

Budget Constraints: Change in Income

by Sophia Tutorial



WHAT'S COVERED

This tutorial will discuss how a change in income affects a budget constraint.

Our discussion breaks down as follows:

1. Budget Constraint
 - a. Budget Constraint Graph
2. Effect of Income Change on Budget Constraint
3. Normal Goods vs. Inferior Goods

1. Budget Constraint

You may recall that a **budget constraint** is the graphical depiction of consumer income relative to the price of goods available.

Where the budget constraint touches the highest indifference curve available, the consumer is defined to be optimizing consumption.

1a. Budget Constraint Graph

Let's use an example to illustrate a budget constraint graph.

Suppose Kim has a budget of \$100 to spend each month on "fun." She must choose between going to the movies or ordering Chinese takeout, her two designated "fun for the month" activities.

The movies will cost her \$20 each time she goes, between the ticket and snacks at the concessions stand, whereas the Chinese takeout will cost her \$10.

Budget = \$100

Movies = \$20 (tickets + concessions)

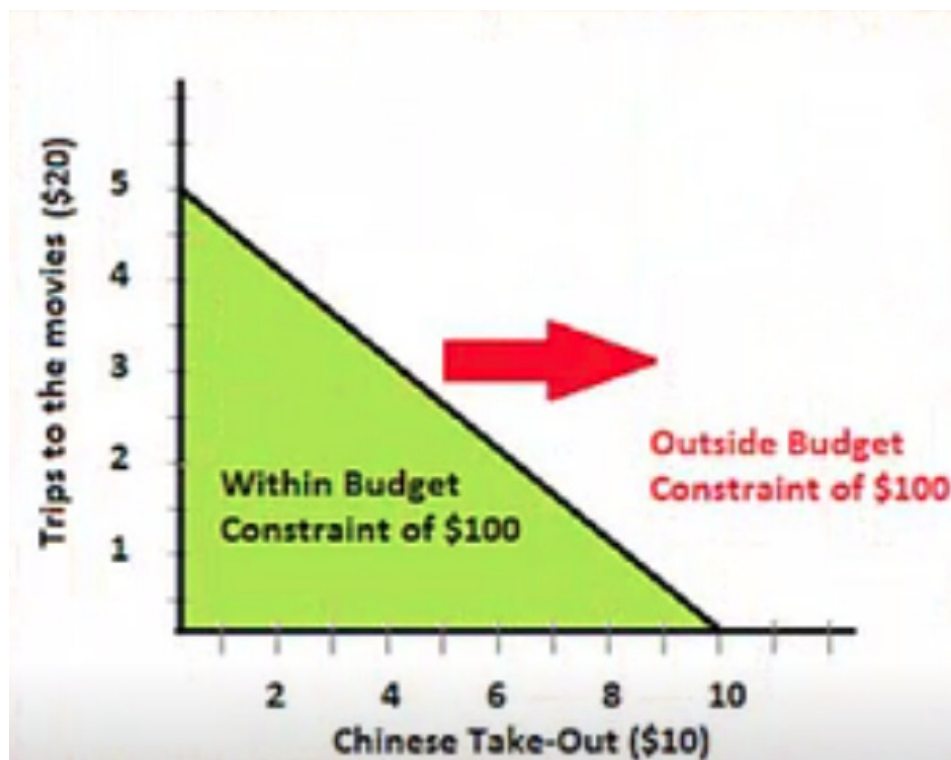
Chinese takout = \$10

Kim's budget constraint will list all of the possible combinations she can afford if she spends all \$100 on these two activities every month.

Now, let's take a look at the graph, visually representing Kim's budget constraint for the month, where her

budget is \$100.

We will put trips to the movies on the y-axis and Chinese takeout on the x-axis.



Notice the extremes for each option, which indicate that she can afford *either*:

- 5 trips to the movies, because $5 \times \$20 = \100
- 10 Chinese takeout meals, because $10 \times \$10 = \100

The black line connecting the two extremes represents Kate's budget constraint, and note that she can afford any combination along her budget constraint line.

Notice that anything in the green area is within her budget, while any combination outside of this area is not, because it is greater than \$100.



TERM TO KNOW

Budget Constraint

The graphical depiction of consumer income relative to the price of goods available. Where the budget constraint touches the highest indifference curve available, the consumer is defined to be optimizing consumption.

2. Effect of Income Change on Budget Constraint

However, what if Kim's income changes? What if she is making more money and decides that she can afford \$200 a month on "fun"?

