305 AEC PRICE ANALYSIS

Dr. Mahmoud Arafa

http://scholar.cu.edu.eg/mahmoudarafa

Main Topics

1. The budget line
2. The consumer choice
3. Trade
4. Using the market supply and demand
5. Measuring supply and demand
6. Production possibilities
7. Consumer surplus
8. The firm
9. Cost curve of the firm
10. Competitive industry
11. The long run supply curve
12. competition of property rights.

Preferences

- **Consumer preference is defined as the subjective tastes of individual consumers, measured by their satisfaction with those items after they've purchased them.**

The Budget line

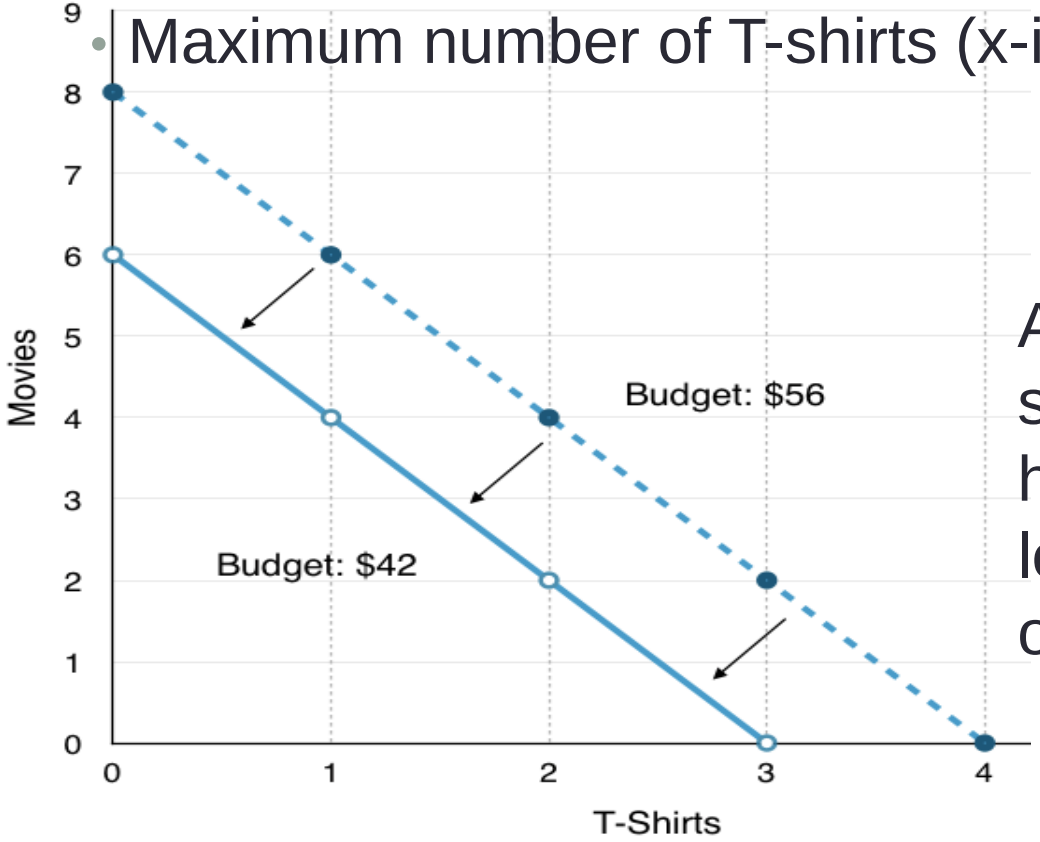
2- when income change:

Because budget and prices are prone to change, consumer's budget line can shift and pivot.

For example, if his budget drops from $56 to $42, the budget line will shift inward, as he is unable to purchase the same number of goods as before.

To plot the new budget line, find the new intercepts:

