BUEC 311: Business Economics, Organization and Management
Supply and Demand - The Basics

Outline

1. The Supply-and-Demand Model
   - Demand
   - Supply
   - Market Equilibrium
2. Using the Model
   - Changing fundamentals.
   - The effects of government intervention.
3. Applying the model in practice.
   - When it works.
   - When if fails.

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Demand

- Supply and demand is the core of almost every economic model
- This simple model is useful for understanding many markets.
  - It works particularly well in markets with many buyers and sellers.
- Why is it useful?
  - We can use it to make clear predictions about how changes in fundamentals affect market outcomes.
  - The limitations are easy to understand

Demand

- The first piece of the model: **Demand**
- Demand is consumer's *desire* to purchase goods and services.
- What factors affect this desire? How?

Demand

- While many factors can affect consumer's desire to purchase goods and services, economists primarily focus on how a good's *own price* affects the quantity demanded.

Definition (Quantity Demanded)

The quantity demanded is the amount of a good or service a consumer is *willing* to buy at a given price, holding other factors constant.

Demand

- Empirical evidence suggests that the quantity demanded by consumers follows the *Law of Demand*.

Definition (Law of Demand)

Consumers demand a higher quantity of a good or service when the price is lower (and a lower quantity of when the price is higher), *holding all other factors that influence the amount consumers want to consume constant*.

- We can illustrate this relationship graphically using a *demand curve*.
  - To do so, let's use the example of gasoline demand.

The Demand Curve

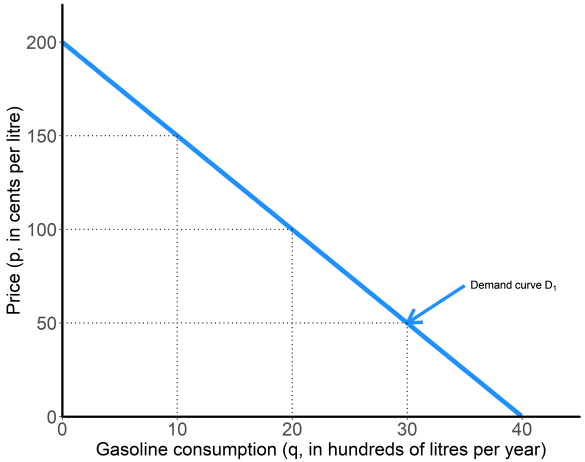


Figure: The demand for gasoline

The Demand Curve

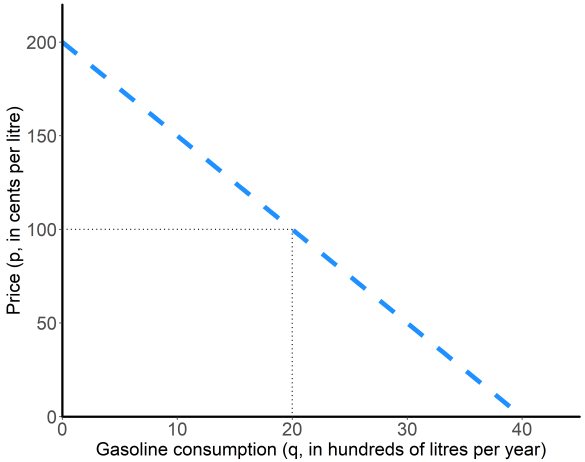


Figure: The demand for gasoline

The Demand Curve

- The demand curve provides a concise answer to the question of what happens to the quantity demanded as price changes, holding all other factors constant.
  - Here: what happens to the demand for gasoline as the price of gasoline increases or decreases.

- Changes in the quantity demanded in response to a price change are referred to as *movements along the demand curve*.

- Why is the demand curve downward sloping?

The Demand Curve

- The demand curve tells us how a change in the price of a good or service affects the quantity demanded.
  - Change in $p \implies$ *movement along the demand curve*.
- Recall that other factors also affect the quantity demanded.
  - Change in these factors $\implies$ *shift of the demand curve*.
- As an example, let's consider an increase in household income. How would you expect that to change gasoline demand?

The Demand Curve

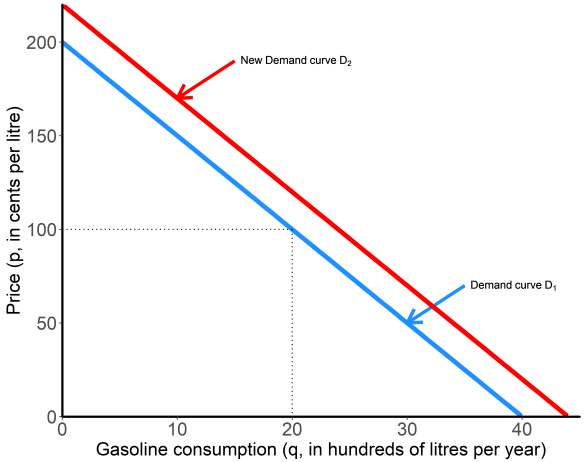


Figure: The effects of an income increase on the demand for gasoline

The Demand Curve

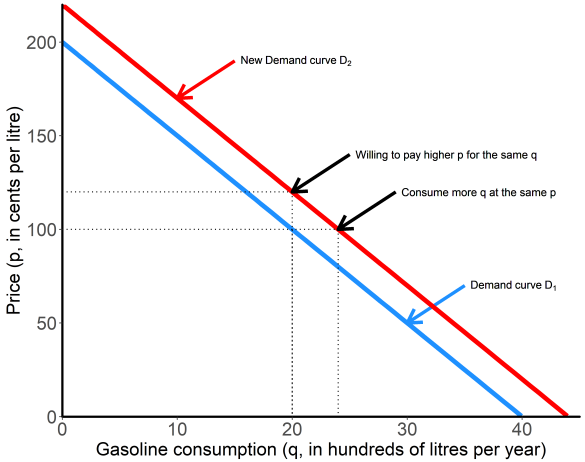


Figure: The effects of an income increase on the demand for gasoline

The Demand Curve

- How the demand curve shifts depends on the factor being considered.
  - Income
  - Price of substitute or compliment
  - Tastes
  - Government rules/regulations

- As another example, let's consider the effects of an increase in the price tolls in the core of the city, a complement to gasoline.