Well, if we perform the same mathematical calculations, we determine that she can now afford *either*:

- 10 trips to the movies, because $10 \times \$20 = \200
- 20 Chinese takeout meals, because $20 \times \$10 = \200

Or, again, she can have some combination of the two activities.

If we graph those two extremes--20 Chinese takeout meals or 10 trips to the movies--and connect them with a budget constraint, you can see that whenever there is a change in income, the budget constraint simply shifts to the right, parallel to the original one.



3. Normal Goods vs. Inferior Goods

Now that Kim has a new budget constraint, how might she choose to spend her money?

Well, it depends on what types of goods these are to her, meaning it depends on whether the goods are what we would consider "normal."

Normal goods are most goods; they are goods for which demand increases as income increases.



In other words, normal goods are anything that we want to buy more of as we have more money.

There are, however, a type of good called **inferior goods**, which are goods for which demand decreases as income increases.

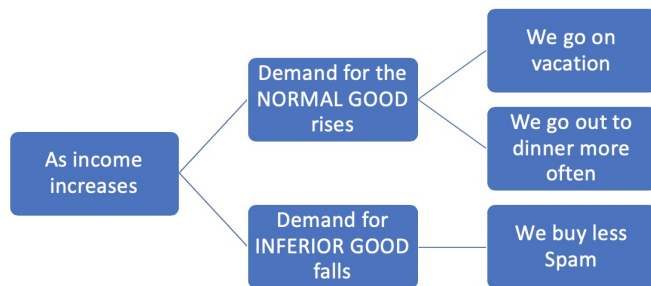


When we make more money, we actually buy less of inferior goods.

➞ **EXAMPLE** Some classic examples of inferior goods are ramen noodles, Spam, or generic brands,

because when we make more money, we don't tend to buy them as much anymore.

Here is a summary of what happens as our income increases.



We find that most goods are normal. As income goes up, demand for normal goods goes up. We can go on vacations and go out to dinner more often. We can afford a lot of things more now that we have more money.

As income increases, however, the demand for an inferior good falls, meaning, for instance, we buy less Spam if we make more money, because we can afford more expensive meats.

Circling back to Kim's budget constraint, where her budget is now \$200, what will optimize her choice?

Well, suppose she views going to the movies as a normal good but ordering Chinese takeout as an inferior good. This would definitely affect the combination of the two goods she chooses now that her income has increased.

In order to see what combination she would purchase, we would need indifference curves on this budget constraint, because remember, it is the indifference curves that show us Kim's preferences.

Here is where Kim's indifference curve is located on her original budget constraint, when her budget was \$100.



Now, though, she can certainly increase her utility now that her new budget constraint is out to the right. Remember, more is always better.

However, what if her indifference curve that is tangent to the new budget constraint is located here (see below)?



This would indicate that even though she is able to afford more of both, she is actually purchasing many more tickets to the movies but a little less Chinese takeout, because perhaps she considers the takeout to be an inferior good and the movies as a normal good.



BIG IDEA

Consumers want to make the **optimal choice**, which is defined as goods and services purchased by a consumer that provide the highest level of utility or satisfaction possible.



TERMS TO KNOW

Normal Goods

Goods for which demand increases as income increases

Inferior Goods

Goods for which demand decreases as income increases

Optimal Choice

Goods and services purchased by a consumer that provide the highest level of utility possible



SUMMARY

Today we reviewed the definition of a **budget constraint** and its visual representation in a **budget constraint graph**. We learned that the **effect of an income change on a budget constraint** is that the budget constraint shifts out parallel when there is a change in income. The budget constraint would shift out parallel to the right when there is an increase in income and to the left if there is a decrease in income. We also learned about the difference between **normal goods vs. inferior goods**. Remember, when there is an increase in income, we buy more of normal goods but less of an inferior good.

Ultimately, combining all of these elements--budget constraints, indifference curves and consumer preferences surrounding normal and inferior goods--consumers can make the optimal choice and maximize their utility.

Source: Adapted from Sophia instructor Kate Eskra.



TERMS TO KNOW

Budget Constraint

The graphical depiction of consumer income relative to the price of goods available. Where the budget constraint touches the highest indifference curve available, the consumer is defined to be optimizing consumption.

Inferior Goods

Goods for which demand decreases as income increases.

Normal Goods

Goods for which demand increases as income increases.

Optimal Choice

Goods and services purchased by a consumer that provides the highest level of utility possible.

