

Principles of Microeconomics

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Contestable Markets

Contestable Market: when a competitor could credibly enter and take away business from the incumbent.

- ▶ Large market share does not necessarily mean the firm's position is safe
- ▶ Markets are more contestable when:
 1. Fixed costs of market entry are low, relative to potential revenue.
 2. There are few or no legal barriers to entry.
 3. The incumbent has no unique, hard-to-replicate resource.
 4. Consumers are open to the prospect of dealing with a new competitor.

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Limiting Contestability with Switching Costs

Facebook hosts free photos: bad business decision? Or savvy?

If you are embedded with Facebook, are you less likely to switch to another network?

If switching costs rise, demand will be less elastic (and firms can charge more)

Music can be considered a network good in the sense that...

1. many people today listen to music online and over computer networks.
2. the preferences of individual consumers are independent of what others like.
3. music is produced by large networks of bands, record labels, and music stores.
4. many consumers prefer to purchase music that others purchase as well.

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Music Is a Network Good

An ingenious experiment by Duncan J. Watts (Columbia University) demonstrated that tastes in music have a strong social component.

Watts discovered that the more downloads a song had, the more people wanted to download the song.

What do we need to know so that we can advise a consumer what and how much of it (s)he should consume?

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Consumer Behavior

Consumer behavior is best understood in three distinct steps:

1. Consumer preferences

The first step is to find a practical way to describe the reasons people might prefer one good to another.

2. Budget constraints

Consumers have limited incomes which restrict the quantities of goods they can buy.

3. Consumer choices

- ▶ Link preferences and budget constraints.
- ▶ Which combination of goods will maximize the consumers' satisfaction?

Utility Function

A preference relation can be represented by an utility function $U(x)$ if and only if:

$$\begin{aligned}
 x \succ y &\iff U(x) > U(y) \\
 x \prec y &\iff U(x) < U(y) \\
 x \sim y &\iff U(x) = U(y).
 \end{aligned}$$

Let's assume:

The utility function for Food (F) and Clothing (C) is

$$U(F, C) = F + 2C$$

Bundle	Food	Clothes	Utility
A	8	3	$8 + 2 \times 3 = 14$
B	6	4	$6 + 2 \times 4 = 14$
C	4	4	$4 + 2 \times 4 = 12$

- ▶ The consumer is indifferent between A and B.
- ▶ The consumer prefers A and B to C.

Assume that the marginal utilities for the first three units of a good consumed are 200, 150, and 125, respectively.

What is total utility when two units are consumed?

Utility and Utility Function

Utility

Numerical value representing the satisfaction that a consumer gets from a bundle of goods.

Utility Function

Function that assigns a level of utility $U(x)$ to each bundle of goods x .

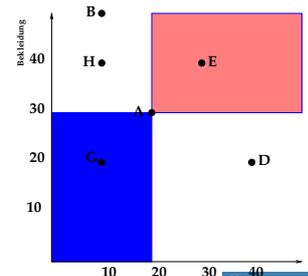
Total Utility and Marginal Utility

- ▶ **Total utility** is the total satisfaction one gets from consuming a product
- ▶ **Marginal utility** is the satisfaction you get from the consumption of one additional unit of the product above and beyond what you have consumed up to that point
- ▶ The **principle of diminishing marginal utility** states that after some point, the marginal utility received from each additional unit of a good decreases with each additional unit consumed
- ▶ As additional units are consumed, marginal utility decreases, but total utility continues to increase
- ▶ When total utility is at a maximum, marginal utility is zero
- ▶ Beyond this point, total utility decreases and marginal utility is negative

Indifference Curves

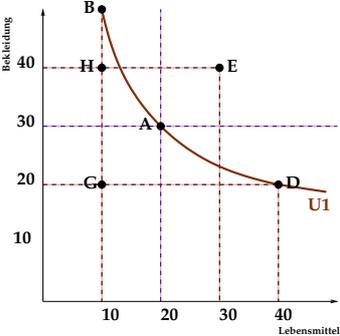
- ▶ Consumer preferences can be represented graphically through the use of **indifference curves**.
- ▶ Indifference curves represents all combinations of bundles of goods that provide a consumer with the same level of satisfaction.
- ▶ Indifference curves slope downwards from left to right.

- ▶ If they would be upward-sloped from left to right, the assumption that more of any good is preferred to less would be violated.



Indifference Curves

Any bundle lying above and to the right of an indifference curve is preferred to each bundle on the indifference curve.



- ▶ $B \sim A \sim D$: Bundles B, A, and D yield the same level of utility.
- ▶ E is preferred to U_1 .
- ▶ U_1 is preferred to H and G.

Utility Function and Indifference Curve

- ▶ The utility function assigns to each bundle of goods an utility value
- Ex. $U(x, y) = 3x + 2y$
- ▶ An indifference curve represents all bundles with the same utility
- ▶ Starting with the utility function one obtains the indifference curve equation by fixing the utility at a certain level and re-arranging terms to isolate one of the goods.

$$\bar{U} = 3x + 2y$$

$$\bar{U} - 3x = 2y$$

$$y = \frac{\bar{U} - 3x}{2}$$

Where do indifference curves intersect each other?