The Demand Curve

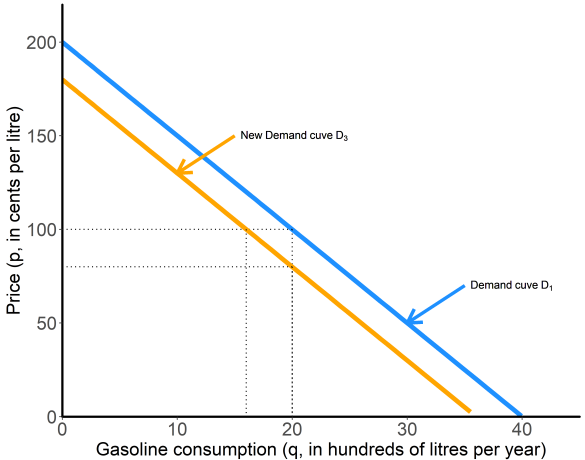


Figure: The effects of an increase in the price of tolls on the demand for gasoline

The Demand Curve

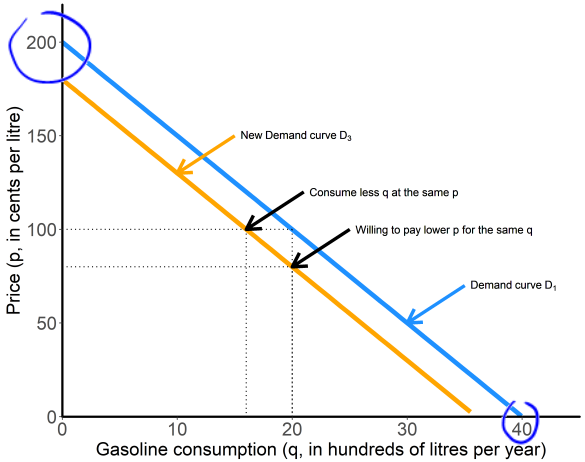


Figure: The effects of an increase in road tolls on the demand for gasoline

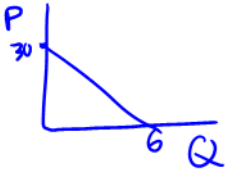
The Demand Curve

- The demand curve gives us a precise relationship between price and quantity demanded.
- We can also express this same relationship mathematically using a *demand function*.
- The demand function is given by:

$$Q = D(p, Y, X)$$

  where Q is the quantity demanded, and $D(\cdot)$ is the demand function that depends on the price, p, income, Y, and other factors, X.
- For simplicity, in what follows we will hold other factors (X) constant.

The Demand Function



- In the graphs above, I've used the equation

$$Q = 30 - \frac{p}{5} + 0.1Y$$

where Q is the quantity of gasoline demanded, p is the price of gasoline, and Y is average household income in thousands of dollars per year.

- Functional form reflects available evidence about the demand for gasoline:
  - p is negative.
  - Y is positive.
  - Constant term (30) reflects all other factors.
- The parameters here ($30, \frac{1}{5}$, and 0.1 aren't estimated, they are simply illustrative.

The Demand Function

- We can obtain the demand curve for gasoline by substituting for income, Y.
- If household income is \$100,000. the demand for gasoline is given by:

$$Q = 30 - \frac{p}{5} + 0.1 \times 100$$

$$Q = 40 - \frac{p}{5}$$

- With some algebra we can obtain the *inverse demand curve*:

$$Q = 40 - \frac{p}{5}$$

$$5Q = 200 - p$$

$$p = 200 - 5Q$$

The Demand Function

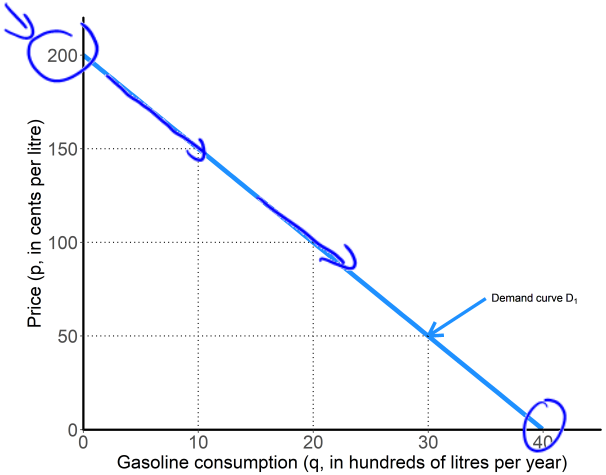


Figure: The demand for gasoline

The Demand Function

- The demand function is useful because it allows us to think precisely about how the quantity demanded will respond to a change in price, holding income (and all other factors) fixed.
- To see this, let's use two of the (price,quantity) pairs highlighted by the dotted lines in the figure:
  - Let $p_1 = 100$ denote the initial price, and $p_2 = 50$ denote the new price.
  - The quantity demanded at p_1 is $Q_1 = D(p_1) = 40 - \frac{p_1}{5} = 40 - \frac{100}{5} = 20$
  - The quantity demanded at p_2 is $Q_2 = D(p_2) = 40 - \frac{p_2}{5} = 40 - \frac{50}{5} = 30$
- Next we can use these to start thinking about response to price changes

The Demand Function

- In our gasoline example, if the price changes from p_1 to p_2, the change in quantity demanded is given by:

$$\Delta Q = D(p_2) - D(p_1) = [40 - \frac{p_2}{5}] - [40 - \frac{p_1}{5}]$$

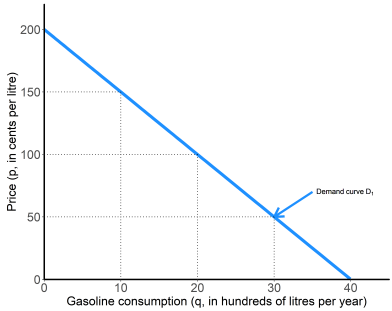
$$\Delta Q = D(p_2) - D(p_1) = \frac{p_1}{5} - \frac{p_2}{5}$$

$$\Delta Q = D(p_2) - D(p_1) = -\frac{1}{5}\Delta P, \ \Delta P = p_2 - p_1$$

- So, we know that for a given change in price ΔP, the quantity consumed will change by $\Delta Q = -\frac{1}{5}\Delta P$

The Demand Function

- How do we see this? Check the graph:



- Changing the price from 50 to 100 decreases Q from 30 to 20, so $\Delta Q = -10$
- From the previous slide, $\Delta Q = -\frac{1}{5}\Delta P = -\frac{50}{5} = -10$

Market Demand

- In many cases we might have an estimate of the demand from all consumers in a market, but in some scenarios, we may only know the demands of individual consumers or groups of consumers.

- In these cases, we need to add up the demand from each consumer (or group).

- Key point: Total quantity demanded *at a given price* is equal to the sum of individual consumer demands at that price.

