

# UTILITY

**Utility** is a term in **microeconomics** that describes to the incremental satisfaction received from consuming a good or service. **Cardinal utility** attempts to assign a numeric value to the **utility** of an economic act, while **ordinal utility** simply provides a rank ordering.

**Cardinal Utility** is the idea that economic welfare can be directly observable and be given a value. For example, people may be able to express the utility that consumption gives for certain goods. For example, if a Nissan car gives 5,000 units of utility, a BMW car would give 8,000 units.

**Ordinal utility** is the idea that the consumer only ranks choices in terms of preference but we do not give exact numerical figures for utility. For example, we prefer a BMW car to a Nissan car, but we don't say by how much. It is argued this is more relevant in the real world.

**Utility** simply means the ability to satisfy a want. A commodity may have **utility** but it may not be useful to the consumer. For instance—a cigarette has **utility** to the smoker but it is injurious to his health. However, demand for a commodity depends on its **utility** rather than its usefulness.

## TYPES OF UTILITY

The four types of economic utility are form, time, place, and possession, whereby **utility** refers to the usefulness or value that consumers experience from a product. The economic utilities help assess consumer purchase decisions and pinpoint the drivers behind those decisions.

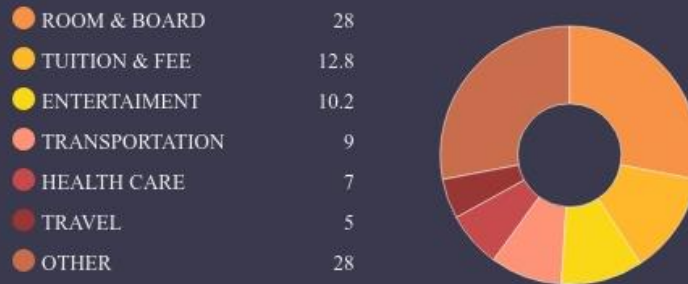
Everyone has their own personal tastes and preferences. The French say: “**Each to his own taste.**” An old Latin saying states “**There’s no disputing about taste.**” If people base their decisions on their own tastes and personal preferences, however, then how can economists hope to analyze the choices consumers make?

An economic explanation for why people make different choices begins with accepting the proverbial wisdom that **tastes are a matter of personal preference**. However, economists also believe that the choices people make are influenced by their incomes, by the prices of goods and services they consume, and by factors like where they live.

## CHANGES IN CONSUMER EQUILIBRIUM

Imagine you were to create a pie chart of your college budget and spending. Where does most of your money go? Is it spent on housing? Tuition? Maybe on a car payment or food? How much money goes towards savings, entertainment, or a night out with friends? In this section, you'll see how consumer choices change when one's budget changes or the prices of the things one buys changes.

# Average Student Budget



The consumer's choice of how much to consume of various goods depends on the prices of those goods. If prices change, the consumer's equilibrium choice will also change.

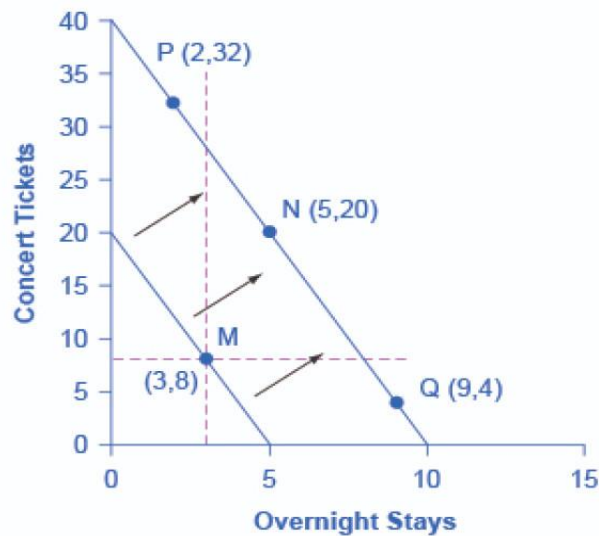
## INCOME CHANGES AND CONSUMPTION CHOICES

Consumer equilibrium, that is, the combination of goods and services that will maximize a consumer's utility, depends on the consumer's tastes and preferences, as expressed by his or her marginal utility numbers, the prices of those items and the budget (or income) the consumer has. In this section, we will explore how changes in a consumer's income and changes in the prices of goods and services affect consumer choice. Then, because the budget constraint framework can be used to analyze how quantities demanded change because of price movements, the budget constraint model can illustrate the underlying logic behind demand curves.

