Welfare Analysis

by Sophia Tutorial

WHAT'S COVERED

This tutorial will cover welfare analysis is used to see the impact of different government policies. In addition, we will compare consumer and producer surplus before and after a price ceiling and a price floor.

Our discussion breaks down as follows:

1. Free Markets and Equilibrium
2. Welfare Analysis
3. Consumer Surplus, Producer Surplus, and Deadweight Loss: Price Floor
4. Consumer Surplus, Producer Surplus, and Deadweight Loss: Price Ceiling
5. Welfare Analysis: Abstract Concepts

1. Free Markets and Equilibrium

In most cases, free market function wonderfully. This is because producers have profit-motive to provide consumers with what they want at prices they are willing to pay.

Therefore, usually the government does not need to intervene and unregulated, free markets generally produce the best outcome.

We can determine the best outcome through welfare analysis, to see that overall welfare is maximized.

The market allows for trade to occur between buyers and sellers.

When the market reaches equilibrium--which you will see on a graph--you will be able to see that consumers and producers are better off, and there is no dead weight loss.

2. Welfare Analysis

However, sometimes the government does need to intervene for one reason or another.

We need a way to measure the impact that it has on consumers, producers, and society as a whole.

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We can use welfare analysis to compare consumer surplus and producer surplus, before and after government intervention.

As a reminder, **consumer surplus** is determined by the difference between the actual price paid for a good and the highest amount the consumer would have paid for the good.

THINK ABOUT IT

Have you ever gotten a better deal on something than you expected? Maybe you are willing to pay $100 to see a concert but somebody else doesn't value that concert as much as you do, and sells you the ticket for $60. You just enjoyed a consumer surplus of $40.

Producer surplus, on the other hand, is the difference between the actual payment for a good and the least amount a producer would have agreed to receive for the good.

> EXAMPLE Suppose you are selling baseball cards on eBay and you are willing to accept as little as $25 for one. Then, someone puts in a bid and offers you $40. You would be enjoying a producer surplus of $15 on that card.

TERMS TO KNOW

Consumer Surplus
Determined by the difference between actual price paid for a good and the highest amounts the consumer would have paid for the good

Producer Surplus
The difference between actual payment for a good and the least amount a producer would have agreed to receive for the good

3. Consumer Surplus, Producer Surplus, and Deadweight Loss: Price Floor

Now let's look at a free market in equilibrium.

This is the labor market and we are looking at the supply curve that represents the number of workers who are willing to supply their labor at various wage rates.

The employers are on the demand side because they are demanding or hiring labor. Therefore, this demand curve represents the number of the workers that employers are willing to hire at various wage rates.

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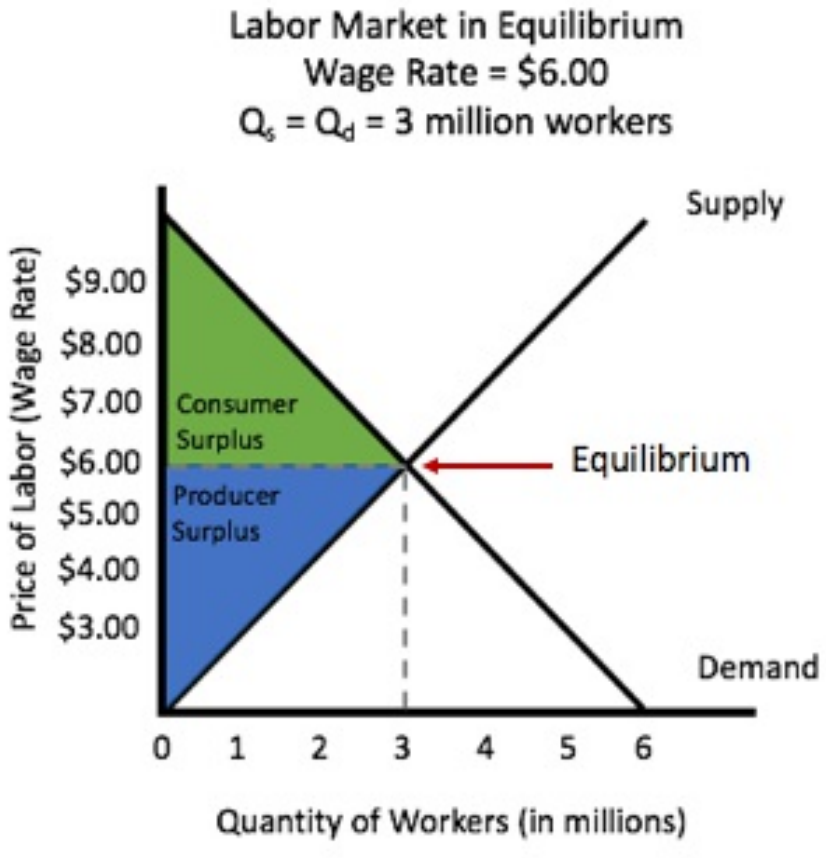

