Lecture Note 5

EC1101E Summary Notes

September 10, 2023

First Fundamental Theorem of Welfare Economics

1. Market equilibrium is **efficient** if:
   - There are markets and market prices for all goods.
   - All buyers and sellers are **competitive price-takers**.
   - Each person's **utility** depends only on his own **consumption**.

   Price-taker: an individual or company that must accept prevailing prices in a market, lacking the market share to influence market price on its own.

2. Market Failures:
   - If any of the assumptions do not hold
   - Markets are not perfectly competitive
   - Transactions have externalities

   Market Power: manipulate the price of an item in the marketplace by manipulating the level of supply, demand or both.

Externality

1. **Definition:** A byproduct of consumption or production that affects someone other than the buyer or seller.

2. **Character:**

   - Externalities can be negative or positive, depending on whether the impact on the bystander is adverse or beneficial.
   - What matters for society: social costs and benefits — the sum of private and external costs and benefits.
   - Self-interested buyers and sellers consider only the private costs and benefits of their actions; they **neglect** the external costs or benefits of their actions. Hence the market outcome is **not efficient**.
   - Social Cost = Private Cost + External Cost

3. **Welfare Economics**

   - The market equilibrium maximizes consumer surplus and producer surplus.
   - The **supply curve** shows **private marginal cost** (PMC) — the costs directly incurred by sellers.
   - The **demand curve** shows **private marginal benefit** (PMB) — the value to buyers (the prices they are willing to pay).
   - Social Marginal Cost (SMC) = PMC + EMC

4. **Analysis**
   - External Marginal Cost (EMC) = value of the negative impact on bystanders
   - Social Benefit = Private Benefit + External Benefit

Public Policies on Externalities

1. **Command-and-control policies** regulate behavior directly
2. **Market-based policies** provide incentives so that **private decision-makers** will take into account the external costs and **benefits** of their actions
3. **Corrective tax:** A tax designed to induce **private decision-makers** to take account of the external costs that arise from a **negative** externality.
   - For activities with negative externalities:
     ideal corrective tax = external marginal cost (EMC)
   - For activities with positive externalities:
     ideal corrective subsidy = external marginal benefit (EMB)
4. Corrective taxes and subsidies
   - align private incentives with society's interests
   - induce private decision-makers to take into account the external costs and benefits of their actions
   - move the economy toward a more **efficient** allocation of resources

Private Solutions

1. **Coase Theorem:** If private parties can **costlessly bargain** over the allocation of resources, they can solve the externalities problem on their own.
   Example:
   - Jack owns a dog named Naughty Dog.
   - Naughty Dog's barking disturbs Jack's neighbor, Jill.
   - The socially efficient outcome maximizes both Jack's and Jill's well-being.
   - If Jack values having Naughty Dog more than Jill values peace and quiet, then the dog should stay.
2. Why Private Solutions Do Not Always Work?
   - **Transaction costs:** Parties may incur costs in the process of agreeing to and following through on a bargain that make it impossible to reach a mutually beneficial agreement.
   - **Stubborness:** Even if a beneficial agreement is possible, each party may hold out for a better deal.
   - **Coordination problems**: If the number of parties is very large, coordinating them may be costly, difficult, or impossible.

Important Characteristics of Goods

1. A good is **excludable** if a person can be prevented from using it.
   - Excludable: fries
   - Not excludable: national defense
2. A good is **rival** in consumption if one person's use of it diminishes other people's use of it.
   - Rival: hamburger
   - Not rival: an MP3 file of Beyoncé's latest single
3. **Priceless Goods:** We consume many goods without paying, eg.clean air, parks, wi-fi (sometimes), online news.

- When goods have no prices, the market forces that normally allocate resources are **absent**.
- The private market may fail to provide the socially optimal quantity of such goods.
- In such cases, governments may improve market outcomes.

