7. Consumers, Producers, and the Efficiency of Markets

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What this chapter is about

- In the next few chapters, we will look at "efficiency", "welfare" of the market economy.
- **Positive** $\rightarrow$ **Normative**
- Do markets produce a desirable allocation of resources?
  - Or could the market outcome be improved upon?
- What is **consumer surplus**? 소비자잉여
  - How is it related to the demand curve?
- What is **producer surplus**? 생산자잉여
  - How is it related to the supply curve?

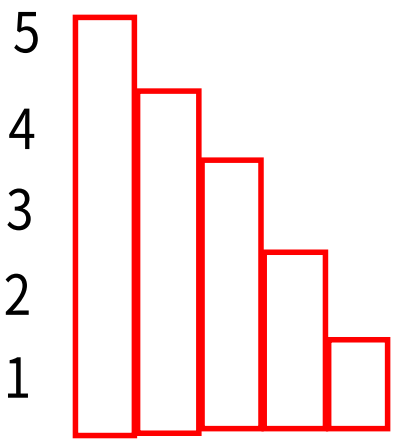
Welfare Economics

- Recall, the allocation of resources refers to:
  - how much of each good is produced
  - which producers produce it
  - which consumers consume it
- Welfare economics studies how the allocation of resources affects economic well-being.
  - Benefits that buyers and sellers receive from engaging in market transactions
  - How society can make these benefits as large as possible
- First, we look at the well-being of consumers.

지불의사액

Willingness to Pay (WTP) and Demand Curve

- A buyer's willingness to pay for a good is the maximum amount the buyer will pay for that good.
- WTP measures how much the buyer values the good.
- Example: 5 buyers' WTP for an icecream



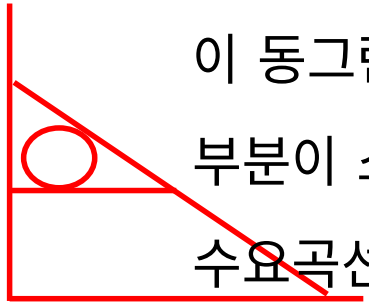
Buyer	WTP
Anthony	$5
John	$4
Tom	$3
Brad	$2
Daniel	$1

시장금액과 관계없이 그 물건을 얻기위해 지불할 최대 금액

WTP를 내림차순해서 막대그래프로 만든것이 수요곡선이다.

- Can obtain the demand schedule (and curve)
- Here, the staircase shape
  - With a huge number of buyers, the D curve would look smoother.

Consumer Surplus (CS)



이 동그란 원이 들어 있는 삼각형 부분이 소비자 잉여이다.

수요곡선 아래, 가격위의 넓이

- Consumer surplus is the amount a buyer is willing to pay minus the amount the buyer actually pays:

$$CS = WTP - P$$

- For a given P, we can easily obtain
  - CS for each person
  - Total CS
- Graphically, total CS equals the area under D curve above P.
- A higher price reduces CS for two reasons
  - Some buyers leave market
  - Remaining buyers pay higher P

시장에서 나가 버리거나,

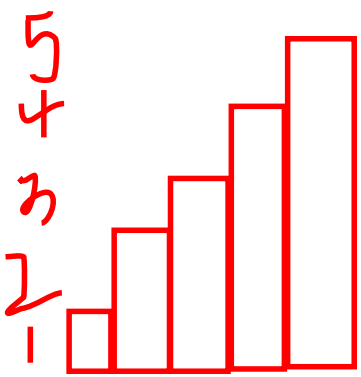
여전히 사먹는 아이들이 있다.

소비자 잉여는 줄어든다.

Cost and the Supply Curve

- Cost is the value of everything a seller must give up to produce a good (i.e., opportunity cost).
  - Includes cost of all resources used to produce good, including the value of the seller's time.
- Example: 5 sellers' cost for an apple

물건을 생산할때 포기하는 비용이 결국 Cost이다.



Seller	Cost
Sophia	$1
Emma	$2
Isabella	$3
Olivia	$4
Ava	$5

Cost를 내림차순해서 막대그래프로 만든것이 수요곡선이다.

- A seller will produce and sell the good & service only if $P \geq Cost$.
  - Hence, cost is a measure of *willingness to sell*.
- Can obtain the supply schedule (and curve)
- Here, the staircase shape

Producer Surplus (PS)

생산자 잉여

이 삼각형의 넓이가

생산자 잉여이다.

