Efficiency and Equity

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Announcements

- Assigned reading:
  - Textbook, Chapter 5, 6
- Tutorial this week – Ch3 appendix and Q&A
- Quiz 1 will be held Wed. Oct. 10 8-8:30pm.
- Problem set 4 will be assigned soon.

Recall: Scarcity and Competition

- "**You have to choose.**" – Focus on individual decision: You prefer fish or coconut, etc.
- Even if you live by yourself on an isolated island like Robinson Crusoe, there are choices to make.

Scarcity and Competition

- However, if you live with others in an "society", apple can be a scarce item from society's perspective.
- We have to "**compete**" with the others in "winning" an apple.
  - Exclusive: An apple eaten by me is not available to you anymore.
  - Are there any goods not exclusive in consumption?
  - How are scarce resources allocated?

Competition

- With scarcity, we have to compete.
  - To decide who gets the scarce items.
- The determination of “how to **compete**” would be a bit more complicated!!!
- **Why not using “boxing flight”?**

Competition

- Boxing flight? You may think it is brutal and create injuries to competitors (costly).
  - But, your strong classmates may prefer it.
- How about a “running race”?
  - Fast-running classmates may prefer it.
- Why not “beauty”?

Competition / resource allocation methods

- Many other ways you can name:
  - Pay a price asked for (market price)
  - Command (planned economy)
  - Majority rule (voting)
  - Contest (exam?)
  - First-come, first-serve / Lining up
  - Lottery (random)
  - Personal characteristics
  - Force (boxing!)
- Different methods of competition/allocation may lead to different "**winners**".

Economic Systems

- Hong Kong is mainly a "**market economy**": Competition through "market price".
- But why free-market? On what basis is it considered "good"?
- Note that there are still other "forms" of competition in HK, EXAMPLE: Medical (public hospital), study in HKUST.
  - What allocation methods are used for these?
  - Medical: first-come-first-serve and need basis; study in HKUST: merit basis

Economic Systems

- In some places, entire economies work like an army or factory: Orders are passed down from the top, i.e., command economy or planned economy.
  - Example: former USSR, PRC (before economic reform starting in 1978), North Korea
- Contrast to market economy in which individuals make their own decisions, negotiate deals with each others (through free market and voluntary exchange).

What is “market”?

- “Meeting places” for **voluntarily exchange**
- Physical or Virtual
  - Hong Kong Stock Exchange: Just a IT network linking up buyers and sellers that probably locate worldwide
- One market? Or, many?
  - Oil: Brent Crude – sweet light crude; OPEC; Dubai, Oman, West Texas Intermediate
  - Foreign currency market(s)

What is a “market”?

- No matter physical or virtual, costs are involved for “using” any market.
  - Organizing: Land, manpower, computer and equipment, quality verification, payment
  - Buyers and sellers: Negotiation, entering into contracts, etc.
  - Social perspective: Legal system – enforcement of contracts, property rights system
- Costs are higher for some places.
  - Developing countries: high cost for contracting and enforcement, with less-developed legal system.

To build a market – RMB

- Internationalization of RMB
  - Use it off-shore (outside China)
  - Buy and sell off-shore
  - Determination of conversion (exchange) rate by the market (buyers and sellers)
- How to achieve? By announcement?
- NO!!!

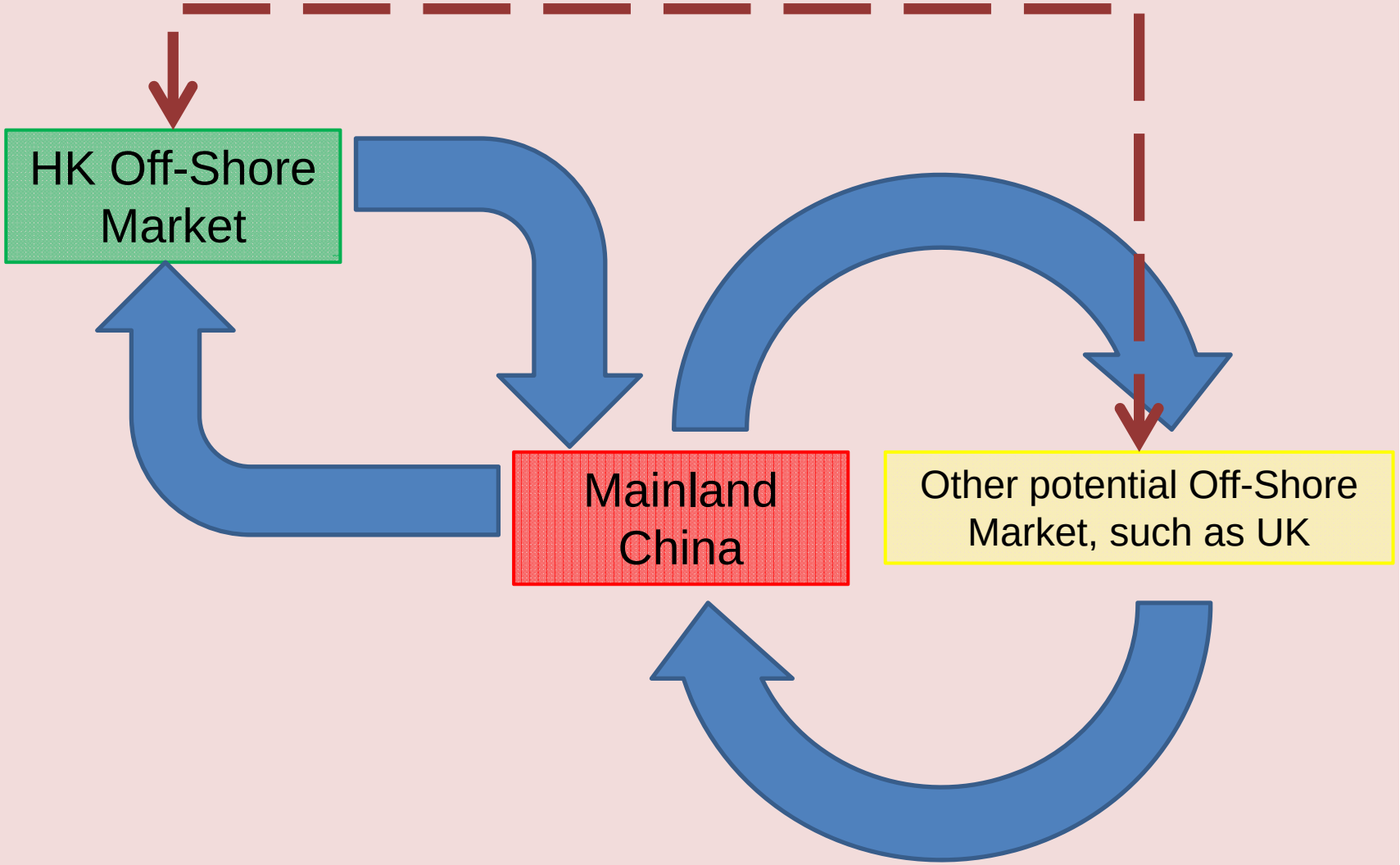
To build a market – RMB

- First, build a “sample off-market” in HK.
  - HK people are allowed to have RMB saving account for accumulation of RMB in HK.
  - Daily transaction limited is RMB20,000?
- Next, link the HK off-shore to Mainland market – Big Challenge!!!
  - Free movement of RMB accumulated in HK in and out of Mainland

To build a market – RMB

- During the process:
  - HK and Mainland: Establish relevant legal regulations, set up settlement system and procedures, promotion – provide information for people.
- Chinese gov't permits the issue of RMB denominated debts to be issued outside mainland.
  - To promote "popularity".