If we allow the market come to equilibrium, that equilibrium would be established at $6 per hour. There are exactly three million workers willing to supply their labor, as there are three million workers being demanded by employers. There are no shortage of workers and no surplus of workers.

Notice that using welfare analysis, we can see the consumer surplus in green, comprising all of the people who were willing to pay workers more than $6 an hour.

All of the workers in the producer surplus area, in blue, were willing to supply their labor for less than $6 per hour.

The green plus the blue is the biggest it can get.

We know, though, that the government does not allow companies to pay workers $6 per hour. Minimum wage law prevents this market from establishing equilibrium.

Notice that at equilibrium, there is no **deadweight loss**, which is a variable that decreases the producer and consumer surplus due to a section of an incapacitated resource, such as tax.

However, now the market cannot establish equilibrium because the government imposes a minimum wage law, which is an example of a price floor, dictating that employers must pay workers a minimum of $7.25 an hour.

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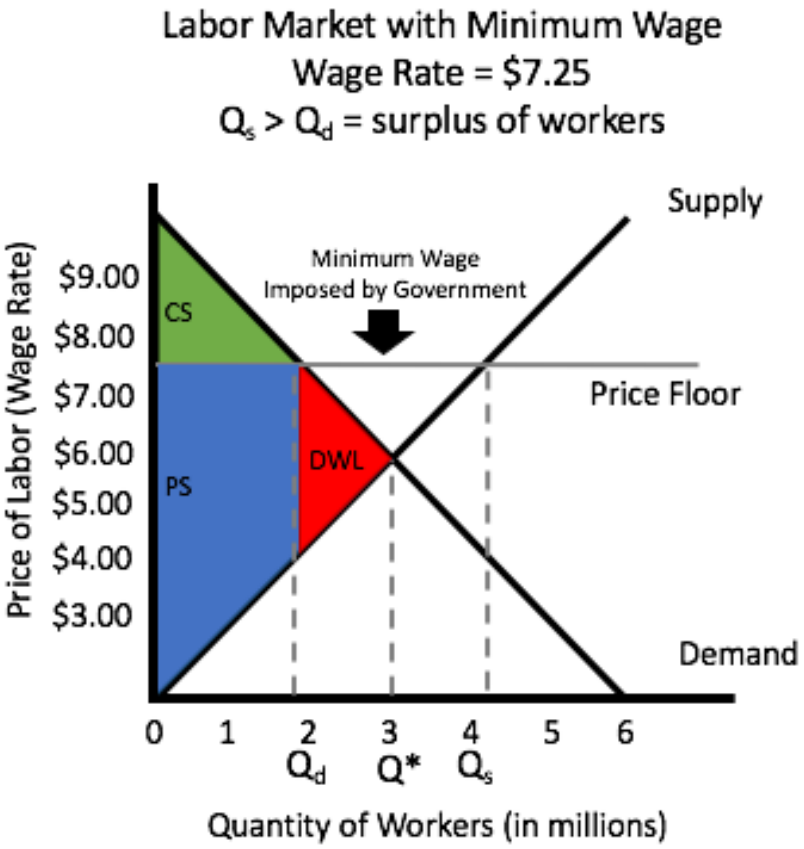

The impact of that, looking along the supply curve, is that more workers are willing to supply their labor now. The quantity supplied of labor increases, while employers are not as willing to hire at a higher wage, so the quantity demanded for labor falls.