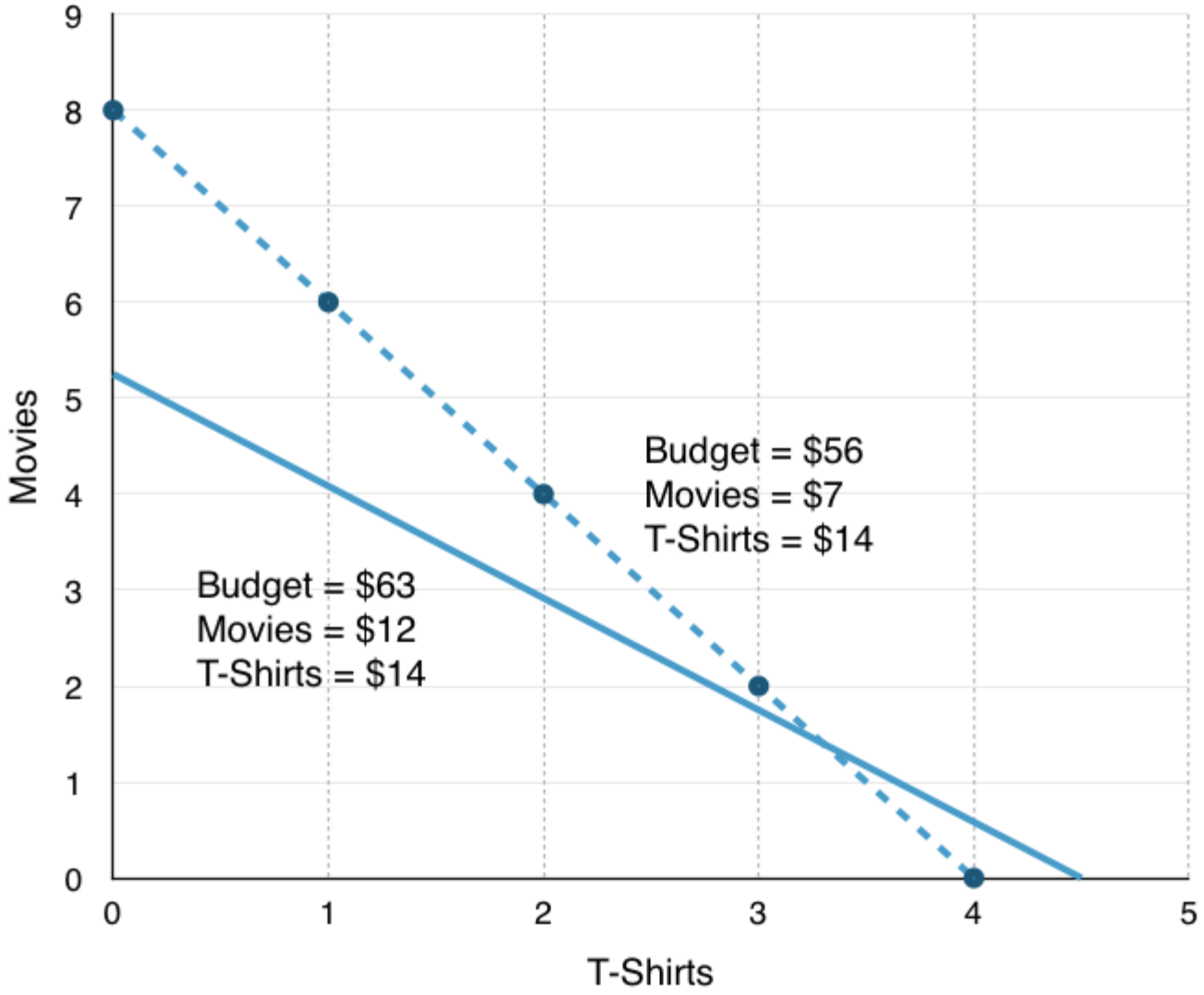
- Budget: $42
- Price of movies: $7
- Price of T-shirts: $14
- Maximum number of movies (y-intercept): $42/$7 = **6**
- Maximum number of T-shirts (x-intercept): $42/$14 = **3**



As a result of the shift, consumer's budget line has shifted inward, leaving less consumption opportunities available.

The Budget line: When Price and Income Change

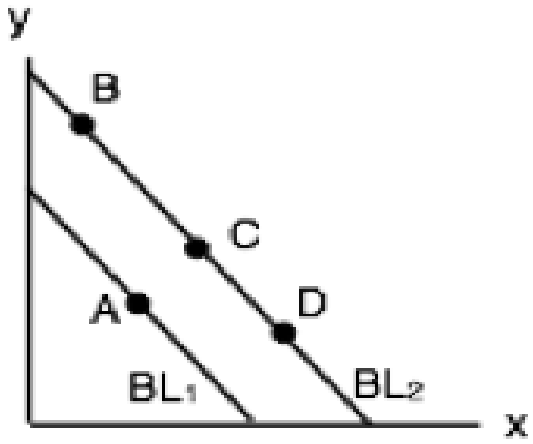
- The last type of change is when both price and income change. Suppose the price of movies increases from $7 to $12 and consumer's budget increases to $63. To plot the new budget line, follow the same steps as before:
- Budget: $63
- Price of movies: $12
- Price of T-shirts: $14
- Maximum number of movies (y-intercept): $63/$12 = **5.25**
- Maximum number of T-shirts (x-intercept): $63/$14 = **4.50**


Movies
T-Shirts
0
1
2
3
4
5
6
7
8
9
Budget = $56
Movies = $7
T-Shirts = $14
Budget = $63
Movies = $12
T-Shirts = $14

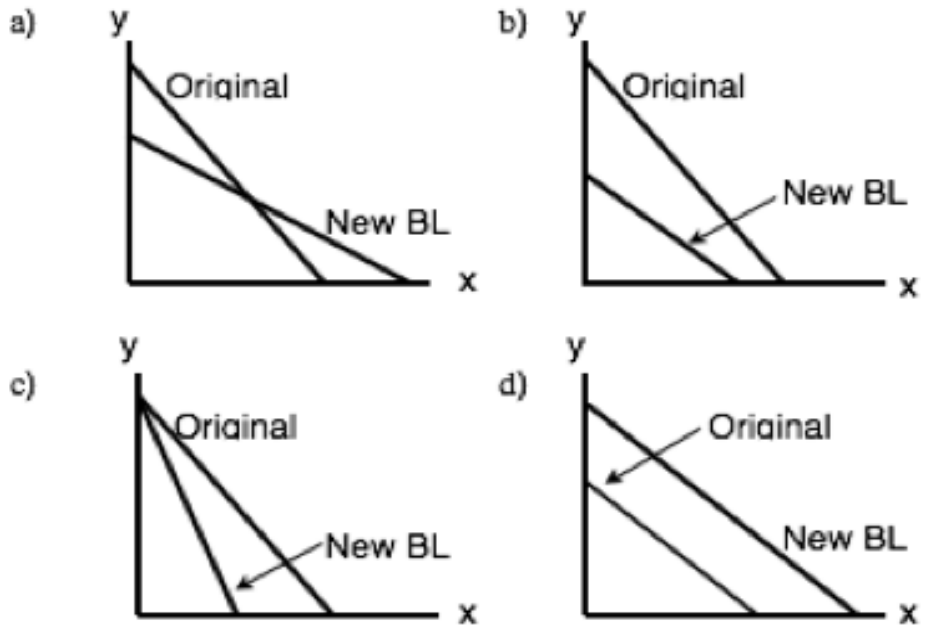
These changes have interesting effects. consumer now has access to some new consumption opportunities, but many others are now unavailable. While the slope effect has clearly made the relative price of T-shirts lower, the size effect is uncertain. These effects are implicit in the income and substitution effects we will explore shortly.