### How Changes in Income Affect Consumer Choices

Let's begin with a concrete example illustrating how changes in income level affect consumer choices. Figure 1 shows a **budget constraint** that represents Jazmin's choice between concert tickets at \$50 each and getting away overnight to a bed-and-breakfast for \$200 per night. Jazmin has \$1,000 per year to spend between these two choices. Jazmin could spend all of her budget on concert tickets, in which case she could buy  $\$1000/\$50 = 20$  concert tickets. This shows the vertical axis of the budget constraint. Alternatively, she could spend all of her budget on nights at a bed-and-breakfast, in which case she could afford  $\$1000/200 = 5$  nights. This shows the horizontal axis of her budget constraint.

After thinking about her total utility and marginal utility and applying the decision rules for maximizing utility explained earlier, Jazmin chooses point M, with eight concerts and three overnight getaways as her utility-maximizing choice.



**Figure 1. How a Change in Income Affects Consumption Choices?**

The utility-maximizing choice on the original budget constraint is M. The dashed horizontal and vertical lines extending through point M allow you to see at a glance whether the quantity consumed of goods on the new budget constraint is higher or lower than on the original budget constraint. On the new budget constraint, a choice like N will be made if both goods are normal goods. If overnight stays are an inferior good, a choice like P will be made. If concert tickets are an inferior good, a choice like Q will be made.

Now, assume that the income Jazmin has to spend on these two items rises to \$2,000 per year. Since the prices of the two products haven't changed, doubling her budget allows Jazmin to purchase twice as many of each. This can be shown as a rightward shift in the budget constraint with intercepts as (0, 40) and (10, 0). How does this rise in income alter her utility-maximizing choice? Jazmin will again consider the total utility and marginal utility that she receives from concert tickets and overnight getaways to identify the consumer equilibrium on the new budget line. But how will her new choice relate to her original choice?

The possible choices along the new budget constraint can be divided into three groups, which are divided up by the dashed horizontal and vertical lines that pass through the original choice M in the figure. All choices on the upper left of the new budget constraint that are to the left of the vertical dashed line, like choice P with two overnight stays and 32 concert tickets, involve less of the good on the horizontal axis but much more of the good on the vertical axis. All choices to the right of the vertical dashed line and above the horizontal dashed line—like choice N with five overnight getaways and 20 concert tickets—have more consumption of both goods. Finally, all choices that are to the right of the vertical dashed line but below the horizontal dashed line, like choice Q with 4 concerts and 9 overnight getaways, involve less of the good on the vertical axis but much more of the good on the horizontal axis.

All of these choices are theoretically possible, depending on Jazmin’s personal preferences as expressed through the total and marginal utility she would receive from consuming these two goods. When income rises, the most common reaction is to purchase more of both goods, like choice N, which is to the upper right relative to Jazmin’s original choice M, although exactly how much more of each good will vary according to personal taste. Conversely, when income falls, the most typical reaction is to purchase less of both goods. As we learned already in the module on elasticity, goods and services are called **normal goods** if a rise in income leads to a rise in the quantity consumed of that good and a fall in income leads to a fall in quantity consumed.

However, depending on Jazmin’s preferences, a rise in income could cause consumption of one good to increase while consumption of the other good declines. A choice like P means that a rise in income caused her quantity consumed of overnight stays to decline, while a choice like Q would mean that a rise in income caused her quantity of concerts to decline. Goods where demand declines as income rises (or conversely, where the demand rises as income falls) are called “inferior goods.” An **inferior good** occurs when people trim back on a good as income rises, because they can now afford the more expensive choices that they prefer. For example, a higher-income household might eat fewer hamburgers or be less likely to buy a used car, and instead eat more steak and buy a new car.