Determining Market Demand

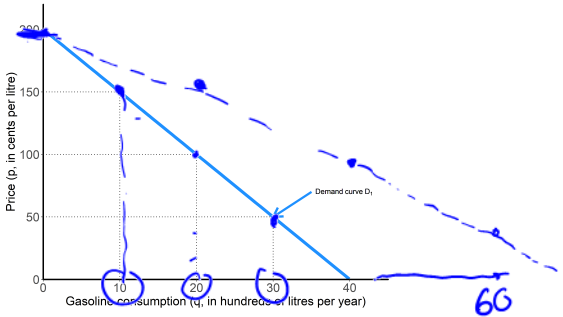
- As an example, suppose there are two people in the market for gasoline. They both have demand functions given by:

$$Q = 40 - \frac{p}{5}$$

What is the market demand for gasoline in this case?

Determining Market Demand

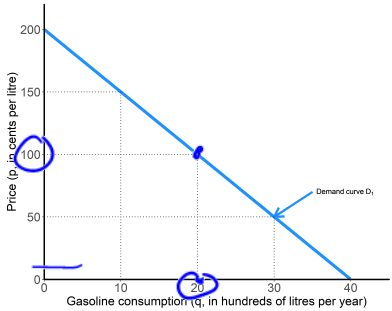
- Again, check the graph to find yourself an easy anchor point:



- What's the demand from one person at price p=100? It's 20.
- So, if the demand from one person at price p=100 is 20, what's the demand from 2 people?

Determining Market Demand

- Okay, now let's do the math



- If $Q = 40 - \frac{p}{5}$, adding both sides shows that $2Q = 80 - \frac{2 \times p}{5}$.
- Now let's check. If $p = 100$, $Q = 80 - \frac{2 \times p}{5} = 80 - \frac{2 \times 100}{5} = 40$.

Determining Market Demand

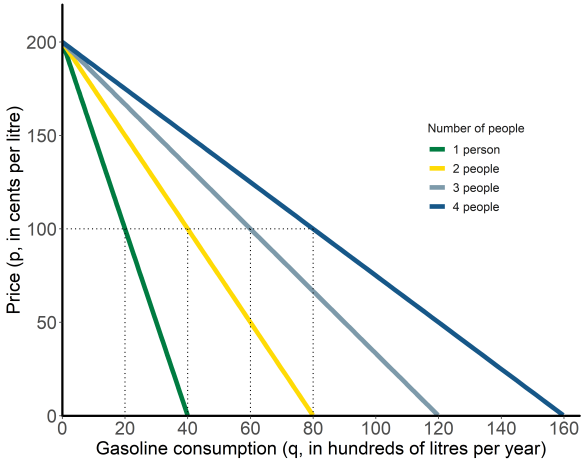


Figure: The demand for gasoline aggregated for 1, 2, 3 or 4 people

Determining Market Demand

Definition (Horizontal Summation)

When summing demand for a *private good*, you add up the quantity demanded of each individual at each price.

Trap: don't look at the graph and add the curves vertically. Just remember, if no one person demands gasoline above price p_max, the market doesn't demand any at prices above p_max either.

Determining Market Demand

Test yourself: what's the aggregate demand in this case?

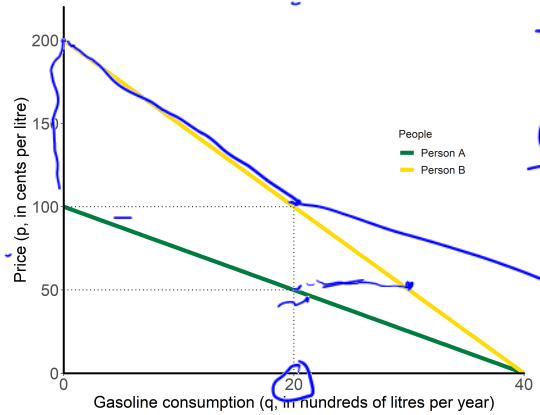


Figure: The demand for gasoline

Supply

- The second piece of the model: **Supply**
- Supply is producers' willingness to sell goods and services.
- What factors affect this willingness? How?

Supply

- As with demand, economists focus on how the *price* of a good or service affects the quantity supplied.

Definition (Quantity Supplied)

The amount of a good or service that producers *want* to sell at a given price, *holding other factors that influence supply decisions constant*.

Supply

- Is there a Law of Supply?
- We can illustrate the relationship between the price of a good or service and the quantity producers want to sell via a *supply curve*.

The Supply Curve

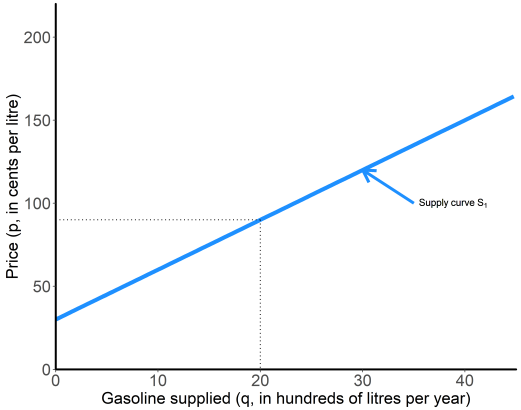


Figure: The supply of gasoline

The Supply Curve

- The supply curve provides us an answer to the question of what happens to the quantity supplied as price changes, holding all other factors fixed.
  - Here: what happens to the supply of gasoline as the price of gasoline increases or decreases.

- Changes in the quantity supplied in response to a price change are referred to as *movements along the supply curve*.

- Do supply curves always need to slope upward?

The Supply Curve

- The supply curve tells us how a change in the price of a good or service affects the quantity supplied.
  - Change in $p \implies$ *movement along the supply curve*.
- Recall that other factors also affect the quantity supplied.
  - Change in these factors $\implies$ shift of the supply curve.
- As an example, let's suppose that the price of the key input to gasoline production, crude oil, increases.

The Supply Curve

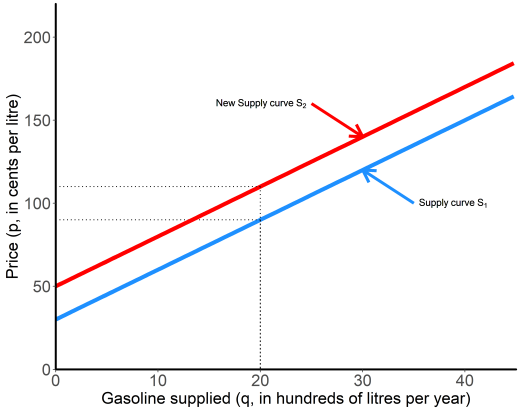


Figure: The effect of a crude oil price increase on the supply of gasoline

The Supply Curve

- How the supply curve shifts depends on the factor being considered.
  - Prices.
  - Production costs.
  - Technological change.
  - Government regulation.