To build a market – RMB



Market and resources allocation

When you order a pizza, what does that mean to the economy?

1) **Resource allocation of your own**

   Given the money you have, prices of different items for sales, you decide what and how many to consume (more discussion in “Utility and Demand”).

2) **The market coordinates scarce resources of the society (ingredients, labor, etc.) to turn into (bake) a pizza you want.**

Market and resources allocation

- Scarce resources: Flour, labor, capital (machines), etc.
- Your self-interested choice influences how the scarce resources of the economy are used.

- Market coordinates scarce resources of the society to fulfill the mostly wanted items of all people.
  - If people only want pizza, all scarce resources will be devoted to make pizzas.
  - Markets turn scarce resources into the highest valued use.

Market and resources allocation

Questions:

1) How market allocates scarce resources into the highest valued use?
2) How markets decide who gets the products made by scarce resources?
3) Even if market can perform well for the above (achieving efficiency), is it a "situation" we want?

- You can afford a pizza, but it might be unaffordable for me.

Does market/price do a good job?

- But why market/price? On what basis is it better than any other means?
  - Efficiency
  - Fairness
  - Ethical
  - “I like it” ~~~
  - … …
- How to measure?
  - Objectively

Willingness to Pay

- Demand: **Willingness to pay** (WTP) and **value**
- Demand curve is the WTP of different quantities.
- WTP measures the value associated with an extra unit of item by a consumer.

Consumer Surplus

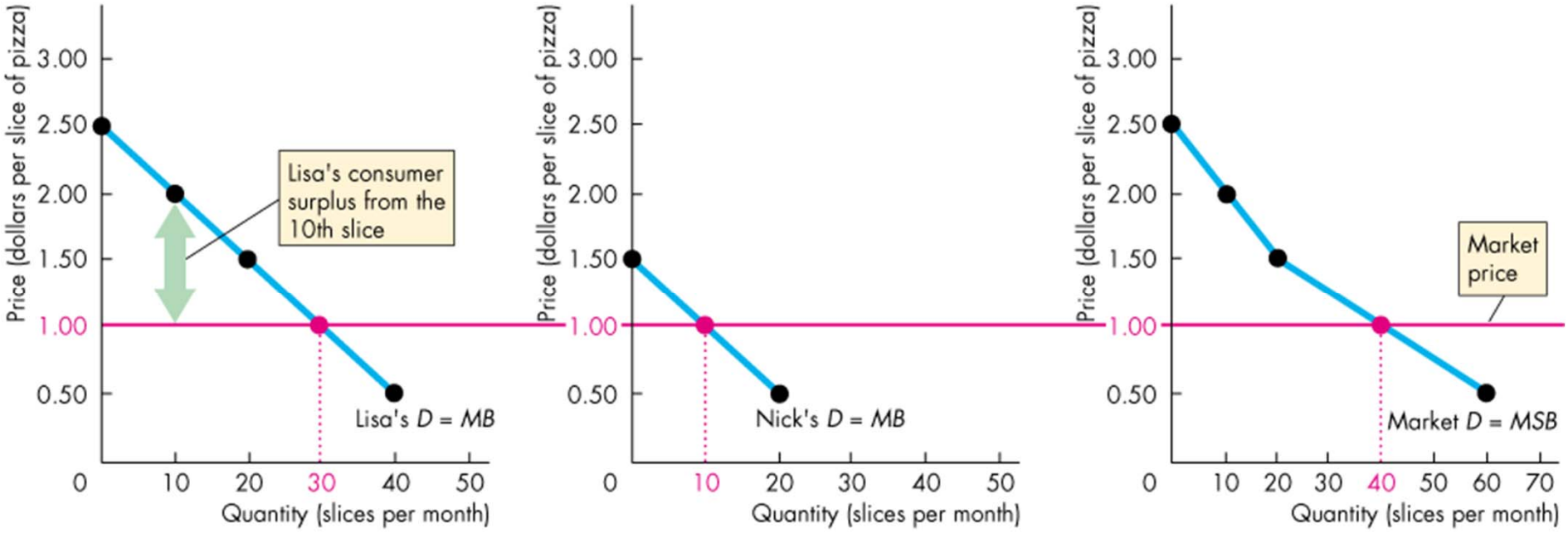
- **Consumer Surplus (CS)** is the excess of the benefit received from a good over the amount paid for it.
- CS = Marginal Benefit (value) of a good minus its price, summed over the quantity bought.
  - Area under the demand curve and above the price paid, up to the quantity bought.

Benefit, Cost, and Surplus

Lisa and Nick pay the market price, which is $1 a slice.

The value Lisa places on the 10th slice is $2.

Lisa's consumer surplus from the 10th slice is the value minus the price, which is $1.

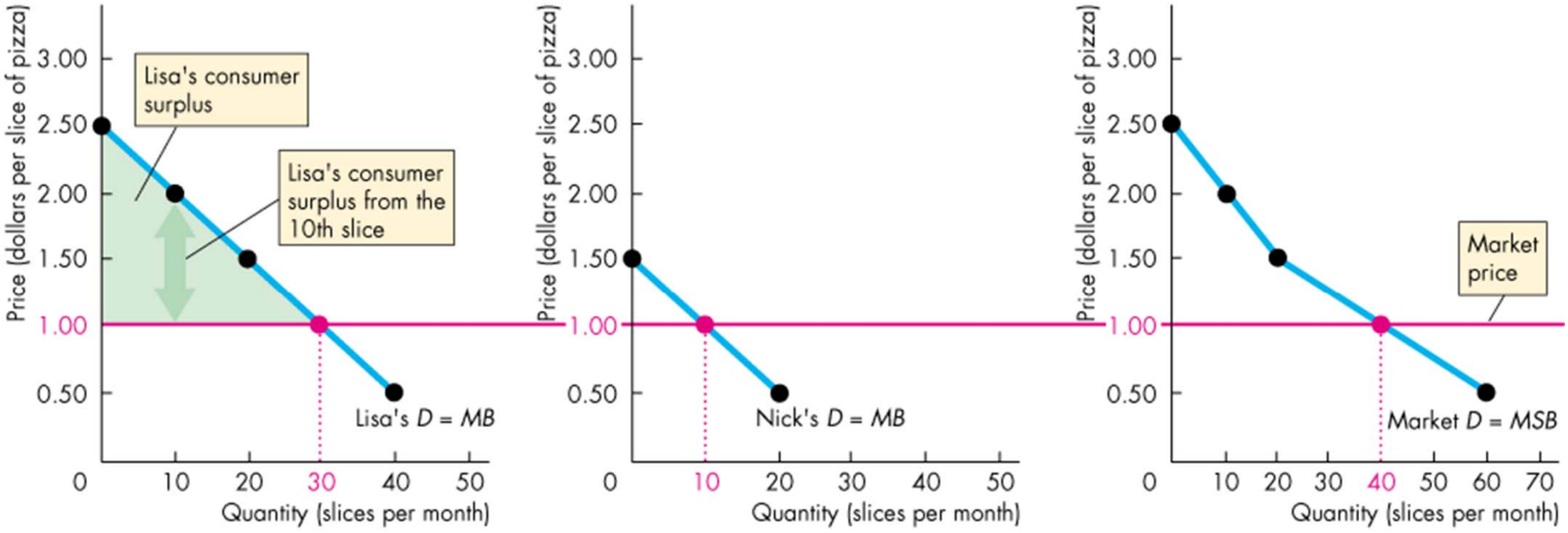


(a) Lisa's consumer surplus (b) Nick's consumer surplus (c) Market consumer surplus

Benefit, Cost, and Surplus

At $1 a slice, Lisa buys 30 slices.