Exercises

- **1. In the diagram below, a consumer maximizes utility by choosing point A, given BL1.**
- **Suppose that good x is normal and good y is inferior, and the budget line shifts to BL2. Which of the following could be the new optimal consumption choice?**
- **a) B.**
  b) C.
  c) D.
  d) Either B or C or D.



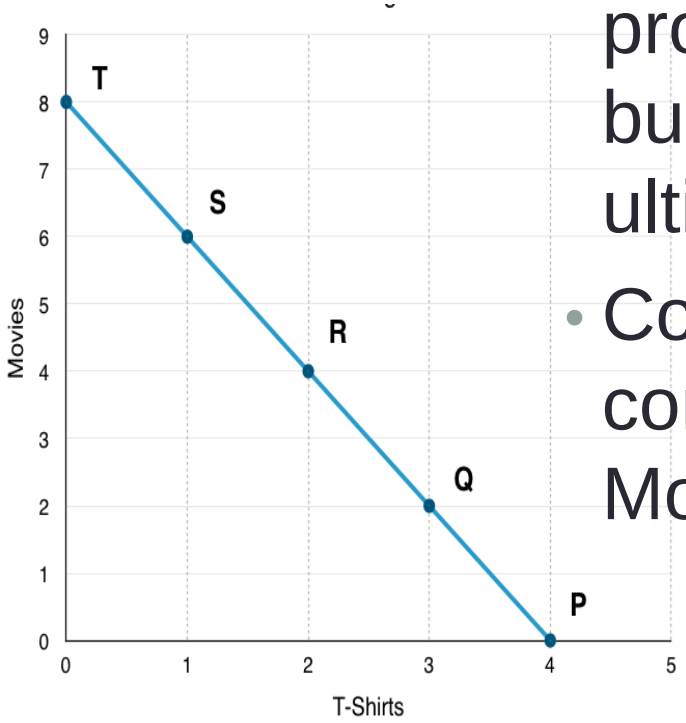
- **2.** Which of the following diagrams could represent the change in a consumer's budget line if (i) the price of good y increases AND (ii) the consumer's income decreases.



Conclusion

Though we understand the different ways by which consumers can exhaust their income, we have not yet discussed how to determine which bundles of goods different consumers prefer. To finish our analysis, let's take a look at ***Indifference Curves*** or The consumer choice

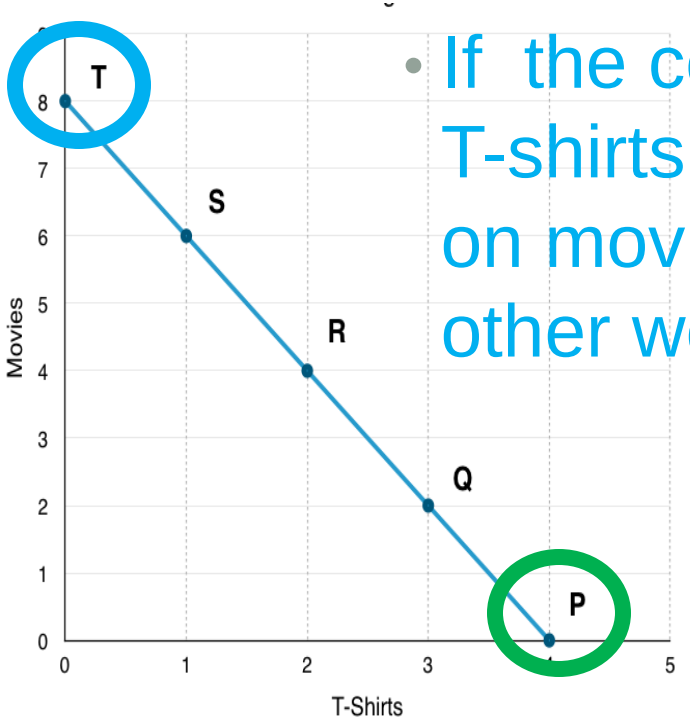
The Indifference Curve



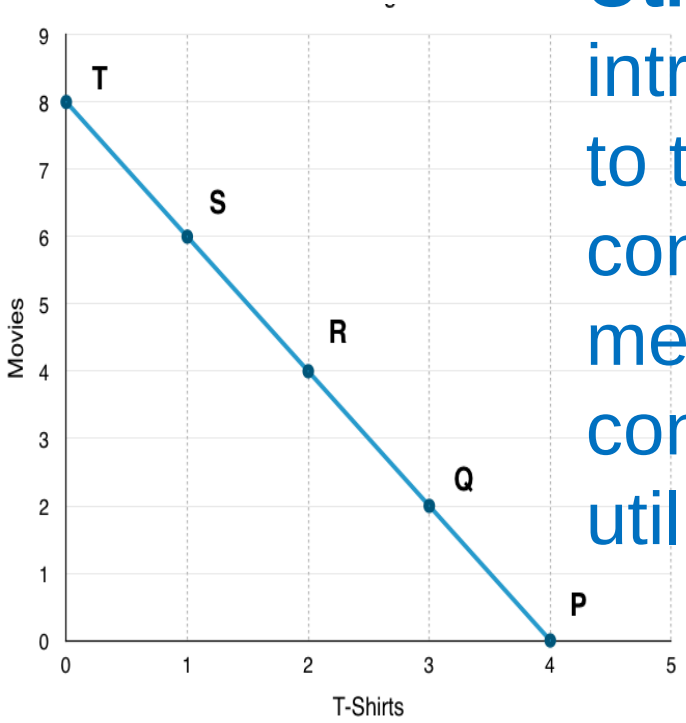
Understanding Preferences:

- Rational consumers will spend all of their income, meaning they will produce somewhere along their budget line. The point they produce ultimately depends on preferences.
- Consider again the situation of consumer, who can buy T-shirts or Movies.