Budget Constraints

- ▶ Preferences do not explain the consumer behavior alone.
- ▶ The **budget constraint** limits a consumer's choices.

Budget Set

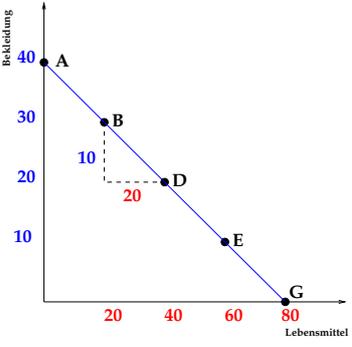
The budget set is the set of bundles a consumer can afford.

Budget Line

The budget line indicates all combinations of goods for which the total amount of money spent is equal to income.

Budget Line

As consumers move along the budget line from they spend less on clothing and more on food.



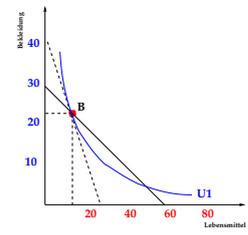
- $P_C = 2, P_F = 1, I = 80$
- ▶ The vertical axis intercept (I/P_C) is the maximal amount C that the consumer can afford with income I .
 - A: $I/P_C = 40$
 - ▶ The horizontal axis intercept (I/P_F) is the maximal amount F that the consumer can afford with income I .
 - G: $I/P_F = 80$

What happens to the budget line if ...

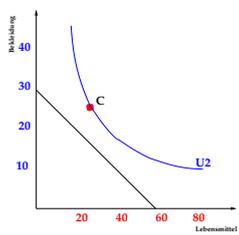
- ▶ the price for the good on the x-axis increases?
- ▶ income increases?

Budget line and indifference curve

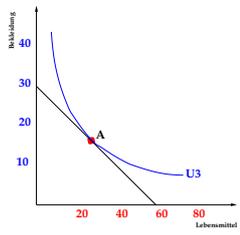
Affordable but not utility maximizing



Not affordable bundle of goods with a higher level utility



Affordable and utility maximizing



- ▶ Consumers want the highest total utility they can afford.
- ▶ They want to be on the best indifference curve that's still affordable.

Budget line and indifference curve

Marginal Rate of Transformation:

Slope of the budget line; the rate at which the market is willing to exchange one good for the other.

Marginal Rate of Substitution:

Slope of the indifference curve; the rate at which the consumer is willing to exchange one good for the other while staying at the same level of utility.

In the optimum the two slopes must be equal:
MRT = MRS

Rational Choice and Marginal Utility

- ▶ The **principle of rational choice** states that people spend their money on those goods the give them the most marginal utility (MU) per Euro
- ▶ We are looking to maximize the utility per Euro spent.
- ▶ Consume another unit of X if: $\frac{MU_x}{P_x} > \frac{MU_y}{P_y}$
- ▶ Consume another unit of Y if: $\frac{MU_x}{P_x} < \frac{MU_y}{P_y}$
- ▶ Utility maximization is achieved when the budget is allocated so that the marginal utility per Euro of expenditure is the same for each good.

$$\frac{\partial U}{\partial x} = \frac{\partial U}{\partial y}$$

- ▶ This is called the **equal marginal principle**.

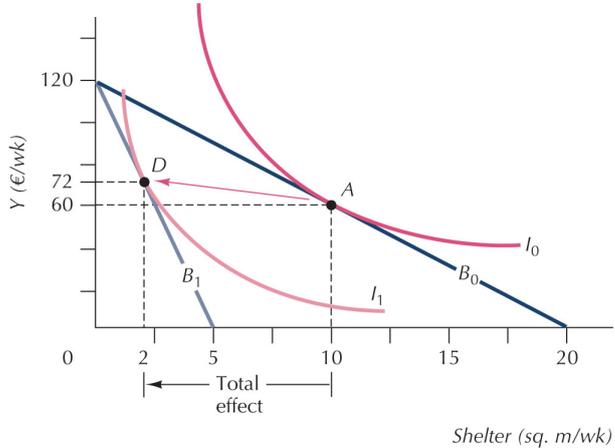
Opportunity Cost

- ▶ Opportunity cost is the benefit forgone of the next best alternative
- ▶ In the context of utility, it is the marginal utility per Euro you forgo from consuming the next-best alternative
- ▶ According to the principle of rational choice, to maximize utility, choose goods until the opportunity cost of all alternatives are equal
- ▶ If the $MU_x/P_x > MU_y/P_y$, the opportunity cost of not consuming good X is greater than the opportunity cost of not consuming good Y so we consume X

Rational Choice and the Law of Demand

- ▶ When the price of a good goes up, the marginal utility per Euro (MU/\$) from it goes down, and we consume less of it and its marginal utility increases
- ▶ Quantity demanded falls as price rises
- ▶ When the price of a good decreases, the MU/\$ increases, and we consume more of it and its marginal utility decreases
- ▶ Quantity demanded increases as price falls

The effect of a price increase



Increase in the price of shelter decreases the consumption, consumers switch from A to D.

