HS 200
Environmental Studies

Environmental Economics
Video 2

Prof. Aditi Chaubal
aditichaubal@iitb.ac.in

Microeconomic theory – Externalities

Chapter 10
$\boxed{\text{Externalities}}$

Overview:

- Recall: Market equilibrium, inefficiency, welfare economics, producer and consumer surplus

➢ Why do markets sometimes fail to allocate resources efficiently?

➢ How can government policies potentially improve the market's allocation?

➢ What policies are likely to work best?

- Externalities – Positive and negative ✓
- Externalities and the social optimum ✓
    - Pollution
    - Technology spillovers
- Solutions to externalities
    - Private – Coase theorem
    - Public – Pigouvian taxes, subsidies and regulation, tradable permits

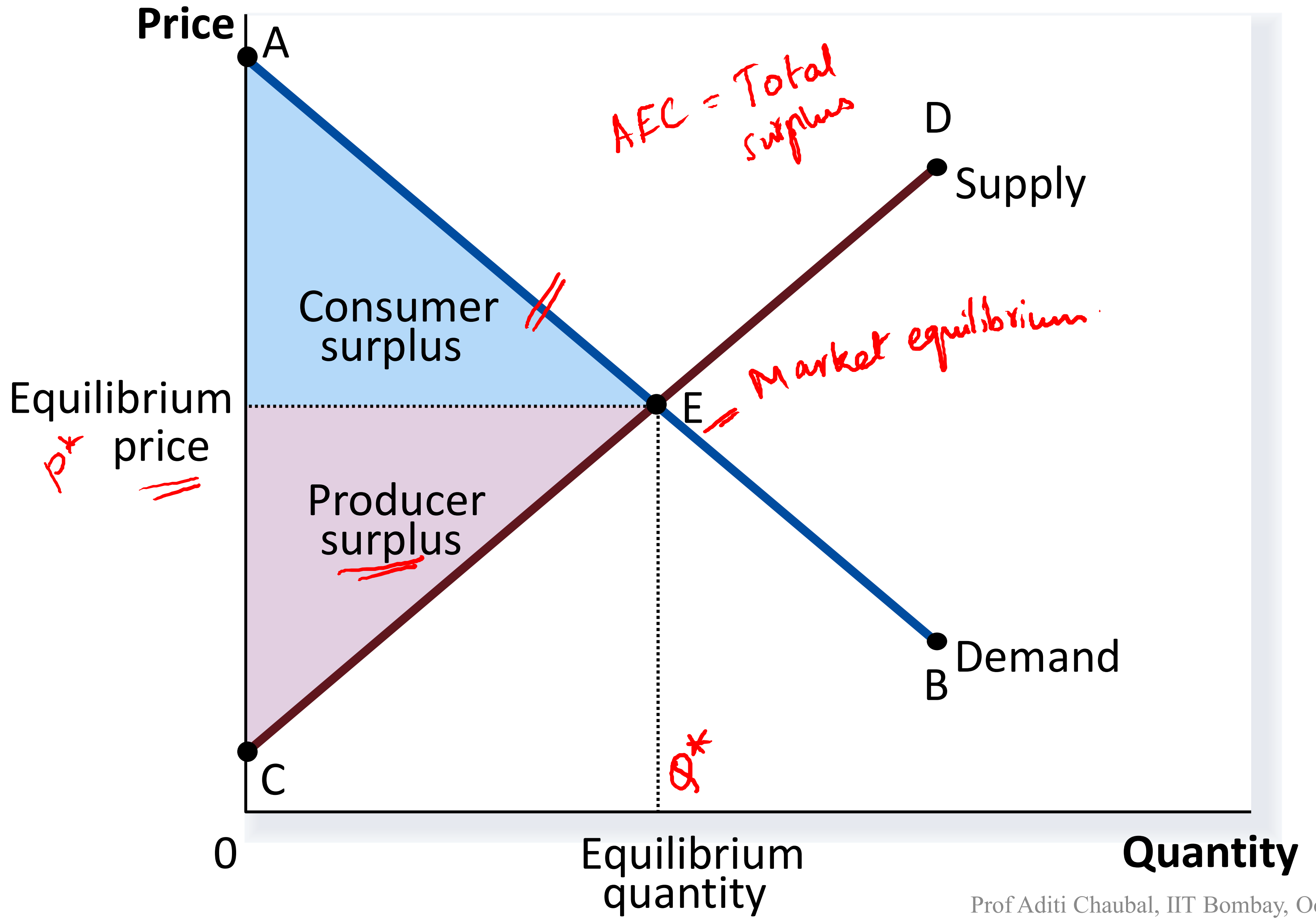
Recall…

- Adam Smith's "*invisible hand*" theory of the market
  - Self-interested buyers and sellers in a market maximize the total benefit that society can derive from a market
  - Market economy is one which allocates resources through decentralized decisions of firms and households as they interact in the markets for goods and services.
- Demand and supply for a firm:
  - **Demand curve**: Reflects the value of the product to the buyer measured by the prices they are willing to pay; negative slope (quantity demanded at different price levels)
  - **Supply curve**: Reflects costs incurred by the seller / cost of production; positive slope (quantity supplied at different price levels)

Recall…

- **Market equilibrium** is the quantity which maximizes the total value to the buyers minus the total costs to the seller → Absence of government interventions.
- **Market failure** refers to a situation in which the market on its own fails to produce an efficient allocation of resources
- **Consumer surplus**: buyer's willingness to pay for a good (or the maximum amount a buyer will pay for a good) *minus* amount actually paid = area below the demand curve and above the price
- **Producer surplus**: measures the benefit to the seller participating in the market = amount received by the seller – cost of production incurred by the seller (*How is it different from profit*?)
  = area under the price and above the supply curve

Consumer and Producer Surplus in market equilibrium



Recall…

- **Efficiency**: Property of resource allocation to maximize the total surplus received by all members of the society