- If the consumer likes T-shirts but hates movies, he will spend all of his money on T-shirts and nothing on movies. In other words, he will select bundle P.
- If the consumer likes movies but hates T-shirts, he will spend all of his money on movies and none on T-shirts. In other words, he will select bundle T.



Usually, consumers prefer a mix of both goods. Where they consume depends on the strength of their preferences, measured by a concept known as **utility**.

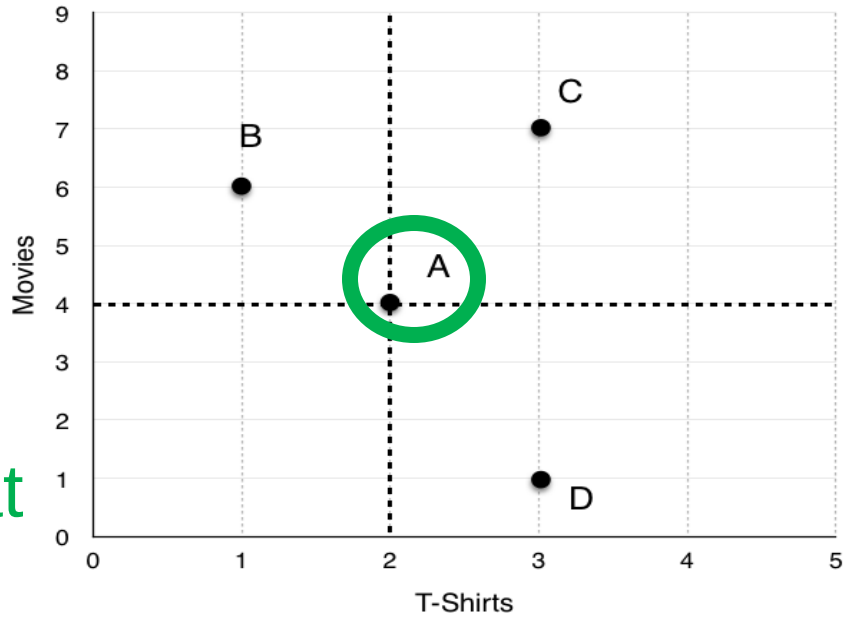


- **Utility**, an economic term that was introduced by Daniel Bernoulli, refers to the total satisfaction received from consuming a good or service. Utility measures our happiness derived from consumption. Using the concept of utility, we can graph our preferences.

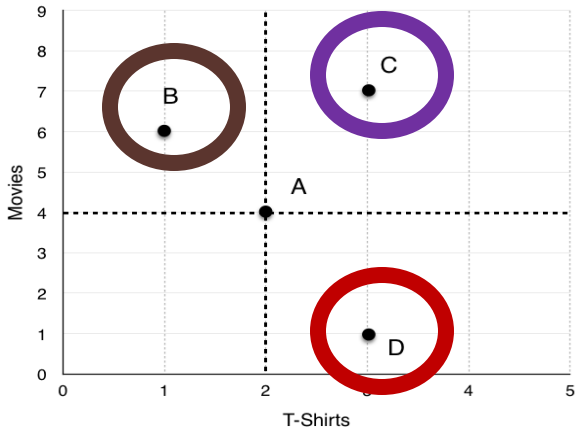
Graphing Preferences

- In previous Topic, we looked at how to represent a consumer's choices graphically with a budget line, with each point showing a different way for the consumer to spend all of their budget. Now, we want to represent their preferences on the same diagram.
- An **indifference curve** maps the consumption bundles that the consumer views as equal. The consumer is equally as happy to consume at any point along the indifference curve.

- Consider the figure, where several possible consumption points are laid out. With the knowledge we have, what can we say about consumer's consumption choices? Assuming the consumer is at point A, would he prefer another bundle more?



- **Point C –** At point C he consumes more movies and T-shirts. Since more goods make him happier, he is better off at point C.
- **Point B –** At point B, he consumes more movies, but fewer T-shirts. Because we do not know consumer's preferences, we cannot say whether he is better or worse off.
- **Point D –** At point D, he consumes more T-shirts, but fewer movies. Because we do not know consumer's preferences, we cannot say whether he is better or worse off.