So her consumer surplus is the area of the green triangle.

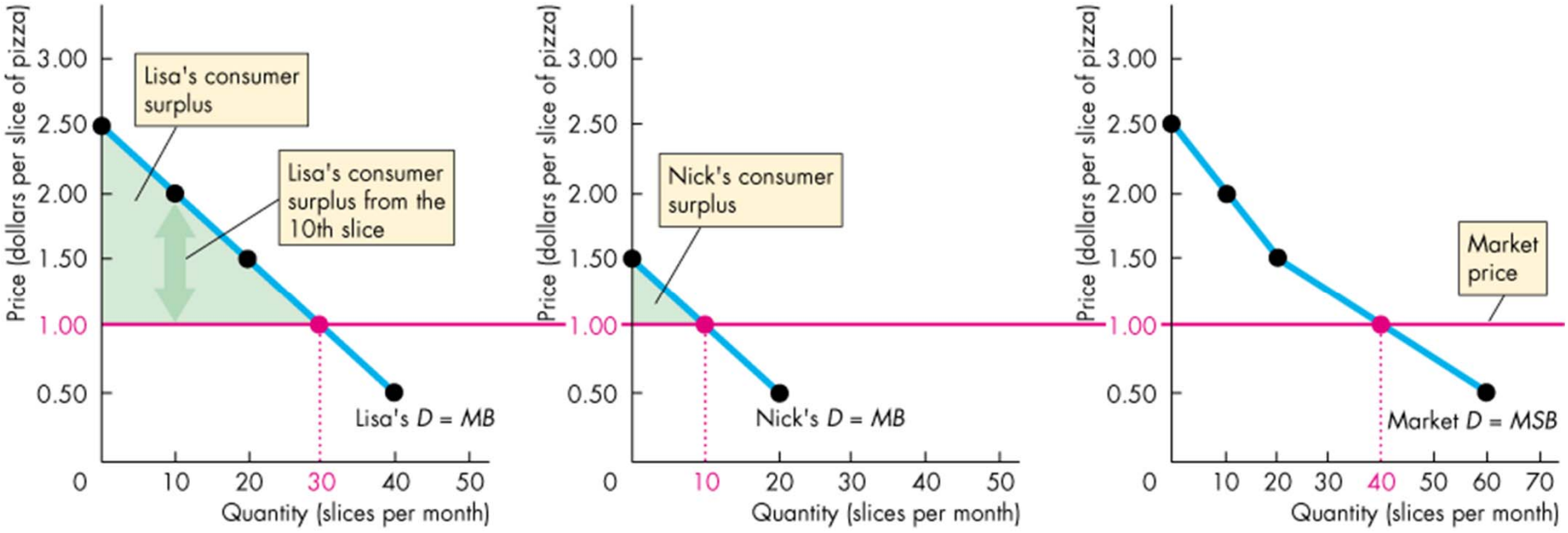


(a) Lisa's consumer surplus **(b) Nick's consumer surplus** **(c) Market consumer surplus**

Benefit, Cost, and Surplus

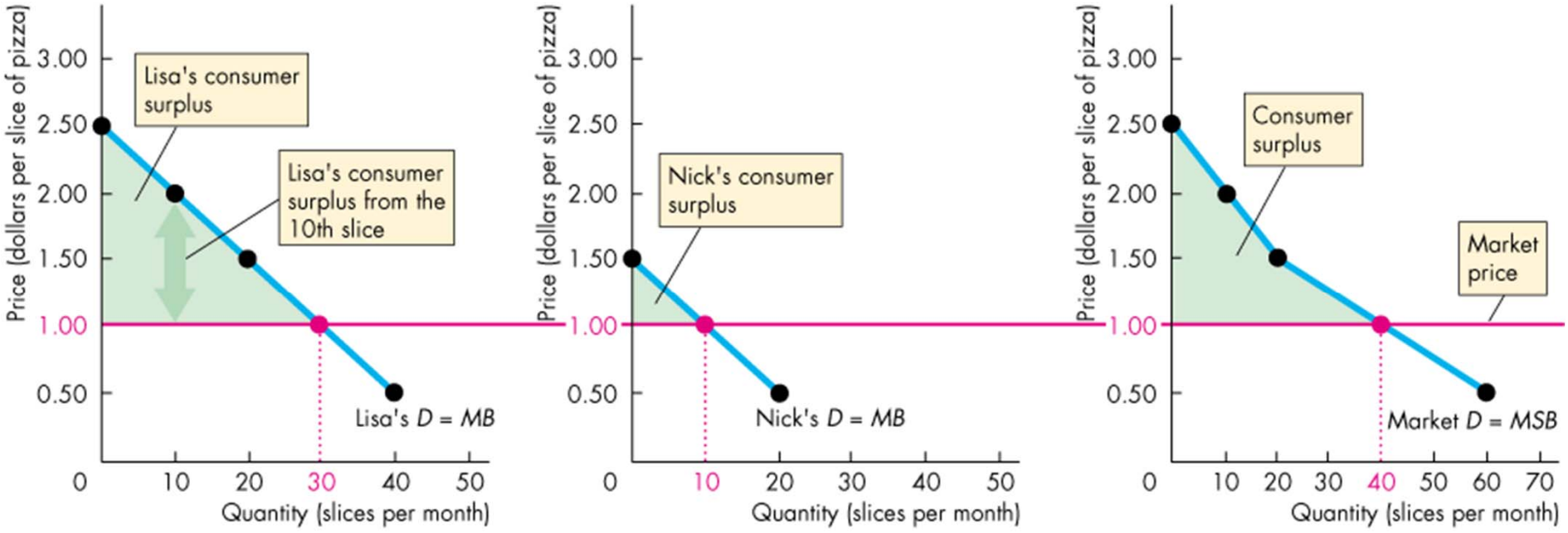
At $1 a slice, Nick buys 10 slices.

So his consumer surplus is the area of the green triangle.



Benefit, Cost, and Surplus

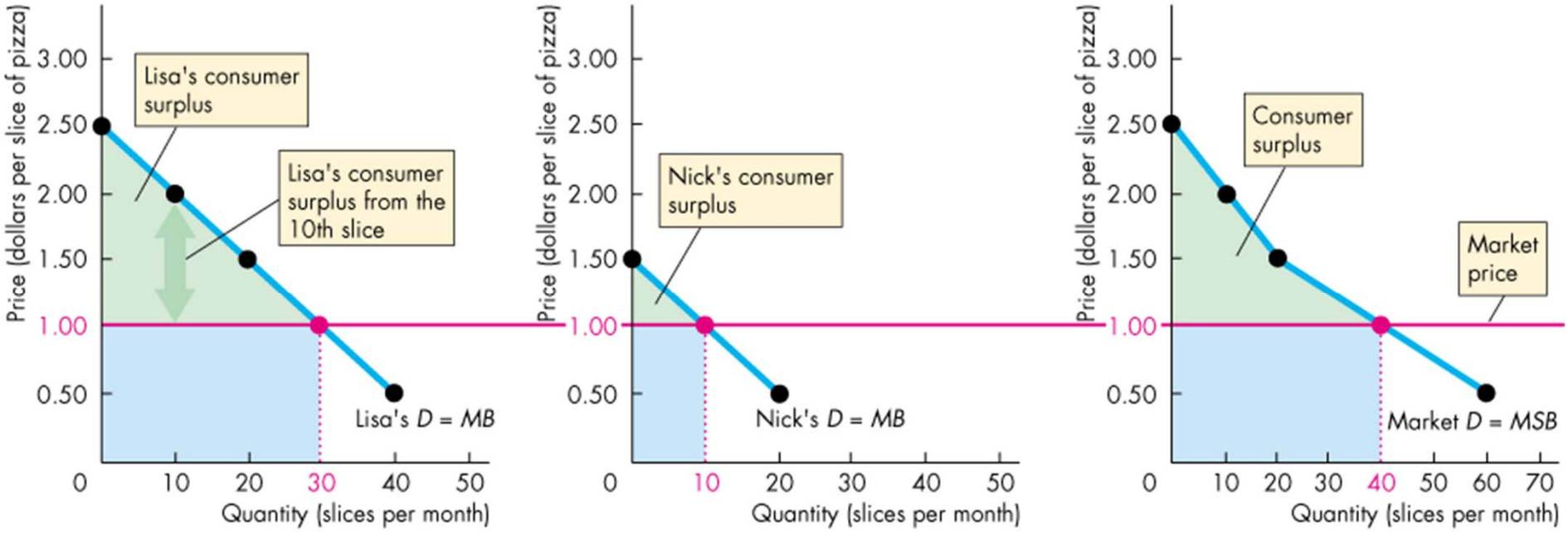
At $1 a slice, the consumer surplus for the economy is the area under the market demand curve above the market price, summed over the 40 slices bought.