Now we have a surplus situation; the two are not equal. The quantity supplied exceeds the quantity demanded and we have a surplus of workers. Not everyone searching for employment will be able to get a job.

As you can see, the green area that represents the consumer surplus shrank, because now we only have so many employers willing to pay more than the $7.25 wage.

The producer surplus grew for the workers who are able to get a job, because they are all willing to work for less.

However, not all of the workers are going to get a job. This creates a deadweight loss, shown by the red area.

HINT

Minimum wage is an example of a price floor. It may seem odd that a price floor is above equilibrium, but if you think about it, they cannot go any lower than a floor, or any lower than $7.25 per hour.

TERM TO KNOW

Deadweight Loss
A variable that decreases the producer and consumer surplus due to a section of an incapacitated resource, such as tax

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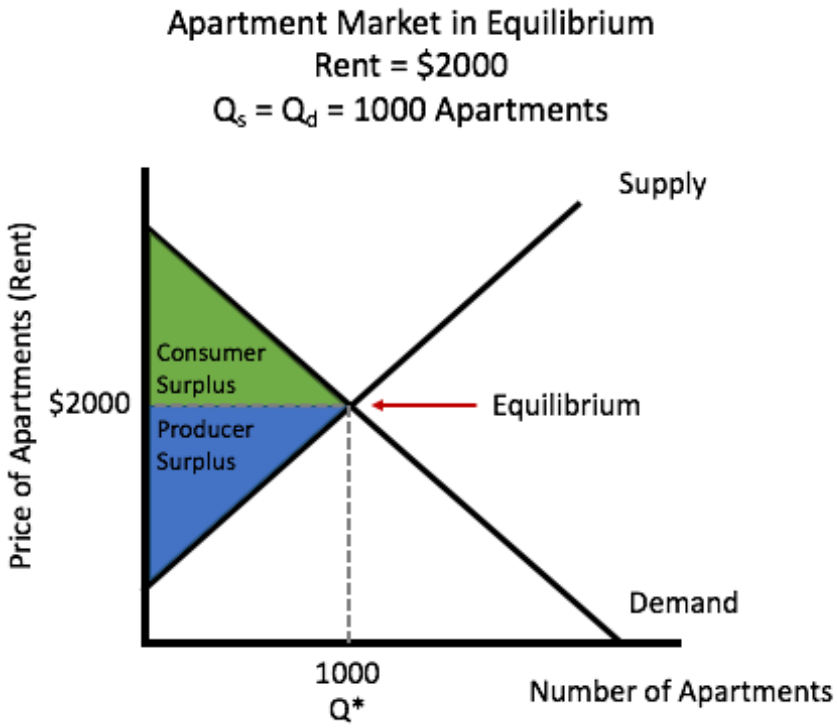
4. Consumer Surplus, Producer Surplus, and Deadweight Loss: Price Ceiling

Now let's look at the opposite situation.

In this example, we are suggesting that the equilibrium price--the price that would clear the market--would be $2,000 a month to rent.



You can see consumer surpluses in green and producer surpluses in blue. There is nothing other than this point in equilibrium that would make that section any bigger--consumer surplus and producer surplus are maximized.

However, $2,000 a month is quite expensive and many people would be unable to afford that high rent. Therefore, the government will often step in and control rent in a certain area, imposing a maximum price that landlords can charge.

Suppose the government sets a price ceiling at $1,200, which dictates that the landlords cannot charge any higher than $1,200 per month for their apartments.