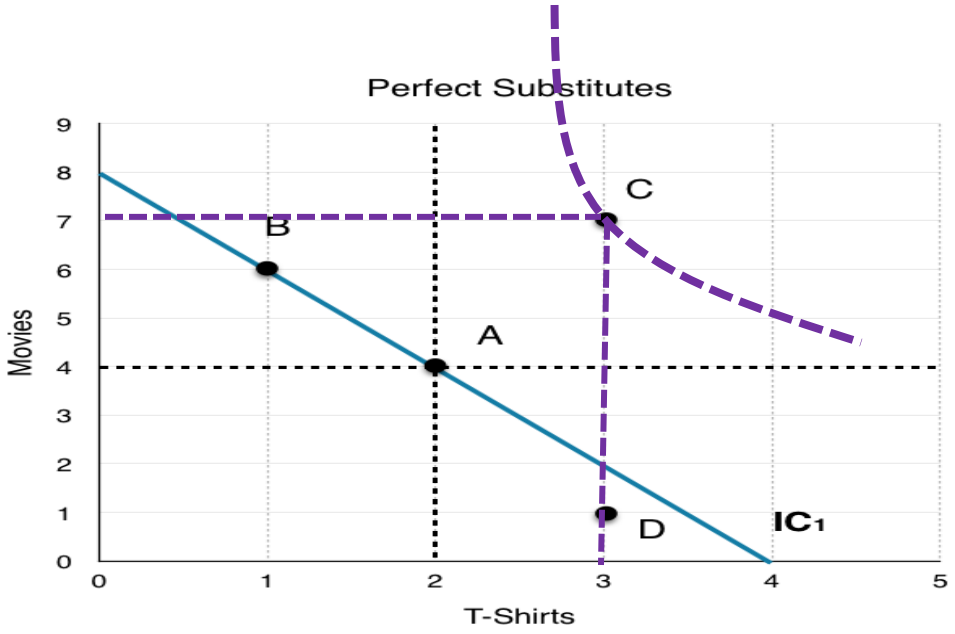


Perfect Substitutes

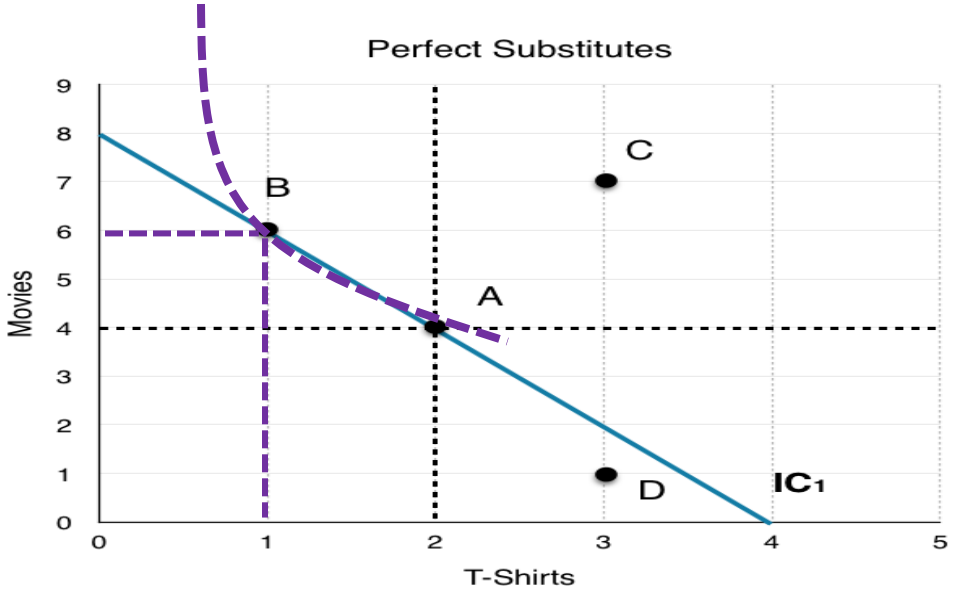
- Let's start with a simple example of consumer's preferences and assume he views T-shirts and movies as nearly perfect substitutes. If the two goods were perfect substitutes, the consumer would be indifferent between Movies and T-shirts. Let's assume instead that he likes T-shirts **twice** as much as movies
- – he is equally as happy with 4 T-shirts as he is with 8 movies.
- At point A, to keep utility constant, if the consumer is to lose 1 T-shirt, he has to gain 2 movies to stay on the same indifference curve.

What information does this give us regarding the consumer preferences between A, B, C and D?

- **Point C –** Again, at point C since he has 3 units more of movies and 1 unit more of T-shirts than point A, his utility has increased, and he is on a higher indifference curve.

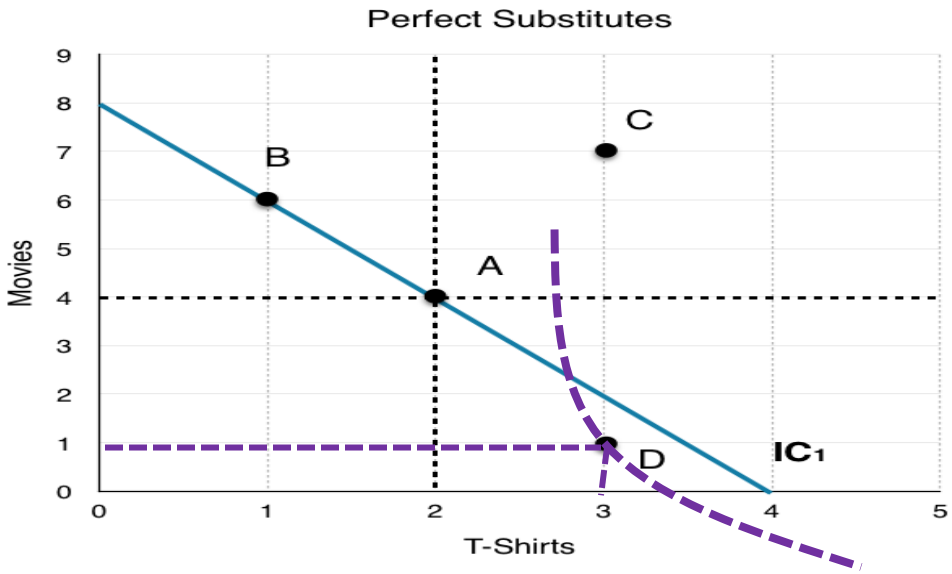


- **Point B –** At point B, he has one less T-shirt than point A, but 2 more movies. As outlined, this means his utility is unchanged, and he is on the same indifference curve.