Benefit, Cost, and Surplus

At $1 a slice, Lisa spends $30, Nick spends $10, and together they spend $40 on pizza.

The consumer surplus is the value from pizza in excess of the expenditure on it.



Supply and Marginal Cost

- Sellers/firms are in business to make a profit: Sell output for a price that exceeds the cost of production.
- Supply curve is a marginal cost curve: The minimum price that a firm is willing to accept.

Producer Surplus

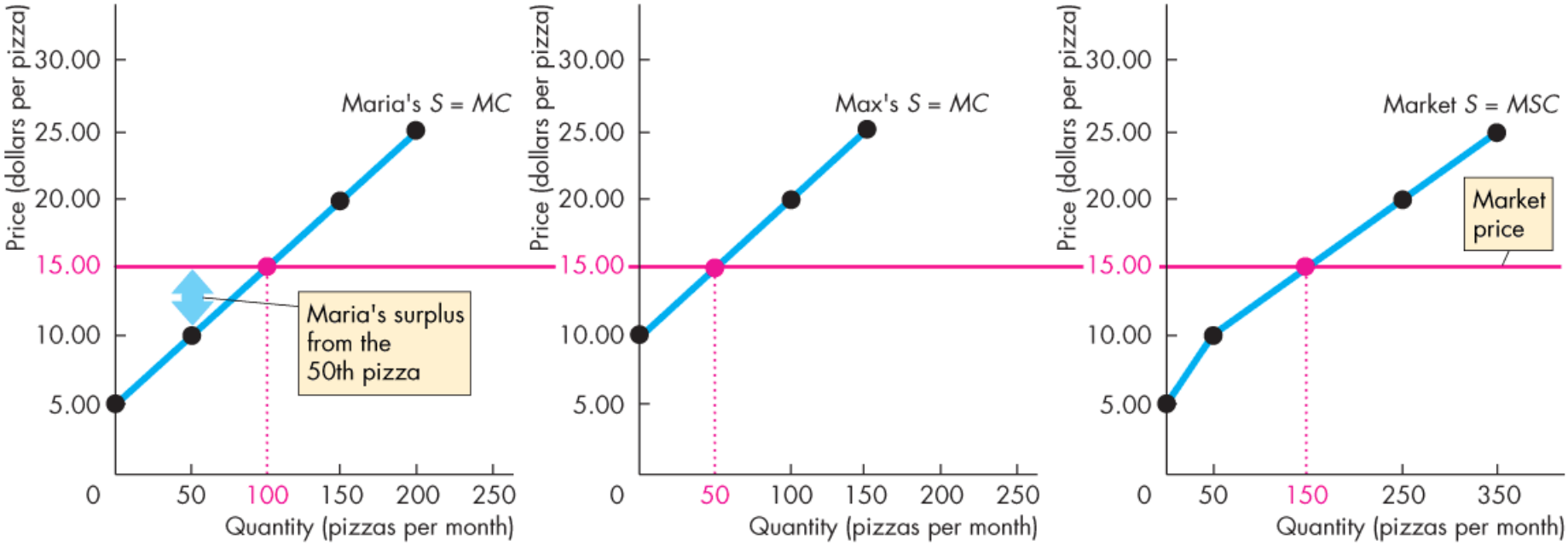
- **Producer Surplus (PS)** is the excess of the amount received from the sale of a good over the cost of producing it.
- PS = price received for a good minus the minimum-supply price (marginal cost), summed over the quantity sold.
- On a graph, producer surplus is shown by the area below the market price and above the supply curve, summed over the quantity sold.

Benefit, Cost, and Surplus

The market price of a pizza is $15.

Maria is willing to produce the 50th pizza for $10.

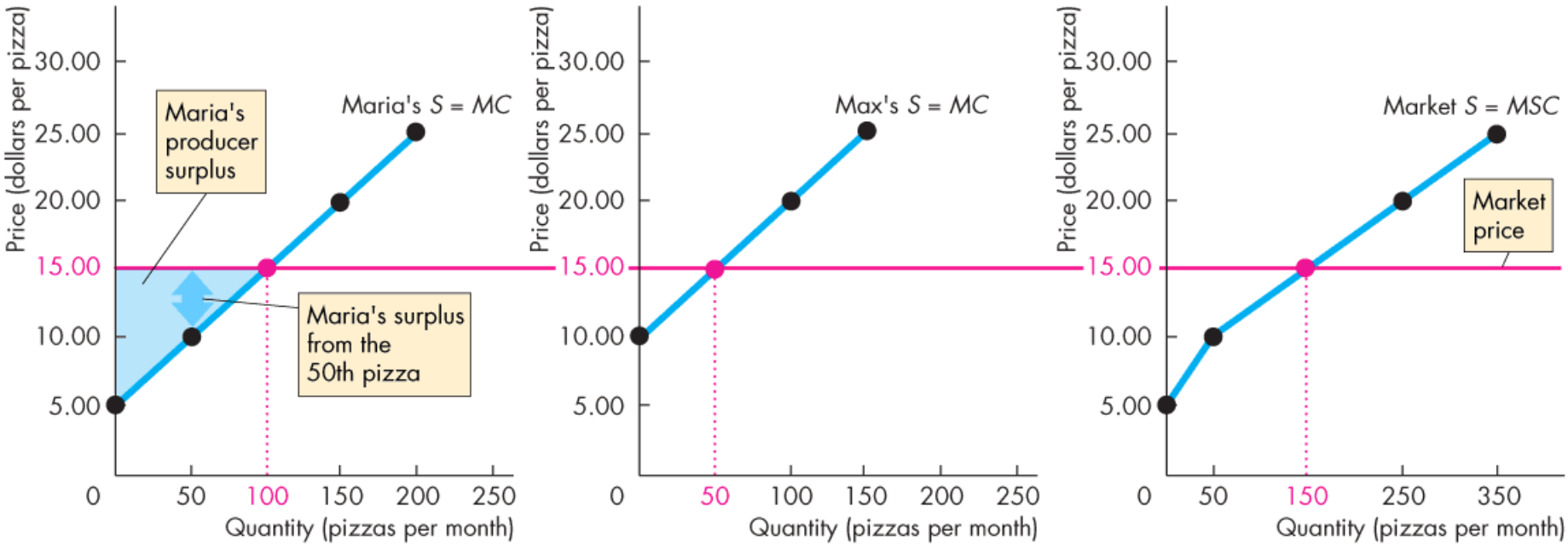
Maria's producer surplus from the 50th pizza is the price minus the marginal cost, which is $5.