- As another example, let's consider the effects of a decrease in the price of blending components.

The Supply Curve

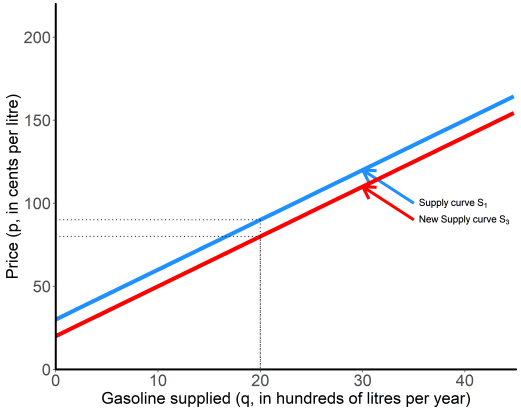


Figure: The effect of a blending component cost decreases on the supply of gasoline

The Supply Curve

- The supply curve displays the relationship between price and quantity supplied.
- We can also express this same relationship mathematically using a *supply function*.
- The supply function is given by:

$$Q = S(p, p_y, X)$$

  where Q is the quantity supplied, and $S(-)$ is the supply function that depends on the price, p, the price of other possible inputs or outputs p_y, and other factors, X.
- For simplicity, in what follows, we will hold other factors (X) constant.

The Supply Function

- Suppose that the estimated supply function for gasoline is given by:

$$Q = 10 + \frac{p}{3} - 0.5p_y$$

where Q is the quantity of gasoline supplied, p is the price of gasoline, and p_y is the price of crude oil (these are just placeholder parameters).

  - the own-price effect, p, is positive: higher p means higher Q.
  - the impact of crude price changes, p_y is negative: higher crude prices means less gasoline supplied at a given price.
  - The constant term (10) reflects all other factors.

The Supply Function

- We can obtain the supply curve by substituting for the price of crude oil, p_y.
- Suppose the price of oil is \$40 per barrel. Then the supply of gasoline is given by:

$$\begin{aligned} Q &= 10 + \frac{p}{3} - 0.5p_y = 10 + \frac{p}{3} - 20 \\ &= \frac{p}{3} - 10 \end{aligned}$$

- Rearranging we can obtain the *inverse supply curve*, $p = 30 + 3Q$
- This is the same relationship depicted on the next slide.

The Supply Function

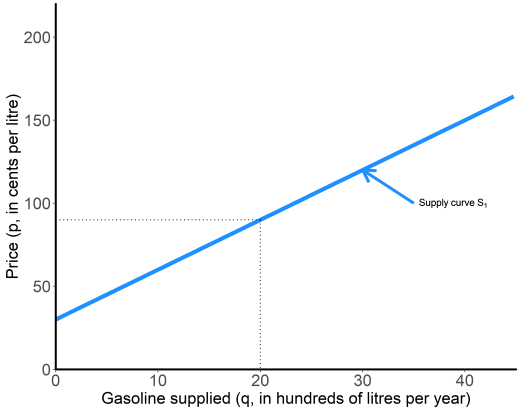


Figure: The supply of gasoline

The Supply Function

- The supply function allows us to think precisely about how price changes affect the quantity supplied, holding all other factors fixed.
- Let's use a simpler example here of $Q = 2p$ and let p_1 denote the initial price, and p_2 denote the new price.
- The quantity supplied at p_1 is $Q_1 = S(p_1) = 2p_1$, and the quantity supplied at p_2 is $Q_2 = S(p_2) = 2p_2$
- The change in quantity supplied as price goes from p_1 to p_2 is $\Delta Q = Q_2 - Q_1 = S(p_2) - S(p_1)$.
- In our simplified example, if the price changes from p_1 to p_2, the change in quantity supplied is given by:

$$\begin{aligned}\Delta Q &= S(p_2) - S(p_1) = [2p_2] - [2p_1] \\ &= 2[p_2 - p_1] = 2\Delta p\end{aligned}$$

Determining Market Supply

- In some cases, we may not have an estimate of total market supply, but rather estimates of the supply curves of each producer in the market.
- To obtain total market supply, we need to add up the supply from each producer.
- Hint: Are you adding up prices or quantities?

Determining Market Supply

- As an example, suppose there are 3 producers in the market for gasoline. They both have supply functions given by:

$$Q = 2p$$

what is the market supply of gasoline in this case?

Determining Market Supply

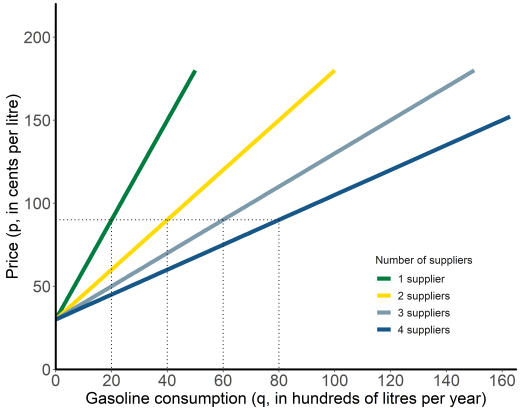


Figure: The aggregate supply of gasoline using the same equations as above

Market Equilibrium

- Once we know supply and demand in the market, we can determine the *market equilibrium*.

Definition (Market Equilibrium)

The market is in equilibrium when all market participants are able to buy or sell as much as they want; no participant wants to change their behaviour given what other market participants are doing.

Market Equilibrium

- How can we determine the market equilibrium from the supply and demand curves?

Market Equilibrium

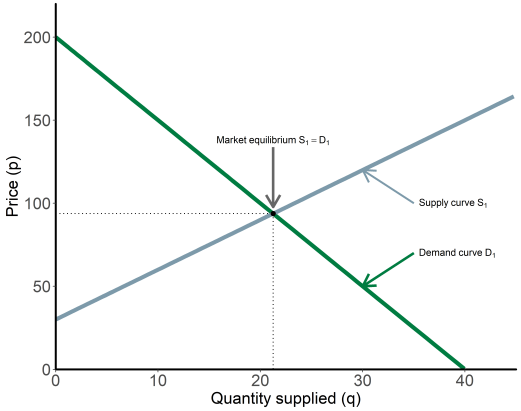


Figure: Equilibrium in the market

Market Equilibrium

Definition (Equilibrium Price)

The equilibrium price is the p at which consumers can buy as much as they want, and sellers can sell as much as they want.

Definition (Equilibrium Quantity)

The equilibrium quantity is the q such that the quantity demanded equals the quantity supplied.