Different Kinds of Goods

	Rival	**Not Rival**
Excludable	Private Good	Club Good
Not Excludable	Common Resource	Public Good

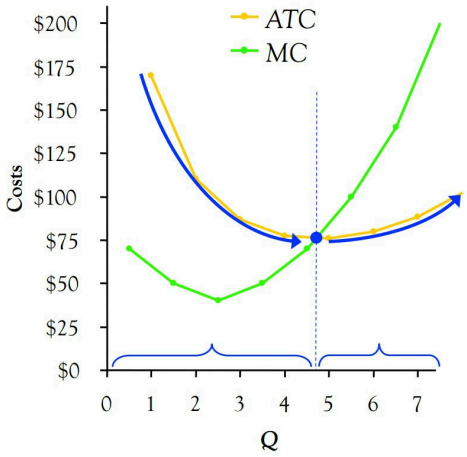
1. **Public Goods**
   - Since public goods are **not excludable**, people have **incentive** to be free riders — they receive the benefit of a good without paying for it.
   - benefit > cost → government should provide the good and pay for it **with a tax** on the people who benefit from it.
2. **Common Resources**
   - Free riders cannot be prevented from using them. There is **little incentive** for firms to provide them.
   - **Role for the government:** ensuring that they are provided and not overused.
   - Each person's use of a common resource reduces others' ability to use it.
3. **Tragedy of the Commons**
   - Illustrates why common resources are overused.
   - Describes many environmental problems like overfishing and climate change.
   - Negotiated agreements can solve the tragedy of the commons; the players just need to find a way to align their individual incentives with the goals of the group as a whole.
4. **The Role of the Government:** Policies to prevent overconsumption of common resources
   - **Privatize the resource**
     (convert land to a private good by dividing and selling parcels to individuals)
   - **Regulate use of the resource** (Beijing's license plate policy)
   - **Impose a corrective tax** (hunting and fishing licenses, entrance fees for national parks)
   - **Auction off permits allowing use of the resource**
     (electromagnetic frequency spectrum)

Profit Maximization

1. Profit = Total Revenue – Total Cost
   - **Total Revenue:** the amount a firm receives from the sale of its output
   - **Total Cost:** the market value of the inputs a firm uses in production
2. Think at the **margin**: cost of an additional cup of coffee (MC)< revenue you will get from selling it (MR) → your profits will rise if you produce more.
3. **Revenue**
   - Total Revenue(TR) = P × Q
   - Average Revenue(AR) = TR / Q = P

- Marginal Revenue (MR) = ΔTR / ΔQ
  (The change in Total Revenue from an additional unit sold)

4. **Cost**
   - Total Cost
   - Average Total Cost (ATC) = TC / Q
   - Marginal Cost (MC) = ΔTC / ΔQ
     (the change in Total Cost from an additional unit produced)
5. **MC & ATC**
   - MC $<$ ATC $\rightarrow$ ATC $\downarrow$
   - MC $>$ ATC $\rightarrow$ ATC $\uparrow$
   - The MC curve crosses the ATC curve at the ATC curve's **minimum**



6. If we $\uparrow$ Q by one unit, revenue $\uparrow$ by MR, cost $\uparrow$ by MC
   - If MR $>$ MC, then $\uparrow$ Q to raise profit
   - If MR $<$ MC, then $\downarrow$ Q to raise profit

Perfect Competition

1. In a perfectly competitive market:
   - There are many buyers and sellers.
   - Sellers offer a standardized product.
   - Sellers can freely enter or exit the market.
   - Buyers and sellers are well-informed.
2. Thus, each buyer and seller is a **price-taker**(the price is taken as given)
3. MR = P for a Competitive Firm (MR = P is only true for firms in competitive markets.)
4. MR = MC at the profit-maximizing Q
5. The Efficiency of a Competitive Market
   - Profit maximization: MR = MC
   - Perfect competition: P = MR
   - So, in the competitive equilibrium: P = MC
   - MC is the cost of producing the marginal unit. P is the value to buyers.
   - So, the competitive equilibrium is efficient; it maximizes total surplus.