Benefit, Cost, and Surplus

At $15 a pizza, Maria sells 100 pizzas.

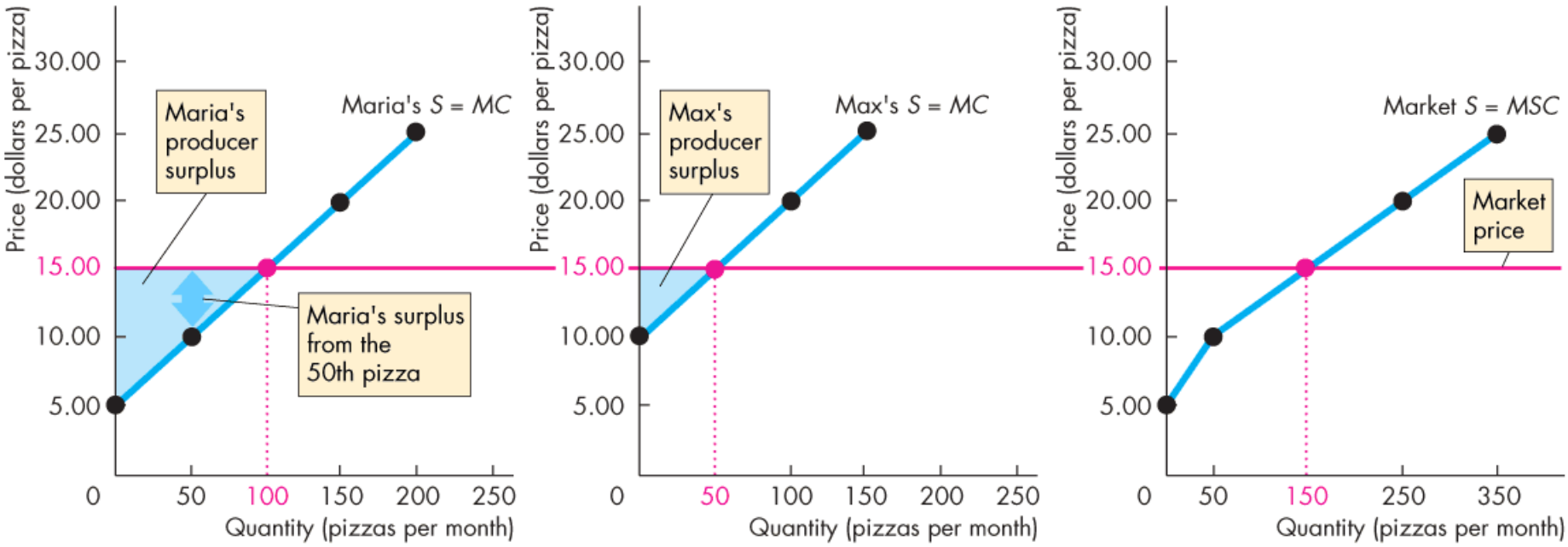
So her producer surplus is the area of the blue triangle.



Benefit, Cost, and Surplus

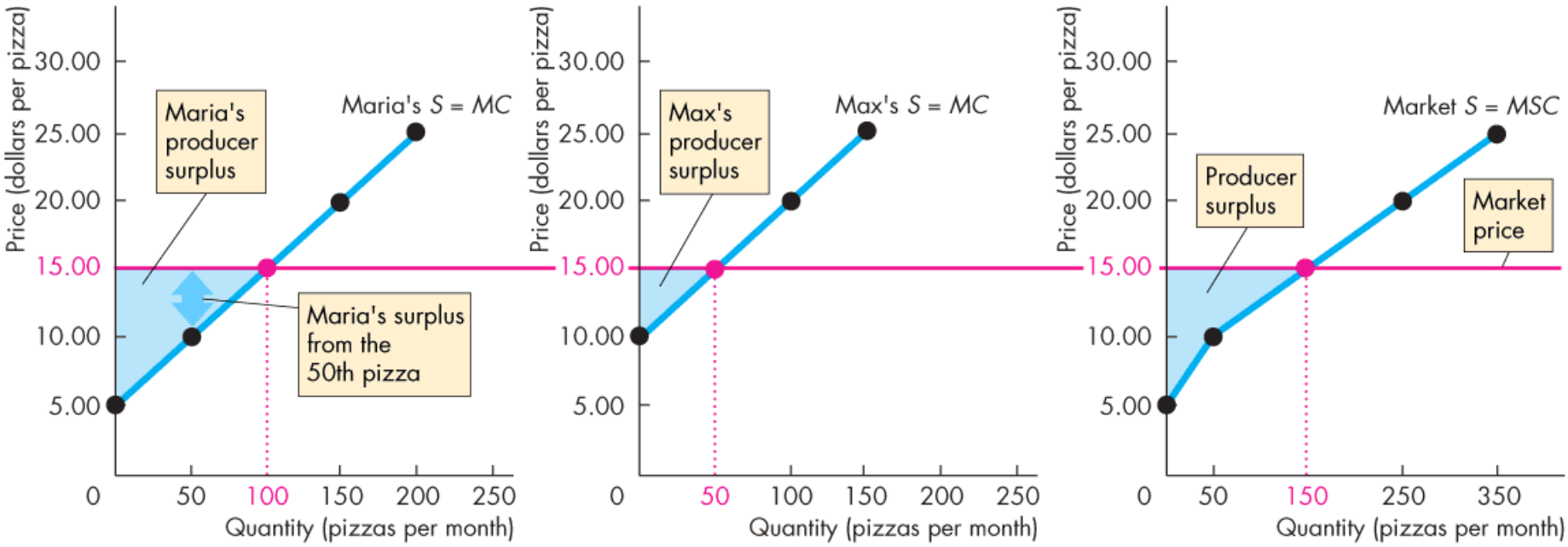
At $15 a pizza, Max sells 50 pizzas.

So his producer surplus is the area of the blue triangle.



Benefit, Cost, and Surplus

At $15 a pizza, the producer surplus for the economy is the area under the market price above the market supply curve, summed over the 150 pizzas sold.