Market Equilibrium

Figure: Our modern understanding of equilibrium in the market is largely due to this economist. Image: PBS

Market Equilibrium

Figure: They even made a movie about him: A Beautiful Mind (2001)

Market Equilibrium

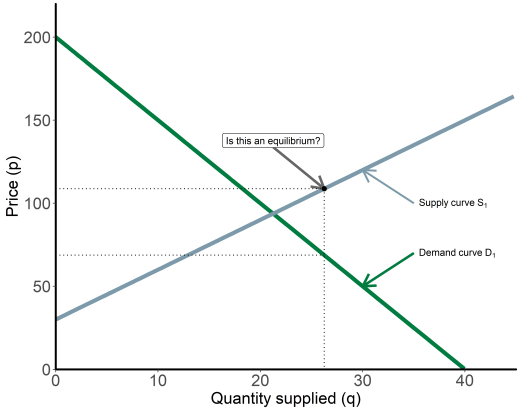
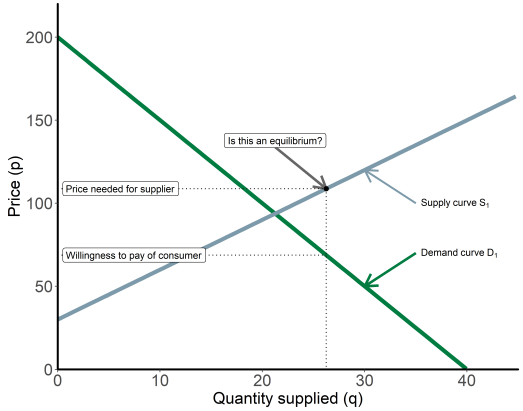


Figure: Off-equilibrium points, and the rationale of equilibrium

Market Equilibrium



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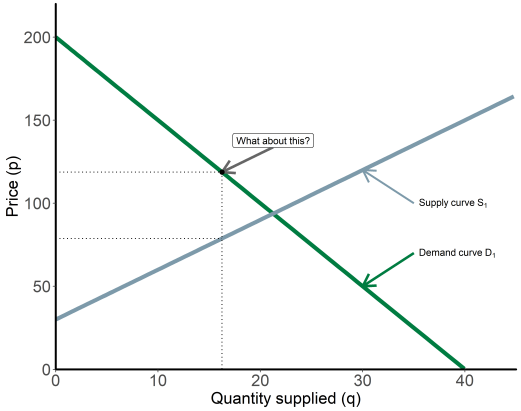
Market Equilibrium



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Market Equilibrium

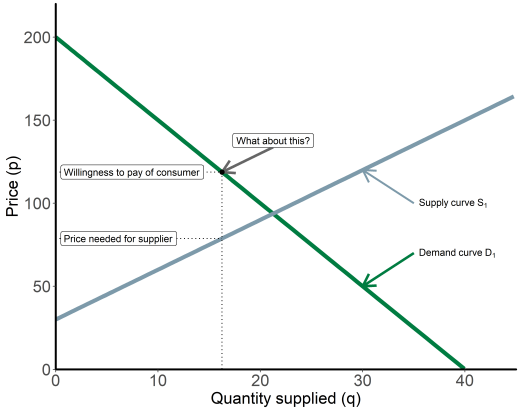

Figure: Off-equilibrium points, and the rationale of equilibrium

Market Equilibrium

- We can also solve for the market equilibrium analytically using algebra:

$$Q_D = 40 - \frac{p}{5} \quad \text{and} \quad Q_S = \frac{p}{3} - 10$$

- In equilibrium $Q_D = Q_S$. Substituting yields:

$$\begin{aligned} 40 - \frac{p}{5} &= \frac{p}{3} - 10 \\ \frac{8p}{15} &= 50 \\ p &= 93.75 \end{aligned}$$

- Substituting in the equilibrium price into Q_D or Q_S yields the equilibrium quantity of 21.25.

Market Equilibrium Check

- We can do the same off-equilibrium checks with algebra too. For example, let's consider whether Q=25 is an equilibrium.
- Start with the marginal willingness to pay (or demand) at Q=25:

$$Q_D = 40 - \frac{p}{5} \quad \text{so if} \quad 25 = 40 - \frac{p}{5}, \; p \text{ must be } \frac{p}{5} = 15, \; p = 75$$

- But, at p=75, how much are firms willing to supply?

$$Q_S = \frac{75}{3} - 10 Q_S = 15$$

- So, at a quantity of Q=25, the marginal consumer who sets the price is willing to pay p=75, but at a price of p=75, there's only going to be a supply of Q=15. Not an equilibrium

Market Equilibrium

Remember this graph? Same thing as the algebra in the previous slide

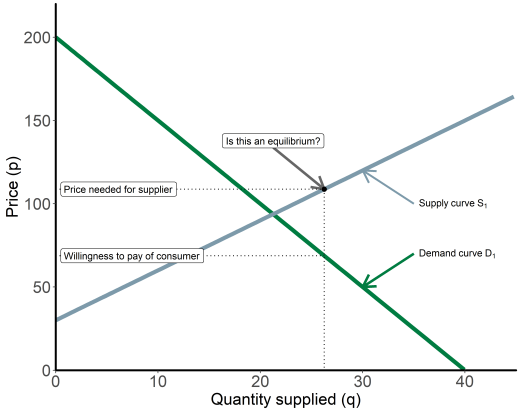

Figure: Off-equilibrium points, and the rationale of equilibrium

Shifts in Equilibrium

- The supply-and-demand model tells us the price and quantity that will *clear the market* holding all other factors fixed.
- Changes in these other factors will change the market equilibrium by shifting the supply and demand curves (or both!).
- We can use the model to precisely predict how changes in these other factors will alter the market equilibrium.
- We will consider two sets of factors:
  1. *Market fundamentals*, e.g. inputs, preferences, technology, etc.
  2. Government intervention.