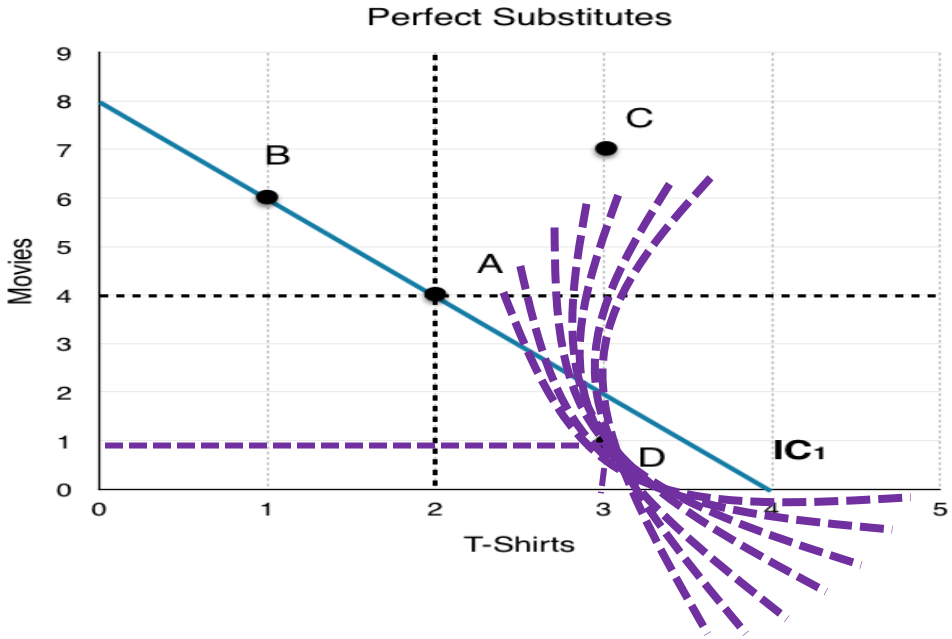


What information does this give us regarding the consumer preferences between A, B, C and D?

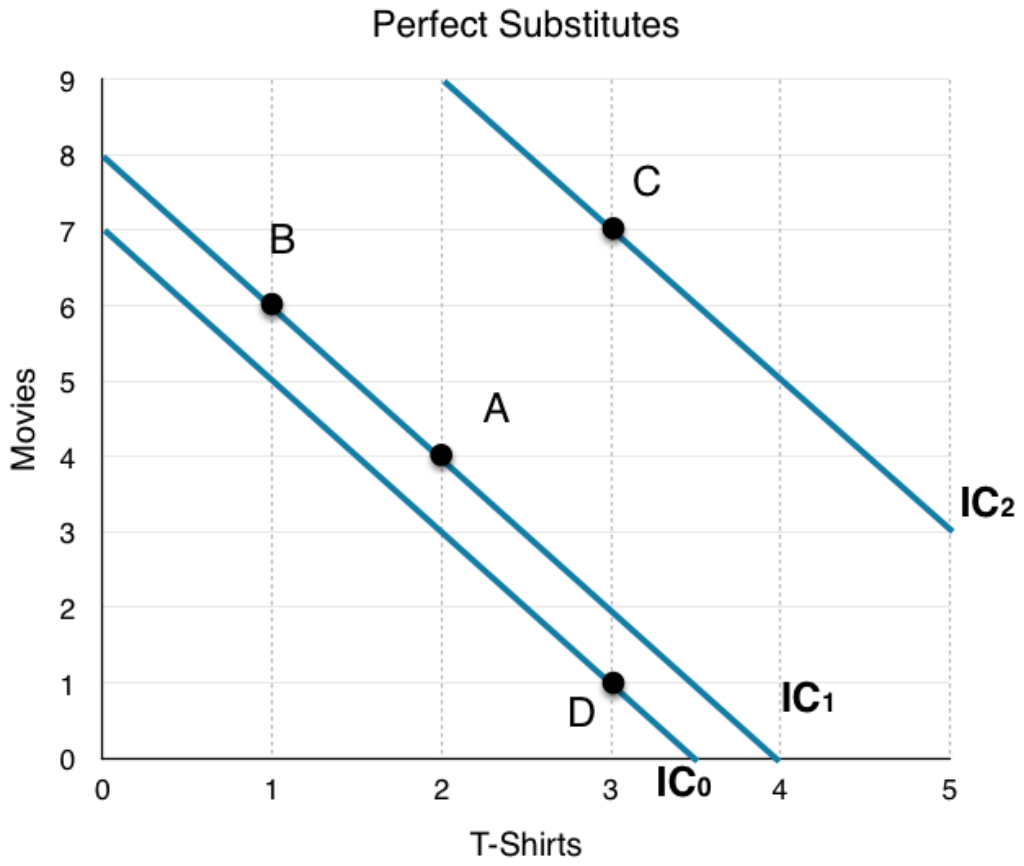
- **Point D –** At point D, he has 1 more T-shirt, but 3 fewer movies than point A. Since the consumer only views T-shirts as two times more valuable than movies, his utility has decreased, a e.