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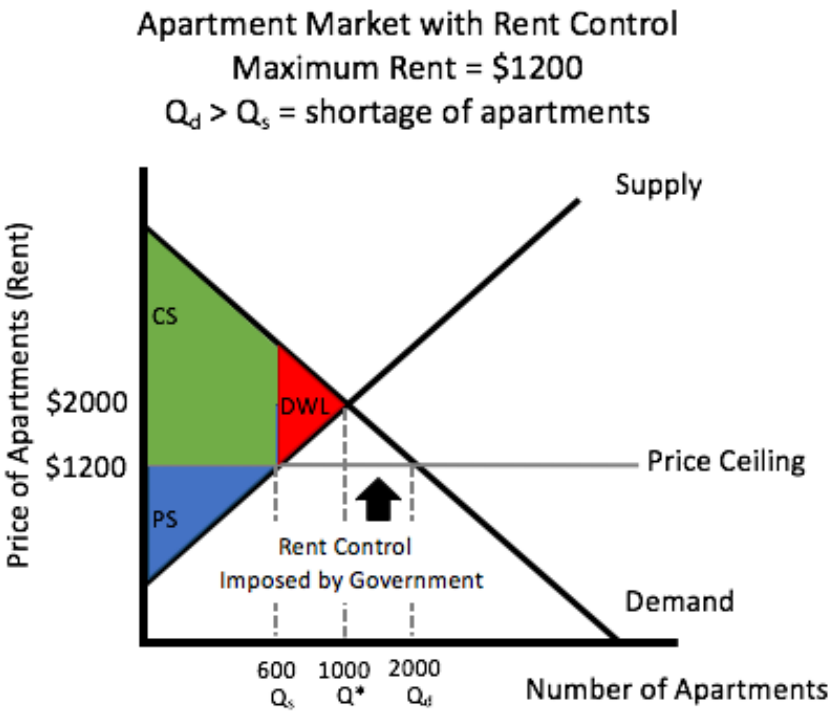

Reading along the demand curve, the effect of this is that more people are able to afford and willing to rent apartments, so demand grows.

However, fewer landlords are willing to rent out apartments at that price. Government intervention can force them to charge a certain price, but it cannot force them to rent out the apartments. Therefore, their quantity supplied of apartments shrinks.

What does this do? It takes the market out of equilibrium. Now the quantity demanded exceeds the quantity supplied and we have a shortage of apartments. We have 2,000 people looking for apartments, but only 600 will be able to actually find them.

The producer surplus shrinks because producers are not able to charge as high of prices. The consumer surplus will grow, but only for the 600 customers who are able to find apartments.

The rest of the people are not able to find them because of the shortage, which creates a deadweight loss, the red area.

HINT

Rent control is called a price ceiling because it is a maximum price that is able to be charged.

5. Welfare Analysis: Abstract Concepts

When we study what happens to consumer and producer surplus, it is important to note that people are not actually losing money as they shrink, or gaining money as they grow.

In reality, it is the impact on people's satisfaction, or utility, that we are trying to illustrate.

These are abstract concepts, so it is difficult to quantify or estimate them completely accurately.

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However, welfare analysis does allow us to visually show who benefits and who loses from certain policies, as well as discuss the costs and benefits of these policies.

We are able to see the consumer surplus area, the producer surplus area, and the deadweight loss area grow or shrink, which allows us to look at those things visually.

BIG IDEA

It is necessary to use judgment because it is not always clear when benefits outweigh the costs of a certain policy, or vice versa.

SUMMARY

We began today's lesson by discussing **free markets and equilibrium**. We learned how **welfare analysis** can be used to look at the effect of government policies. We learned about the impact on **consumer surplus** and **producer surplus** when the government institutes **price ceilings** and **price floors**, as well as how these create shortages or surpluses, and deadweight loss to society. Remember, it is important to use caution and judgment as these are **abstract concepts**.

Source: Adapted from Sophia instructor Kate Eskra.

TERMS TO KNOW

Consumer Surplus
Determined by the difference between actual price paid for a good and the highest amounts the consumer would have paid for the good.

Deadweight Loss
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Producer Surplus
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