Using the Model: Shifts in Demand

- We will start by considering the effects of an increase in annual household income.
- Specifically, suppose that household income increases from \$100,000 to \$120,000.
- How does this affect equilibrium price and quantity?
- Recall that our demand function was:

$$Q = 30 - \frac{p}{5} + 0.1Y$$

where Y is income in thousands of dollars

Using the Model: Shifts in Demand

- In the previous examples, we didn't invert demand with income left as a variable, but we can do so:

$$\begin{aligned} Q &= 30 - \frac{p}{5} + 0.1Y \\ 5Q &= 150 - p + 0.5Y \\ p &= 150 + 0.5Y - 5Q \end{aligned}$$

- In the previous examples, we generally used $Y = 100$, at which the inverse demand reduces to our familiar $p = 200 - 5Q$. At income of $Y = 120$, $p = 210 - 5Q$

Shifts in Equilibrium: Shifting Demand

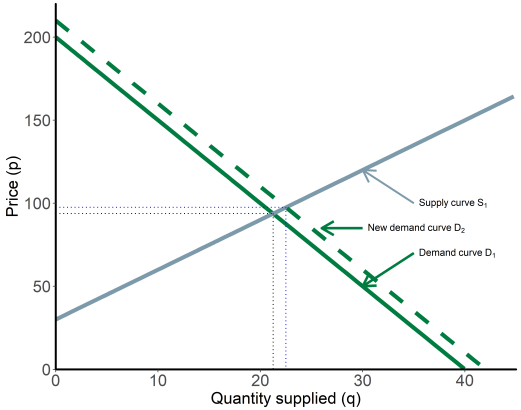

Figure: The effects of an increase in income

Shifts in Equilibrium: Shifting Demand

- The increase in income shifts the demand curve to the right (from D_1 to D_2).
- This results in a *movement along the supply curve*.
- Why?

Shifts in Equilibrium: Shifting Demand

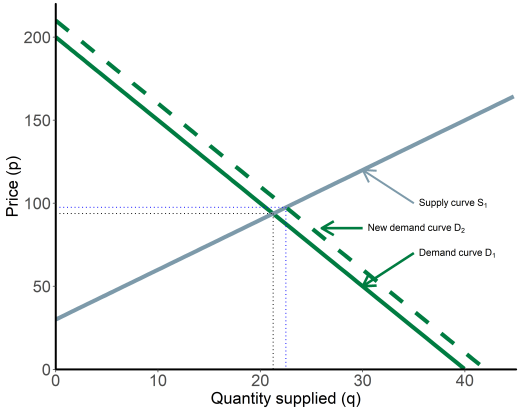

Figure: The effects of an increase in income

Shifts in Equilibrium: Shifting Demand

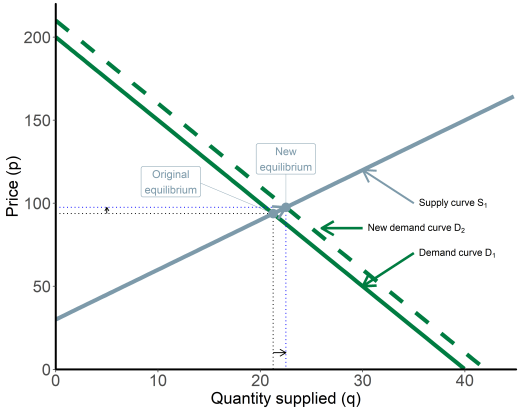

Figure: The effects of an increase in income

Shifts in Equilibrium: Shifting Demand

- We can also solve for the change in market equilibrium prices and quantities analytically using algebra. Recall our initial calculations:

$$Q_D = 40 - \frac{p}{5} \quad \text{and} \quad Q_S = \frac{p}{3} - 10$$

- In equilibrium $Q_D = Q_S$. Substituting yields:

$$\begin{aligned} 40 - \frac{p}{5} &= \frac{p}{3} - 10 \\ \frac{8p}{15} &= 50 \rightarrow p = 93.75 \end{aligned}$$

- Substituting $p = 93.75$ into Q_D or Q_S yields $Q = 21.25$.

Shifts in Equilibrium: Shifting Demand

- Recall that the underlying demand function was $Q = 30 - \frac{p}{5} + 0.1Y$, so with income of \$120,000, or $Y = 120$:

$$Q_D = 30 - \frac{p}{5} + .1(120) \quad \text{and} \quad Q_S = \frac{p}{3} - 10$$

- In equilibrium $Q_D = Q_S$. Substituting yields:

$$42 - \frac{p}{5} = \frac{p}{3} - 10$$
$$\frac{8p}{15} = 52 \rightarrow p = 97.5$$

- Substituting $p = 97.5$ into Q_D or Q_S yields $Q = 22.5$.

Shifts in Equilibrium: Shifting Demand

- And now we can compare the impacts of a shift in demand caused by a change in income. In the initial equilibrium:

$$Q_1^* = 21.25$$
$$p_1^* = 93.75$$

- In the new equilibrium after the shift in income.

$$Q_2^* = 22.5$$
$$p_2^* = 97.50$$

- The change in income leads to a shift in demand, and a movement along the supply curve such that:

$$\Delta_p = 3.75$$
$$\Delta_Q = 1.25$$

Shifts in Equilibrium: Shifting Demand

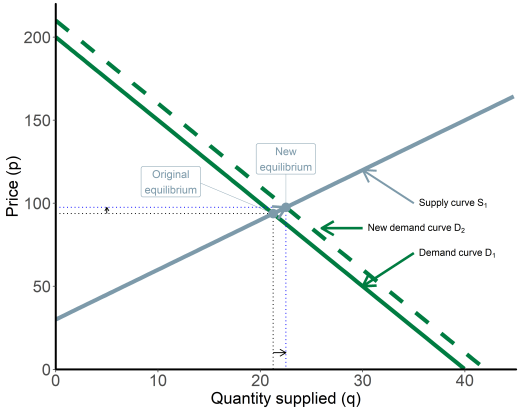

Figure: The effects of an increase in income

Shifts in Equilibrium: Shifting Supply

- Suppose instead that the price of crude oil increases from \$40 to \$60 per barrel.
- How does this affect equilibrium price and quantity?

Shifts in Equilibrium: Shifting Supply

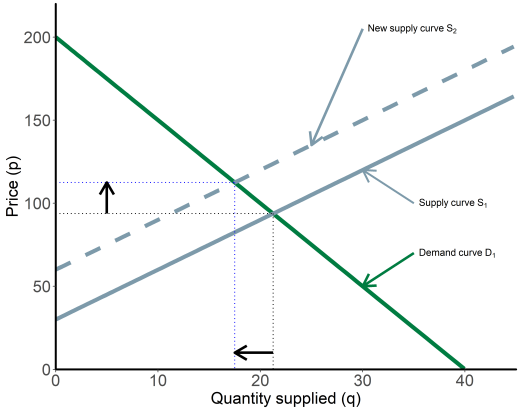

Figure: The effects of an increase in the price of crude on gasoline market equilibrium

Shifts in Equilibrium: Shifting Supply

- The increase in the price of crude oil (the key input to gasoline production) shifts the supply crude to the left (from S_1 to S_2).
- This results in a *movement along the demand curve*.
- Why?