## How Price Changes Affect Consumer Choices

For analyzing the possible effect of a change in price on consumption, let’s again use a concrete example. Figure 2 represents the consumer choice of Sergei, who chooses between purchasing baseball bats and cameras. A price increase for baseball bats would have no effect on the ability to purchase cameras, but it would reduce the number of bats Sergei could afford to buy. Thus a price increase for baseball bats, the good on the horizontal axis, causes the budget constraint to rotate inward, as if on a hinge, from the vertical axis. As in the previous section, the point labeled M represents the originally preferred point on the original budget constraint, which Sergei has chosen after contemplating his total utility and marginal utility and the tradeoffs involved along the budget constraint. In this example, the units along the horizontal and vertical axes are not numbered, so the discussion must focus on whether more or less of certain goods will be consumed, not on numerical amounts.

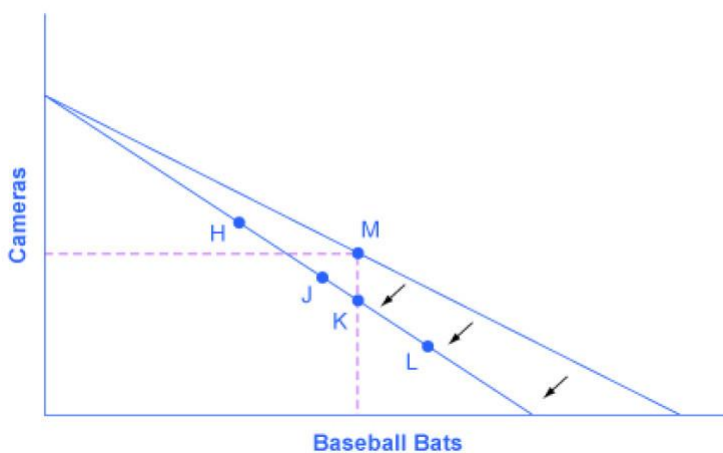


Figure 2. How a Change in Price Affects Consumption Choices?

The original utility-maximizing choice is M. When the price rises, the budget constraint shifts in to the left. The dashed lines make it possible to see at a glance whether the new consumption choice involves less of both goods, or less of one good and more of the other. The new possible choices would be fewer baseball bats and more cameras, like point H, or less of both goods, as at point J. Choice K would mean that the higher price of bats led to exactly the same quantity of bats being consumed, but fewer cameras. Choices like L are ruled out as theoretically possible but highly unlikely in the real world, because they would mean that a higher price for baseball bats means a greater quantity consumed of baseball bats.

After the price increase, Sergei will make a choice along the new budget constraint. Again, his choices can be divided into three segments by the dashed vertical and horizontal lines. In the upper left portion of the new budget constraint, at a choice like H, Sergei consumes more cameras and fewer bats. In the central portion of the new budget constraint, at a choice like J, he consumes less of both goods. At the right-hand end, at a choice like L, he consumes more bats but fewer cameras.

The typical response to higher prices is that a person chooses to consume less of the product with the higher price. This occurs for two reasons, and both effects can occur at the same time. The **substitution effect** occurs when a price changes and consumers have an incentive to consume less of the good with a relatively higher price and more of the good with a relatively lower price. The **income effect** is that a higher price means, in effect, the buying power of income has been reduced (even though actual income has not changed), which leads to buying less of the good (when the good is normal). In this example, the higher price for baseball bats would cause Sergei to buy fewer bats for both reasons. Exactly how much will a higher price for bats cause Sergei consumption of bats to fall? Figure 2 suggests a range of possibilities. Sergei might react to a higher price for baseball bats by purchasing the same quantity of bats, but cutting his consumption of cameras. This choice is the point K on the new budget constraint, straight below the original choice M. Alternatively, Sergei might react by dramatically reducing his purchases of bats and instead buy more cameras.

The key is that it would be imprudent to assume that a change in the price of baseball bats will only or primarily affect the good whose price is changed, while the quantity consumed of other goods remains the same. Since Sergei purchases all his products out of the same budget, a change in the price of one good can also have a range of effects, either positive or negative, on the quantity consumed of other goods.

In short, a higher price typically causes reduced consumption of the good in question, but it can affect the consumption of other goods as well.