- It is important to recognize that there is an infinite amount of indifference curves. We can graph an IC for point D, and an IC for point C.
- Since very point on an indifference curve represents equal utility, we can be confident that every point on IC2 is superior to every point on IC1, and every point on IC1 is superior to every point on IC0.

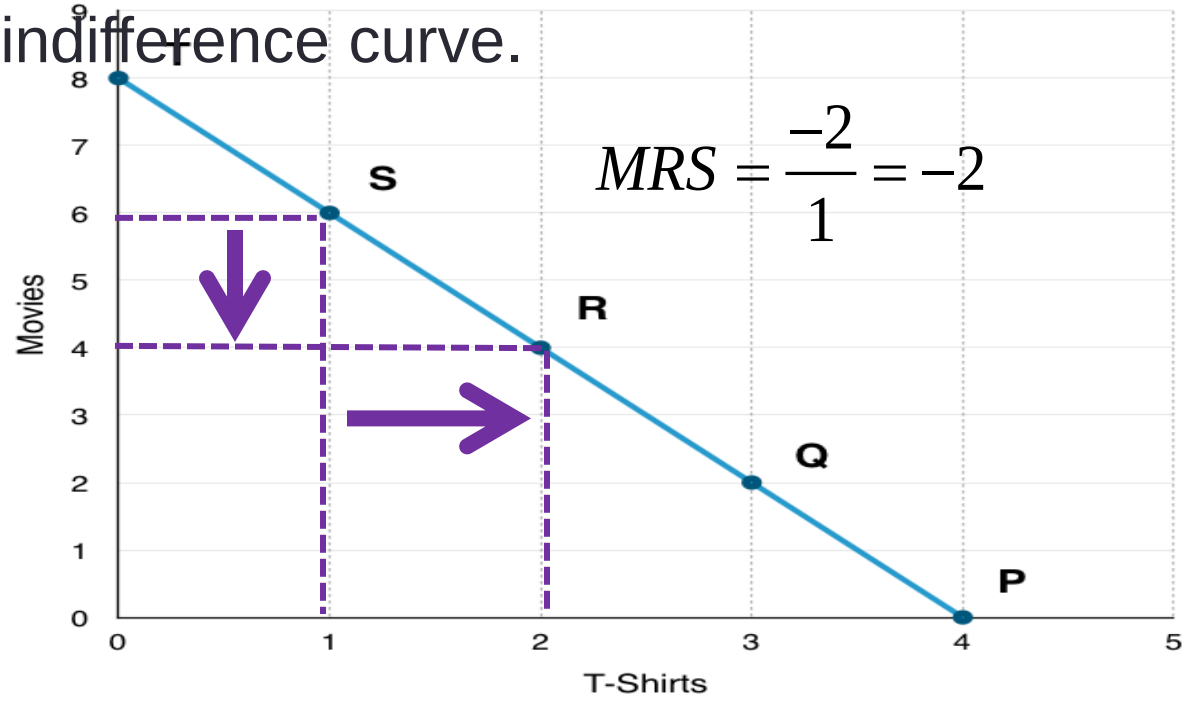


To maximize his utility, the consumer will choose to consume on the highest possible indifference curve that he can afford.

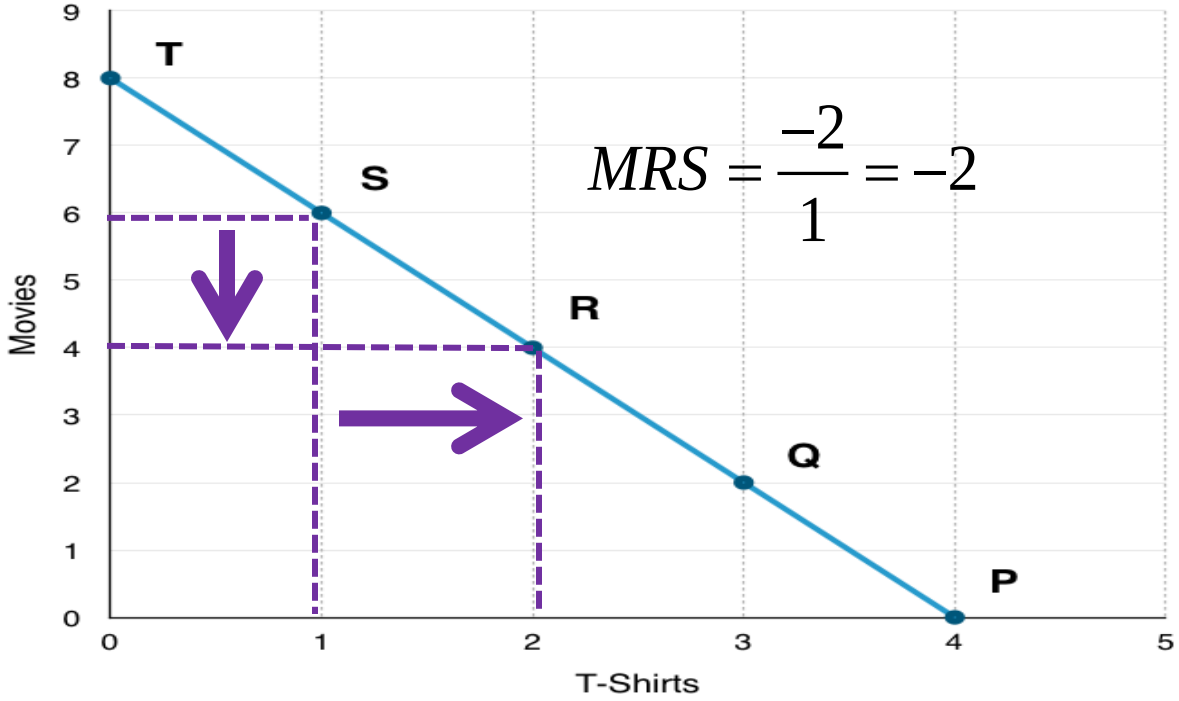


- ***What Does Slope Mean?***
- The slope of the indifference curve is the **Marginal Rate of Substitution (MRS).** The MRS is the amount of a good that a consumer is willing to give up for a unit of another good, without any change in utility.