Shifts in Equilibrium: Shifting Supply

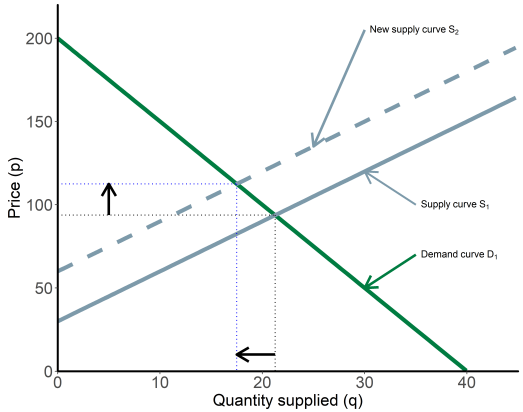

Figure: The effects of an increase in the price of an input (crude oil in this case)

Shifts in Equilibrium: Shifting Supply

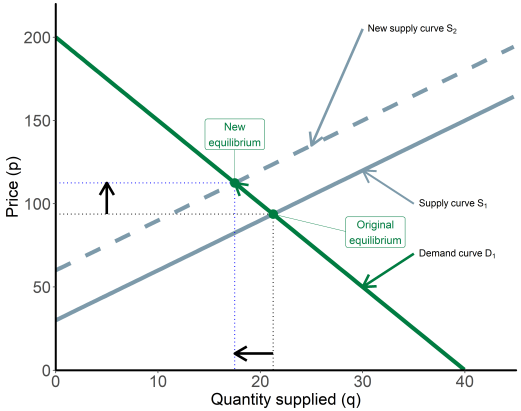

Figure: The effects of an increase in the price of an input (crude oil in this case)

Shifts in Equilibrium: Shifting Supply

- Recall that the original demand function was $Q_d = 40 - \frac{p}{5}$, with income of \$100,000, or $Y = 100$. And the supply curve is $Q_s = 10 + \frac{p}{3} - 0.5p_y$. So, with crude at \$60 and income at \$100:

$$Q_D = 30 - \frac{p}{5} + .1(100) \quad \text{and} \quad Q_S = \frac{p}{3} - 20$$

- In equilibrium $Q_D = Q_S$. Substituting yields:

$$40 - \frac{p}{5} = \frac{p}{3} - 20$$
$$\frac{8p}{15} = 60 \rightarrow p = 112.5$$

- Substituting $p = 112.5$ into Q_D or Q_S yields $Q = 17.5$.

Shifts in Equilibrium: Shifting Supply

- And now we can compare the impacts of a shift in supply caused by a change in crude costs. In the initial equilibrium:

$$Q_1^* = 21.25$$
$$p_1^* = 93.75$$

- In the new equilibrium after the shift in income.

$$Q_2^* = 17.5$$
$$p_2^* = 112.50$$

- The change in the price of an input leads to a shift in supply, and a movement along the demand curve such that:

$$\Delta_p = 18.75$$
$$\Delta_Q = -3.75$$

Shifts in Equilibrium: Shifting Supply

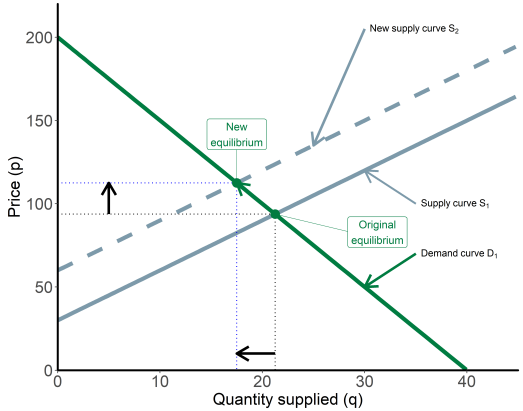

Figure: The effects of an increase in the price of an input (crude oil in this case)

Shifts in Equilibrium: Concurrent Shifts

- Sometimes, demand and supply change at the same time.
- Think of Alberta where increases in the oil price generally have substantial positive income effects (i.e. an increase in the oil price leads to an increase in household income, and vice versa).
- What would the effects of the combination of the two shifts we've just seen be on the equilibrium price and quantity in the market for gasoline?

Shifts in Equilibrium: Concurrent Shifts in Demand and Supply

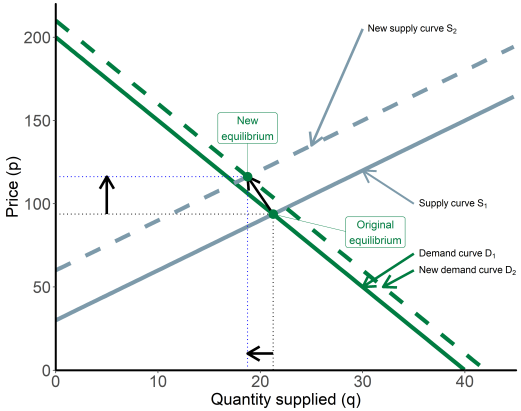

Figure: Income (demand) and input cost (supply) effects of an increase in the price of crude oil

Shifts in Equilibrium: Concurrent Shifts

- When demand and supply change at the same time, we may not be able to sign the effects on prices and quantities without further analysis:
  - An increase in demand (right shift) and a decrease in supply (left shift) could lead to any combination of increases or decreases in p and Q;
  - If demand and supply both increase, we know that equilibrium quantities will increase, but the effect on price is ambiguous;
  - If supply decreases and demand increases, we know that price will increase, but the effect on quantities is ambiguous.

Shifts in Equilibrium: Concurrent Shifts

- When demand and supply change at the same time, the sizes of the shifts and the price elasticities of demand and supply determine the outcome.
- Recall that the price elasticity of demand is the percentage change in quantity demanded for a given percentage change in price;

$$\epsilon = \frac{\text{percentage change in quantity demanded}}{\text{percentage change in price}} = \frac{\Delta Q/Q}{\Delta p/p} = \frac{\Delta Q}{\Delta p}\frac{p}{Q}$$

- The elasticity of supply is calculated similarly as the percentage change in quantity supplied for a given percentage change in price;
- Hint: more *elastic* is more responsive:
  - *inelastic* demand or supply means an elasticity less than one (i.e. the relative magnitude of the quantity response is smaller than the price change)
  - *perfectly inelastic* demand has an elasticity of zero
  - *perfectly elastic* demand has undefined elasticity

Shifts in Equilibrium: Government Intervention

- Government actions can also affect market outcomes.
- Three key channels:
  1. Curve shifts.
  2. Price controls.
  3. Taxes/Subsidies.