- **Equity**: Fairness of distribution of well-being between the buyers and sellers

- **Welfare economics**: Study of how allocation of resources affects economic well-being

Externalities and market inefficiency

- An ***externality*** refers to the uncompensated impact of one person's (or agent's) actions on the well-being of a bystander.

- Externalities cause markets to be inefficient (inefficiency in allocation of goods and resources), and thus fail to maximize total surplus.

- Other cause of market failure: **Market power**

Externalities and market inefficiency

- When the impact on the bystander is adverse, the externality is called a ***negative externality***.
- Examples ? → polluting factory (air, water) → any person living around the factory.

→ exhaust from cars.

→ Excessive fishing

- When the impact on the bystander is beneficial, the externality is called a ***positive externality***.
- Examples ?

- In both cases, an economic agent is failing to take into account the external effects of his/her behavior.

Externalities and market inefficiency

firms + buyers
society

- Negative externalities lead markets to produce a larger quantity than is socially desirable.
- In the presence of externalities, society's interest in a market outcome extends beyond the well-being of buyers and sellers in the market; it also includes the well-being of bystanders who are affected.
- Because buyers and sellers neglect the external effects of their actions when deciding how much to demand or supply, the market equilibrium is not efficient when there are negative externalities.
- The equilibrium fails to maximize the total benefit to society as a whole.
  CS+PS

Pollution and the social optimum

1) -ve externality
2) positive "

- Consider the example of a factory producing a good (say, aluminum)
- The demand and supply curves for the firm help determine the market equilibrium
- The demand curve reflects the value of aluminum to consumers in terms of the prices they are willing to pay
- The supply curve denotes the costs of producing (different quantities) aluminum
- In the **absence of government intervention**, the prices adjust to balance the demand and supply and attain the efficient market equilibrium (maximizing the *total surplus*)
- The quantity produced and consumed in the market equilibrium is efficient in the sense that it maximizes the sum of producer and consumer surplus.

Thank you