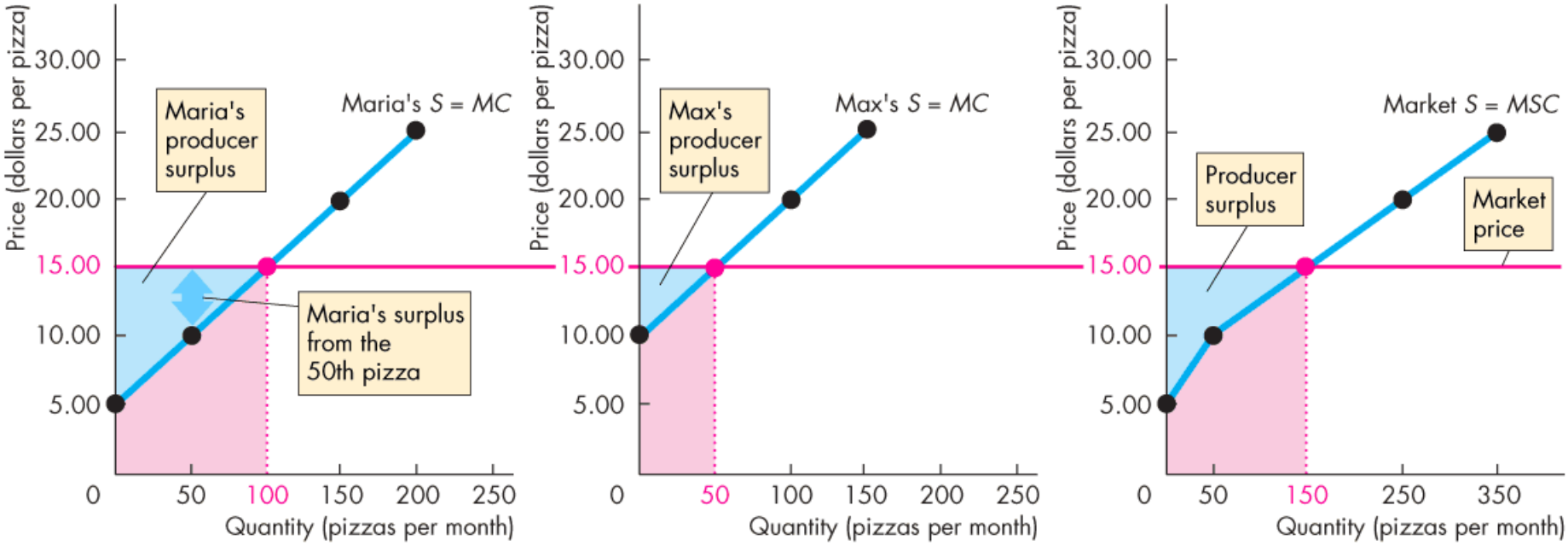


(a) Maria's producer surplus (b) Max's producer surplus (c) Market producer surplus

Benefit, Cost, and Surplus

The red areas show the cost of producing the pizzas sold.

The producer surplus is the value of the pizza sold in excess of the cost of producing it.

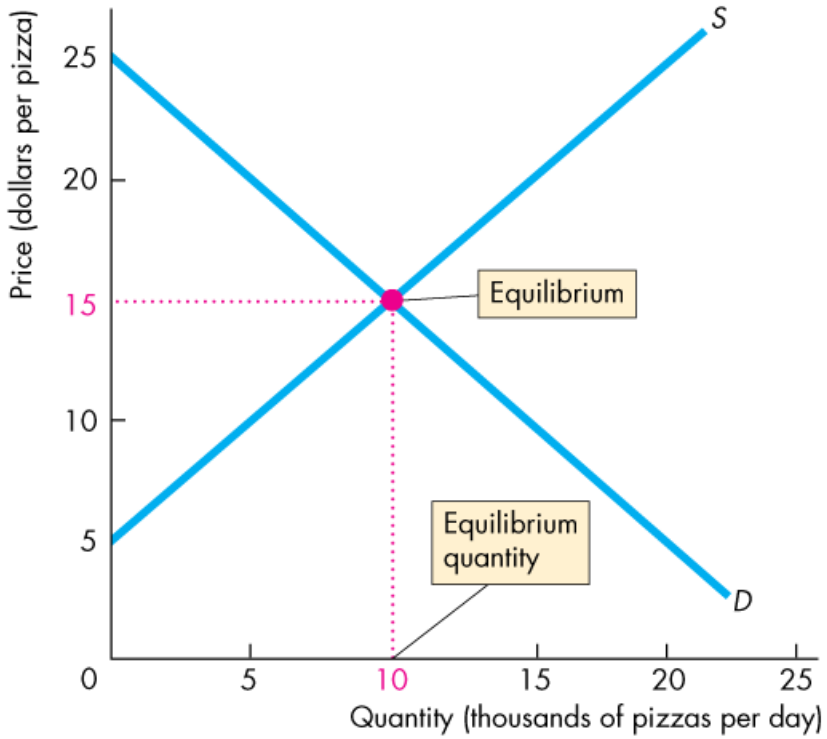


(a) Maria's producer surplus (b) Max's producer surplus (c) Market producer surplus

Is perfect competitive market efficient?

Efficiency of Competitive Equilibrium

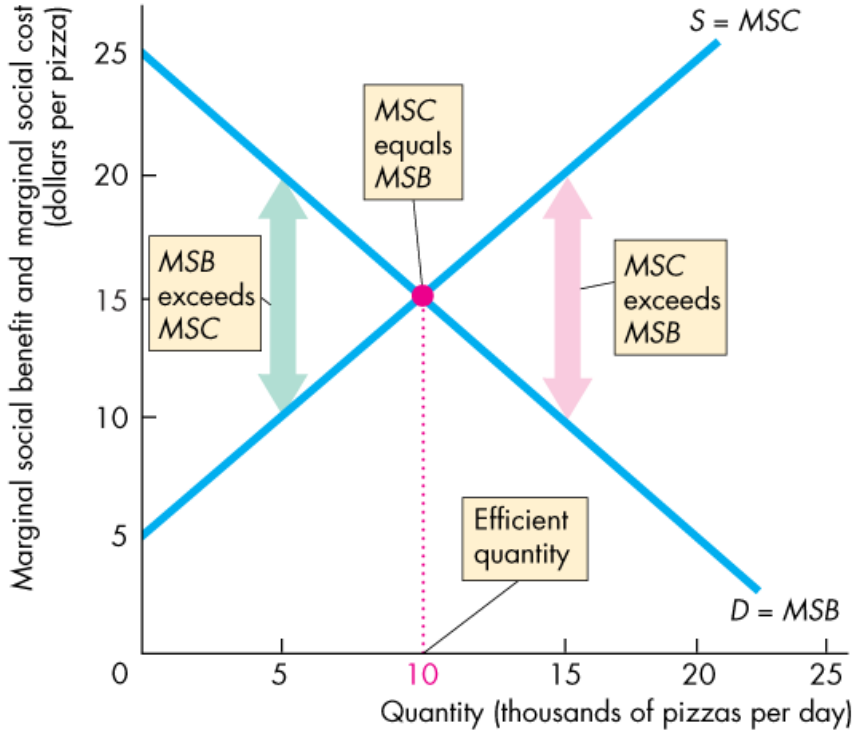
- A competitive market creates an efficient allocation of resources at the equilibrium, why???



(a) Equilibrium and surpluses

Is perfect competitive market efficient?

- When production is:
  - less than the equilibrium quantity, MSB > MSC.
  - greater than the equilibrium quantity, MSC > MSB.
  - equal to the equilibrium quantity, MSC = MSB.
- MSB = marginal social benefit, used to distinguish from marginal *private* benefit.

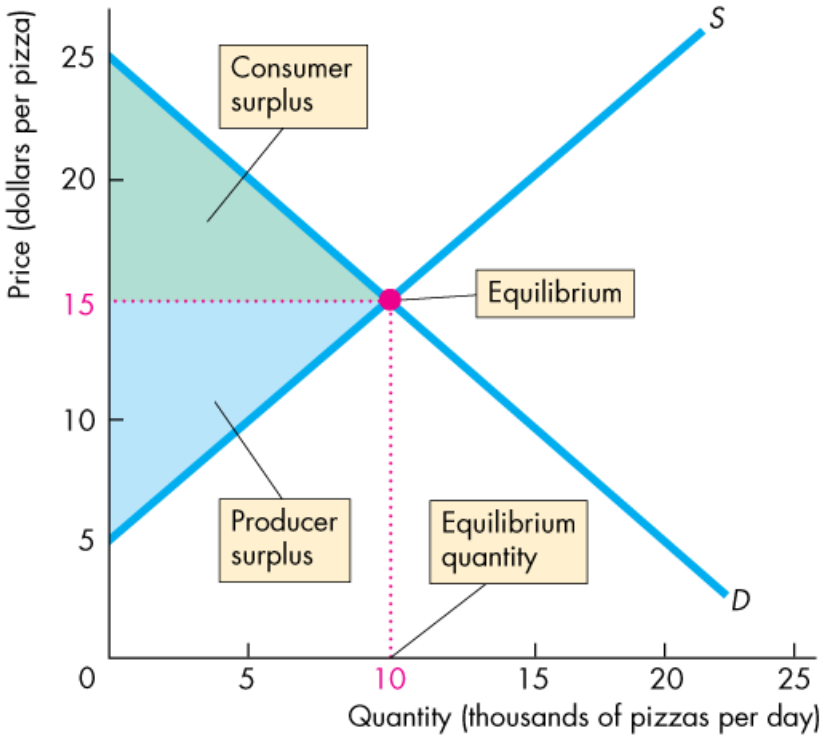


(b) Efficiency

Is perfect competitive market efficient?