Shifts in Equilibrium: Policies that Shift Curves

- Governments use three main approaches to shift curves:
  1. Limits on who can buy.
     - Governments can restrict who can buy certain products (e.g. cigarettes to children). This shifts the demand curves for these products to the left by shrinking the market, and thus decreases the quantity demanded at any price.
  2. Restrictions on imports or exports.
     - Governments can restrict the flow of imports or exports. Import restrictions artificially shifts the importing country's supply curve to the left, while restrictions on exports shift the exporting country's demand curve to the left.
  3. Government purchases.
     - Governments can buy goods directly, increasing the quantity demanded at each price. This shifts the demand curve to the right.
- Why would governments enact these policies?

Shifts in Equilibrium: Price Controls

- Sometimes governments intervene by controlling prices in a market.

- Two main forms:
  1. Price ceiling.
     - Policy in which a government sets a maximum price, $\bar{p}$, that can prevail in the market.
  2. Price floor.
     - Policy in which a government sets a minimum price, $\underline{p}$, that can prevail in the market.

Shifts in Equilibrium: Price Controls

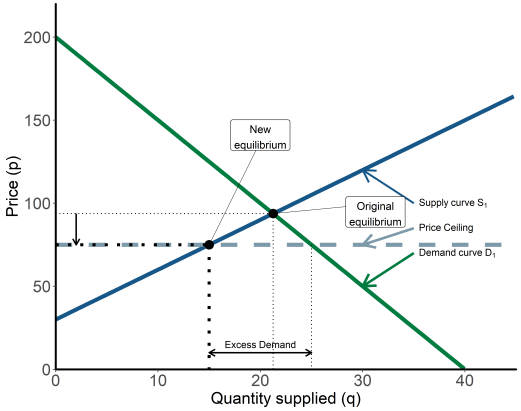

Figure: The effects of a maximum price in the market.

Shifts in Equilibrium: Price Controls

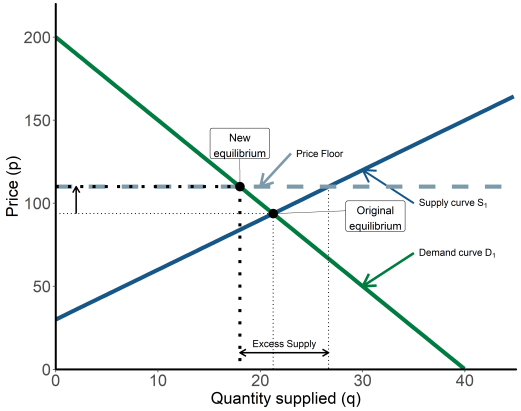

Figure: The effects of a minimum price in the market.

Shifts in Equilibrium: Price Controls

- Examples show that supply need not equal demand if the government intervenes in the market.
- In the absence of government intervention, supply equals demand, and the market clears.
- With government intervention, the quantity demanded and quantity supplied need not equal the actual quantity that is bought and sold.

Shifts in Equilibrium: Taxes/Subsidies

- Taxes may also affect equilibrium price and quantity.
- As an example, we will examine the effects of a *specific tax* in the market for gasoline.
  - A specific tax is a tax charged per unit of output (e.g. \$/litre of gasoline).

Shifts in Equilibrium: Specific Tax Collected from Suppliers

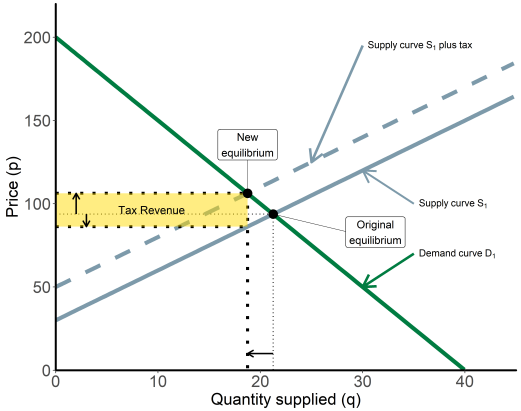

Figure: The effects of a 20c/l tax charged to gasoline producers

Shifts in Equilibrium: Specific Tax Collected from Consumers

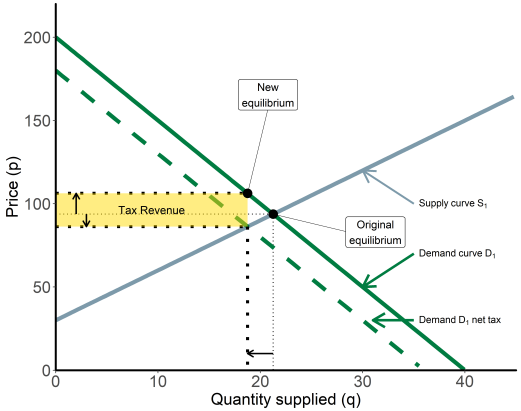

Figure: The effects of a 20c/l tax charged to gasoline consumers

Shifts in Equilibrium: The Effects of A Specific Tax

- Two key points:
  1. As shown in the two figures, the imposition of specific sales tax yields the same equilibrium regardless of *who pays the tax*.
  2. The figures also show that the tax need not be fully passed on to consumers.
     - Producers may bear some of the effects of a tax.
     - What determines the extent of pass-through?

Outline

1. The Supply-and-Demand Model
   - Demand
   - Supply
   - Market Equilibrium
2. Using the Model
   - Changing fundamentals.
   - The effects of government intervention.
3. Applying the model in practice.
   - When it works.
   - When if fails.

3. Applying the Model in Practice

- The supply-and-demand model is a simple, but powerful tool for understanding how markets will change in the future in response to shocks and changes in government policy.
  - e.g. Dr. Copper, Mars Corp.
- Unleashing the power of the model requires a deep understanding of the factors that will affect demand and supply.
  - Need to understand determinants of demand and supply/possible government actions.
- We also need to know when the model is appropriate to use.

3. Applying the Model in Practice

- The supply-and-demand model works well as a tool for understanding markets that are *perfectly competitive*.
- Five characteristics of a perfectly competitive market:
  1. Many small buyers and sellers.
  2. Consumers believe all firms produce identical products.
  3. All market participants have full information about price and product characteristics.
  4. Transaction costs (expenses over and above the price) are negligible.
  5. Firms can easily enter and exit the market, so competition is high.
- The model does not work well in non-competitive markets where there are a few sellers that are price setters.
  - For these markets, we need a different model.

3. Applying the Model in Practice

- In practice, no market necessarily meets all five criteria.
- Still, the model is useful if the market is "competitive enough".
- What are some markets for which the model would work well?

Supply and Demand: Takeaways

1. The supply-and-demand model is a simple and powerful tool for understanding many markets.
2. Model relates the quantity consumers demand and the quantity producers supply to own prices and other factors.
3. Using the model requires understanding how factors other than own price may shift demand and supply, and how government intervention may affect prices in the market.
4. The model works well for understanding markets that are *competitive enough*.