- Consumer surplus is the amount a seller is paid for a good minus the seller's cost:

$$PS = P - Cost$$

- For a given P, we can easily obtain
  - PS for each producer
  - Total PS
- Graphically, total PS equals the area above S curve under P.
- A lower price reduces PS for two reasons
  - Some sellers leave market
  - Remaining sellers get lower P

가격이 낮아져서 시장을 나가거나,

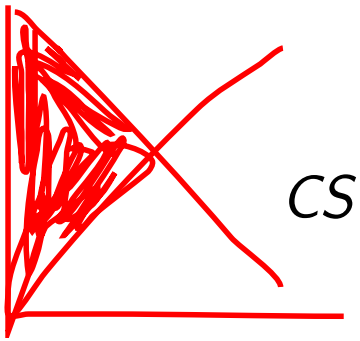
낮은가격으로 그대로 팔거나.

PS는 줄어들게 된다.

CS, PS, and Total Surplus

총 잉여 = (WTP - P) + (P - Cost)

= (WTP - Cost)



$$\begin{aligned} CS &= \text{(value to buyers)} - \text{(amount paid by buyers)} \\ &= \text{buyers' gains from participating in the market} \end{aligned}$$

이 부분이 총잉여

$$\begin{aligned} PS &= \text{(amount received by sellers)} - \text{(cost to sellers)} \\ &= \text{sellers' gains from participating in the market} \end{aligned}$$

$$\begin{aligned} \text{Total Surplus} &= CS + PS \\ &= \text{Total gains from trade in a market} \\ &= \text{(value to buyers)} - \text{(cost to sellers)} \end{aligned}$$

Market Efficiency

자원의 배분의 분산적이다.

언제가 경제의 총잉여를 극대화 할때인가?

생산량이 균형생산량일 때이다.

- In a market economy, the allocation of resources is decentralized, determined by the interactions of many self-interested buyers and sellers.
- Is the market's allocation of resources desirable?
- Or would a different allocation of resources make society better off?
- Remember the fictitious "*Benevolent Social Planner*"?
  - What would this planner do if he wants to maximize the economic well-being of everyone in society?
    - Should he just leave buyers and sellers at the equilibrium that they reach naturally on their own?
    - Or can he increase economic well-being by altering the market outcome in some way?

Market Efficiency

시장에서 자연스럽게 생산하는 균형생산량이 결국 총 잉여를 최대화 하는 값이다!

- To answer this question, we must decide how to measure the economic well-being of a society
- One possible measure is "total surplus"
- **Efficiency**: An allocation of resources exhibits efficiency if the allocation maximizes total surplus.
  - Keep in mind that the social planner might also care about **equality**
  - But, here focus on efficiency

Market Efficiency

- Remember

$$\begin{aligned} \text{Total Surplus} &= CS + PS \\ &= (\text{value to buyers}) - (\text{cost to sellers}) \end{aligned}$$

- An allocation is inefficient
  - if a good is not being produced by the sellers with lowest cost.
  - if a good is not being consumed by the buyers who value it most highly.

Evaluating the Market Equilibrium

- Is the market allocation efficient?
- Does it maximizes total surplus?
  - Would raising or lowering the quantity of a good increase total surplus?
  - Are the goods consumed by the buyers who value them most highly?
  - Are the goods produced by the producers with the lowest costs?

Evaluating the Market Equilibrium

- Answers to the last two questions are more obvious.
- The first question is a little harder to answer.
- Keep in mind
  - Demand curve reflects the value to buyers
  - Supply curve reflects the cost to sellers
- At any quantity below the equilibrium level
  - the value to marginal buyer $>$ the cost to marginal seller
- At any quantity beyond the equilibrium level
  - the value to marginal buyer $<$ the cost to marginal seller
- To max total surplus, the social planner would choose Q where S and D curves intersect.

Adam Smith and the Invisible Hand

Passages from *The Wealth of Nations*, 1776

- "*Man has almost constant occasion for the help of his brethren, and it is vain for him to expect it from their benevolence only. He will be more likely to prevail if he can interest their self-love in his favor, and show them that it is for their own advantage to do for him what he requires of them. . . It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest. . . .*"
- "*Every individual. . . neither intends to promote the public interest, nor knows how much he is promoting it. . . . He intends only his own gain, and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for the society that it was no part of it. By pursuing his own interest he frequently promotes that of the society more effectually than when he really intends to promote it.*"

Market Efficiency & Failure

- This chapter demonstrates one of the Ten Principles:
  - *Markets are usually a good way to organize economic activity.*
    - Allocate resources efficiently
- Assumptions about how markets work
  - Markets are perfectly competitive
  - Outcome in a market matters only to the buyers and sellers in that market

Market Efficiency & Failure

- When these assumptions do not hold
  - "Market equilibrium is efficient" may no longer be true

1. In the world, competition is far from perfect - **market power**
   - A single buyer or seller (small group) may control market prices
2. Transactions have side effects, called **externalities**, that affect bystanders. (example: pollution)

- Public policy may improve on the market outcome in such cases.
- Despite the possibility of market failure, the analysis in this chapter applies in many markets, and the invisible hand remains extremely important.