- Resources are used efficiently when marginal social benefit equals marginal social cost.

- When the efficient quantity (*Q*=10* units) is produced, total surplus (the sum of consumer surplus and producer surplus) is maximized.



(a) Equilibrium and surpluses

Is perfect competitive market efficient?

- The **Invisible Hand!**
- Adam Smith's "invisible hand" idea in *the Wealth of Nations* implied that competitive markets send resources to their highest valued use in society.
  - Consumers and producers pursue their own self-interest and interact in markets.
  - Market transactions generate an efficient—highest valued—use of resources.

Market vs. Social Planner

- If you know the info of demand and supply.
- If you have the authority to order how many units should be produced and exchanged.
- In order to maximize the total surplus, you can order the producer to produce Q* and delivery these Q* to highest value buyers.
- **Command economy or social planner can work.**
- Assume that social planner is "**benevolent**".

Market vs. Social Planner

- Is it possible to know the info of demand and supply?
- Many buyers and sellers, knowing their value and cost of production seems impossible.
  - Unless you have a “super machine” to collect info
- Even so, people can lie about their value and cost of production (asymmetric information).
- Therefore, you need a “super machine” that can read people’s mind!

Small summary

- CS, PS and social surplus provide us a measure for society's gain or welfare from economic activities (production and exchange).
- Perfect competitive market maximizes social surplus in a decentralized way.
- Social planners can achieve the same as the free market "theoretically", but
- **Information problem** likely to make "social planner solution" non-practical, and

Small summary

- **Incentive** issues: How will the social planner distribute (divide) the total surplus among different individuals (buyers and sellers)?
  - Rank? Share equally?
  - EXAMPLE: If all surplus goes to buyers, sellers may not have the incentive to produce at all!

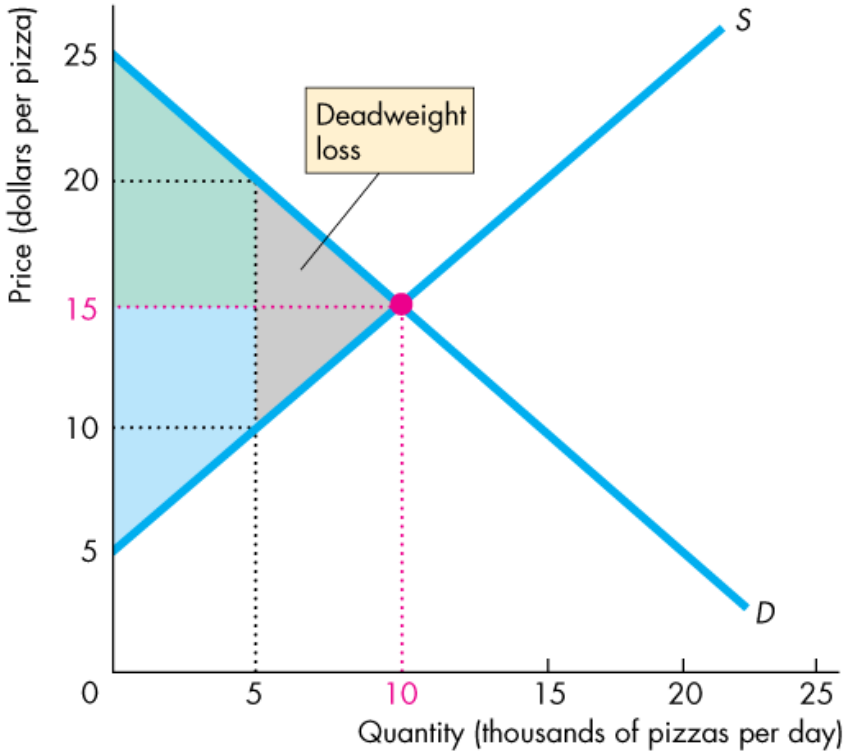
Market Failure

- Markets don't always achieve an efficient outcome.
- Market failure occurs when market cannot deliver the efficient outcome (Q*).
- Market failure can occur because:
  - "Too little" is produced (underproduction) or
  - "Too much" is produced (overproduction).

Is perfect competitive market efficient?

Underproduction

- If production is restricted to 5,000 pizzas a day, there is underproduction and the quantity is inefficient.
- A **deadweight loss** equals the decrease in total surplus—the gray triangle.
- This loss is a loss for the society (social loss).

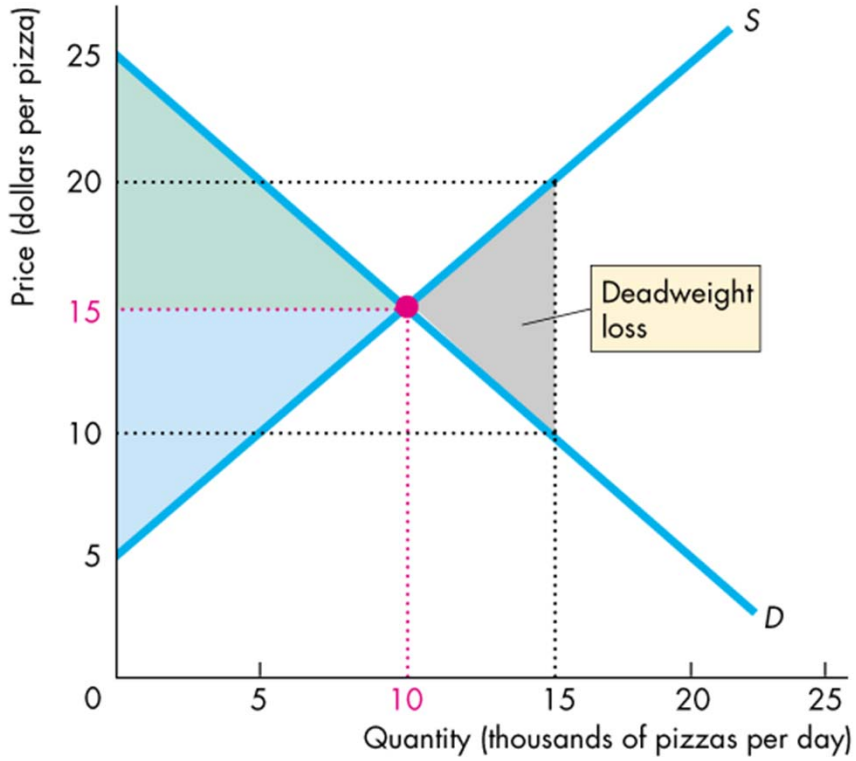


(a) Underproduction

Is perfect competitive market efficient?

Overproduction

- Again, the efficient quantity is 10,000 pizzas a day.
- If production is expanded to 15,000 pizzas a day, a deadweight loss arises from overproduction.
- This loss is a social loss.