- In the example above, our MRS is equal to -2. This means that the maximum amount of movies the consumer is willing to give up to get one T-shirt is 2. If he were to give up any more, he would be on a lower indifference curve. Likewise, if he were to give up any less, he would be on a higher indifference curve.



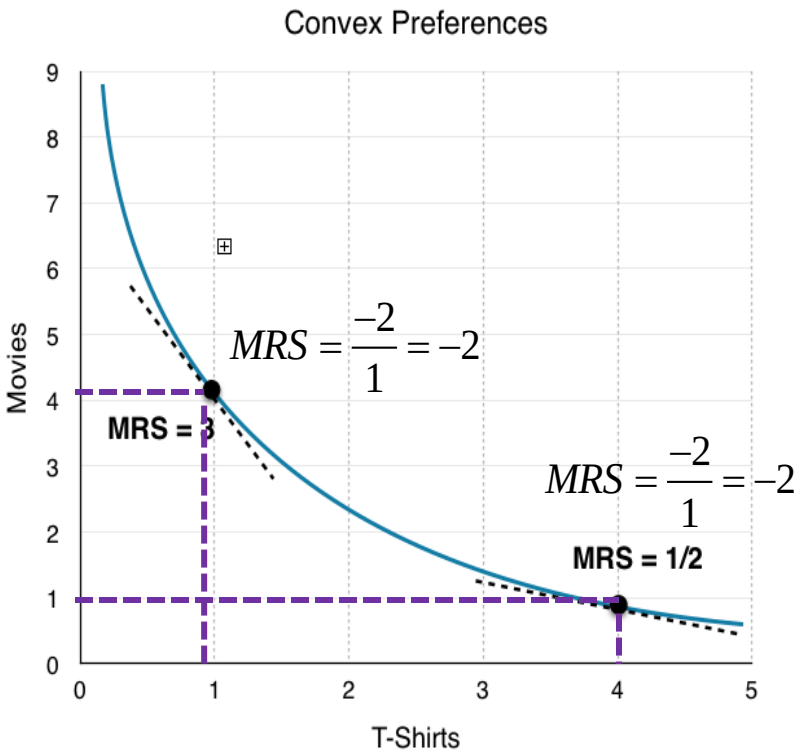
- Since indifference curves are downward sloping, they have a negative slope. Because we know the definition of MRS, keeping the negative sign is unnecessary. We can just use the absolute value of the slope to simplify the analysis.



Convex Preferences

- Thinking about the consumer's preferences, it may seem odd to simply state that he values T-shirts twice as much as movies. What if he has no T-shirts and 8 movies? In this case, perhaps he would be willing to give up more movies to obtain a T-shirt. This intuition that consumers prefer variety leads us to an indifference curve that is **strictly convex**. At low levels of x, we prefer it more than at high levels of x and vice versa for good y.

Convex Preferences

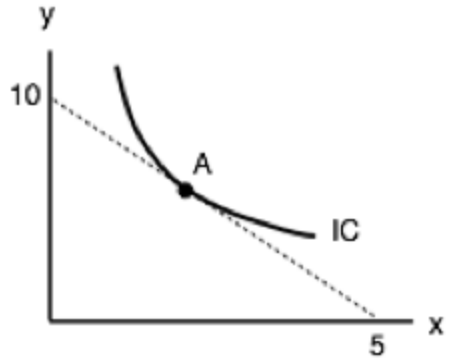


- Graphically, when the consumer has 1 T-shirt and 4 movies, he is willing to give up to 3 movies in exchange for 1 T-Shirt. (MRS = 3)
- When the consumer has 4 T-Shirts and 1 Movie he is only willing to give up 1/2 a movie in exchange for 1 T-Shirt. (MRS = 1/2)
- In this example, the consumer has **diminishing MRS**. In other words, the more of one good he consumes, the smaller the MRS becomes for that good.

Exercises

- **1.** If a consumer (who buys two goods) has strictly convex preferences, then:
- a) Her indifference curves are relatively steep at low levels of x and relatively flat at high levels of x.
  b) Her preference is to have some of each of the two goods, rather than all of one and none of the other.
  c) Her marginal rate of substitution diminishes.
  d) All of the above are true.

- **2.** The diagram below illustrates the indifference curve of a consumer of goods x and y.



Assuming the current consumption bundle is the point labelled A, which of the following statements is TRUE?

a) This consumer is just willing to give up 2 units of y for an additional x.

b) This consumer is just willing to give up 1 unit of y for an additional 2 units of x.

c) This consumer is just willing to give up 1/2 a unit of x for an additional y.

d) Both a) and c) are true.

- **3.** A consumer has $20 per week to spend on coffee and muffins. The price of a cup of coffee and the price of a muffin both equal $1 each. If the consumer always likes to consume one muffin for every cup of coffee he drinks, what consumption bundle will maximize his utility?
- a) 20 muffins and no coffee.
  b) 20 coffees and no muffins.
  c) 10 coffees and 10 muffins.
  d) All of the above consumption bundles maximize his utility – he is indifferent among all those options listed.