A fall in the price of a good has two effects:

Substitution Effect

Consumers will tend to buy more of the good that has become cheaper and less of those goods that are now relatively more expensive.

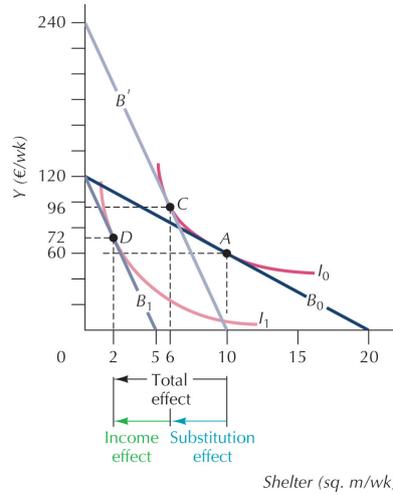
- ▶ The substitution effect is the change in consumption of a good associated with a change in the price of that good, with the level of utility held constant.
- ▶ When the price of a good declines, the substitution effect leads to an increase in the quantity of demanded good.

Income Effect

Because one of the goods is now cheaper, consumers enjoy an increase in real purchasing power.

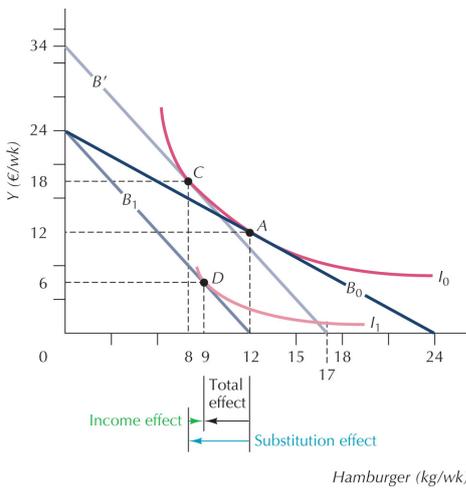
- ▶ The income effect is the change in consumption of a good resulting from an increase in purchasing power, with relative prices held constant.
- ▶ Increases in a person's income may increase or decrease the quantity demanded of a good.

Income and Substitution Effects: Normal Goods



- ▶ Point C is the previous level of utility, but with different (relative) prices.
- ▶ Through the substitution effect from A to C relative prices change, but the real income (utility) remains constant.
- ▶ The income effect from C to D keeps the relative prices constant, but decreases the purchasing power.

Income and Substitution Effects: Inferior Goods

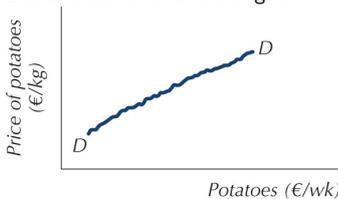


A good is inferior when the income effect is negative (opposite the substitution effect). Still, the substitution effect is (most likely) greater than the income effect.

Are there goods that are consumed more if the price goes up?

Income and Substitution Effects: Giffen Goods

- ▶ Theoretically, the income effect may be large enough to cause the demand curve for a good to slope upward.
 - ▶ The more expensive the more is demanded.
- Ex 1 a "low quality" good may be substituted for higher quality good (potatoes in Russia). Demand curve for a Giffen good



Ex 2 „The Snob Effect“; the demand for a luxury good decreases with its price, because it will no longer be a status symbol.

- ▶ Giffen goods are rare and are of little practical interest.

Applying the Theory of Choice to the Real World

- ▶ The assumptions underlying the theory of rational decision making place limits on the use of the theory
- ▶ Those assumptions are:
 1. Decision making is costless
 2. Tastes are given
 3. Individuals maximize utility
- ▶ Behavioral economists question all three assumptions

Applying the Theory of Choice to the Real World

Decision making is costless

- ▶ The costs of deciding among hundreds of possible choices may lead us to do some things that seem irrational
- ▶ Most people may use **bounded rationality** which is rationality limited by bounded cognitive abilities, bounded self-interest, and bounded will-power; often based on rules of thumb
 - ▶ “You get what you pay for” is the implication that high price equals high quality
 - ▶ “Follow the leader” leads to focal point equilibria in which a set of goods is consumed because they have become focal points to which people have gravitated

Applying the Theory of Choice to the Real World

Tastes are given

- ▶ Implicit in the theory of rational choice is that utility functions are given, not shaped by society
- ▶ Tastes are often significantly influenced by society
- ▶ **Conspicuous consumption** is the consumption of goods not for one's direct pleasure, but to show off to others
- ▶ “Given tastes” is the assumption on which an economic analysis is conducted

Applying the Theory of Choice to the Real World

Individuals maximize utility

- ▶ People may not behave rationally in practice
- ▶ Behavioral economics have found through experiments that many people do not maximize monetary gains (often equated to utility)
- ▶ The experiment of the ultimatum game shows that people care about fairness as well as income
- ▶ Experiments also reveal a **status quo bias** where individuals' actions are influenced by the current situation, even when that reasonably does not seem to be very important to the decision