(b) Overproduction

Sources of Market Failure

- In competitive markets, underproduction or overproduction can arise when there are:
  - Price and quantity regulations (Chapter 6 & 7)
  - Taxes and subsidies (Chapter 6 & 7)
  - Externalities (Chapter 17)
  - Public goods and common resources (Chapter 16)
  - Monopoly (Chapter 13)
  - High transactions costs

When market is inefficient - Alternatives

When a market is inefficient, can one of the non-market allocation methods do a better job?

1) Majority rule: Popular belief

- Shortcomings of majority rule:
  - A group that pursues the self-interest of its members can become the majority: **Interests of minority should be counted!**
  - Votes must be translated into actions by bureaucrats (gov't) who have their own agendas.

When market is inefficient - Alternatives

2) First-come-first-serve: Commonly used, e.g. waiting in line for using the ATM machines

- Advantage: Saving transaction costs
- Shortcomings:
  - People with lowest time cost, instead of highest value, will get allocated.
  - Time waiting in line can be used for other productive activities.

When market is inefficient - Alternatives

3) Command

- Within a firm: workers follow the command of their managers.
- Shortcomings of command:
  - Managers may not have the information required to decide the best action leading to efficiency.
  - Hidden effort, need monitoring

When market is inefficient - Alternatives

- In reality: No single method can allocate all resources efficiently.
- In HK, market is supplemented by other methods, including inside firms by command system, occasionally using first-come, first-serve, and sometimes by majority rule.
- Still, based on what we observe, markets do an amazingly good job in achieving efficiency.
- Is efficiency the only consideration for us as a society?

What is Fair?

- Ideas about fairness can be divided into two groups:
  - It's not fair if the result isn't fair.
  - It's not fair if the rules aren't fair.
- Do markets lead to fairness?

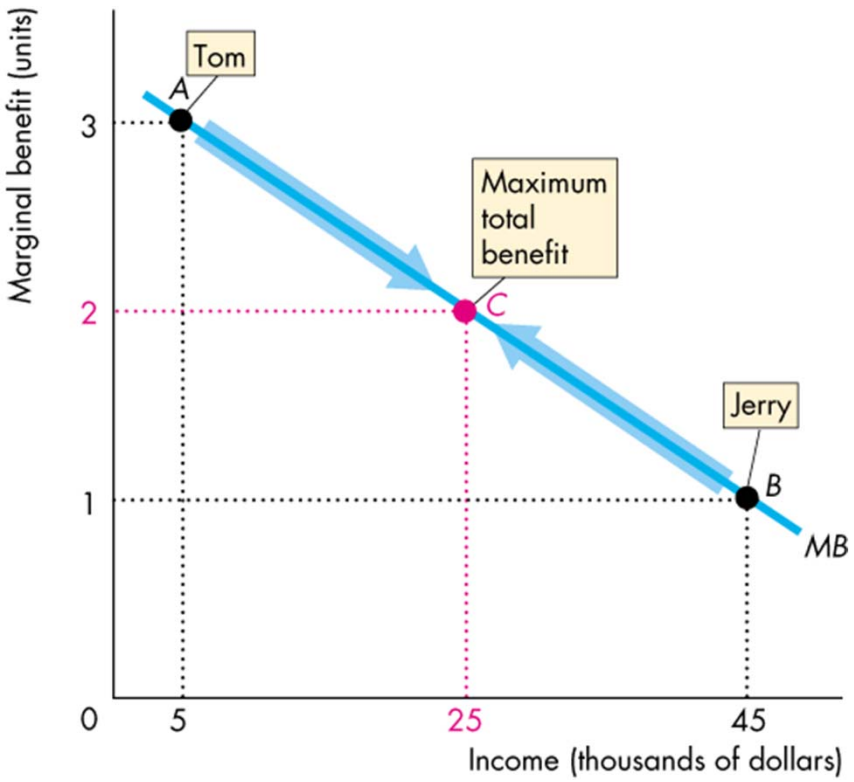
Fairness - Utilitarianism

- **Utilitarianism** states that we should strive to achieve "*the greatest happiness for the greatest number*", by Jeremy Bentham.
- Application in Economics: If (i) marginal utility for the same amount of income is the same for everyone, and (ii) diminishing marginal utility of income is applicable, then "equal distribution" of income achieves the greatest happiness.
  - Taking a dollar from a richer person and giving it to a poorer person increase the total benefit.

Fairness - Utilitarianism

How redistribution increases efficiency?

- Tom is poor and has a high marginal benefit of income.
- Jerry is rich and has a low marginal benefit of income.
- Taking dollars from Jerry and giving them to Tom until they have equal incomes increase total benefit.



Fairness - Utilitarianism

- Utilitarianism ignores the cost of making income transfers / redistribution.
- Besides admin costs (think about all kinds of gov't departments taking care of this: Tax, social security, medical insurance, etc.), a very serious problem is: **Incentive!!!**
  - E.g.: 60% income tax for redistribution purpose, people are discouraged from working hard.
- "Size of cake" created by the society shrinks.
- The big ***trade-off*** between efficiency and fairness!

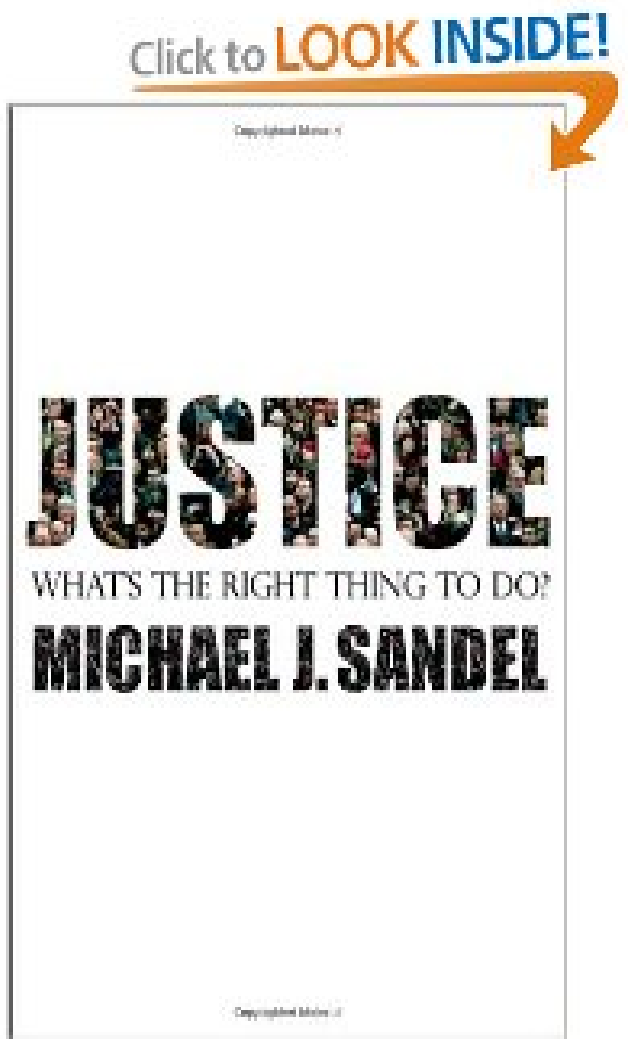
Fairness – Fair in rules

It's Not Fair If the Rules Aren't Fair.

- The idea is based on the *symmetry principle.*
  - People in similar situations should be treated similarly.
- It means equality of **opportunity**, but not necessarily of the outcome (such as income).
- If opportunity is equal, all allocations would be fair, although outcomes could be unequal.
- Question: You can say, "Starting line is the same??? My father is not Li Ka Shing!!!"

Fairness

- Ultimately, it is **normative**!
- Michael: Harvard professor
- Online course available



Thank you very much

End for today ☺

See you next time !