the socially optimal allocation of resources as long as people can bargain without cost. In practice, bargaining is often costly or difficult, and the Coase theorem does not apply.

SUMMARY

- The government can attempt to remedy the problem. It can internalize the externality using corrective taxes. It can issue permits to polluters and establish a market where permits can be traded. Such policies often protect the environment at a lower cost to society than direct regulation.