LEARN

PER-UNIT SUBSIDIES TO PRODUCERS

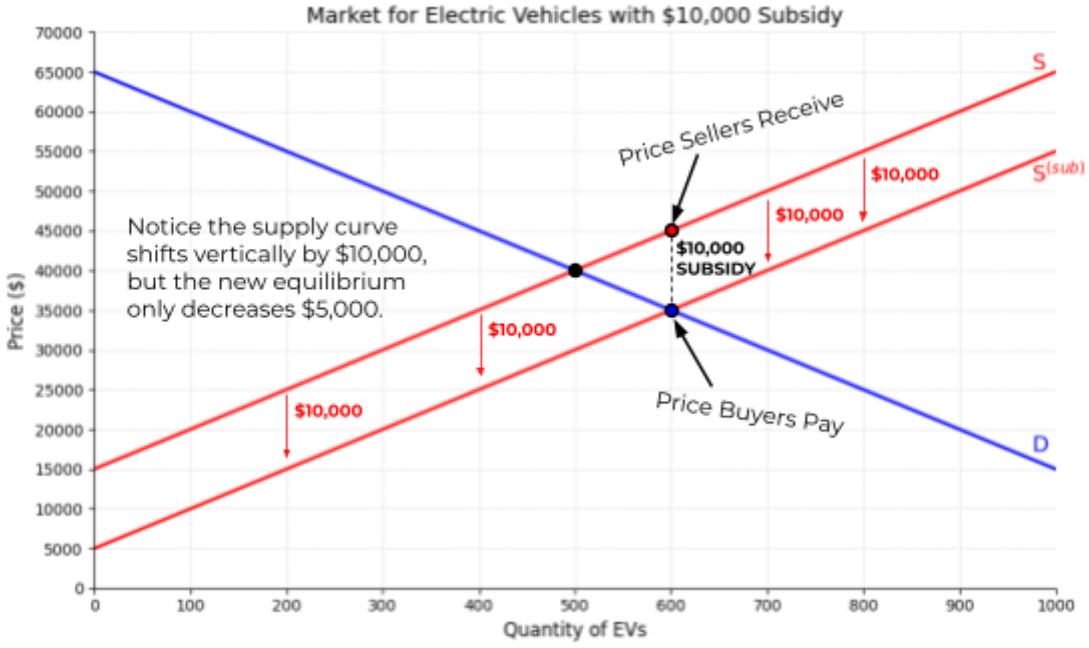
A per-unit subsidy is a government payment to producers (or sometimes consumers) for each unit of a good or service sold, regardless of its price. Unlike an ad valorem subsidy (a percentage of the price), a per-unit subsidy provides the same dollar amount for each unit, shifting the supply curve right (downward) by the exact amount of the subsidy and increasing equilibrium quantity.

- Effect on supply: A per-unit subsidy lowers production costs for sellers, shifting the supply curve rightward by the amount of the subsidy. Remember the vertical distance between the original supply curve and the new supply curve is equal to the amount of the subsidy.
- Equilibrium impact:
  - The new equilibrium quantity is higher than before.
  - The price buyers pay falls, but by less than the subsidy.
  - The effective price sellers receive (market price + subsidy) rises.
- Incidence (benefit): The benefit of the subsidy is shared between buyers and sellers of that particular good. The side of the market that is less elastic captures more of the subsidy benefit.
- Surplus effects:
  - Consumer surplus increases (buyers pay less and buy more).
  - Producer surplus increases (sellers receive more net revenue and sell more).
  - Government expenditure = subsidy per unit × quantity sold.
  - A deadweight loss (DWL) still appears, representing the cost of overproduction beyond the socially efficient output.

Efficiency note: Although subsidies raise total output, they reduce total surplus overall because the government must fund the subsidy. The DWL triangle usually “points” to the socially efficient quantity, showing that resources are being used to produce more than is efficient.

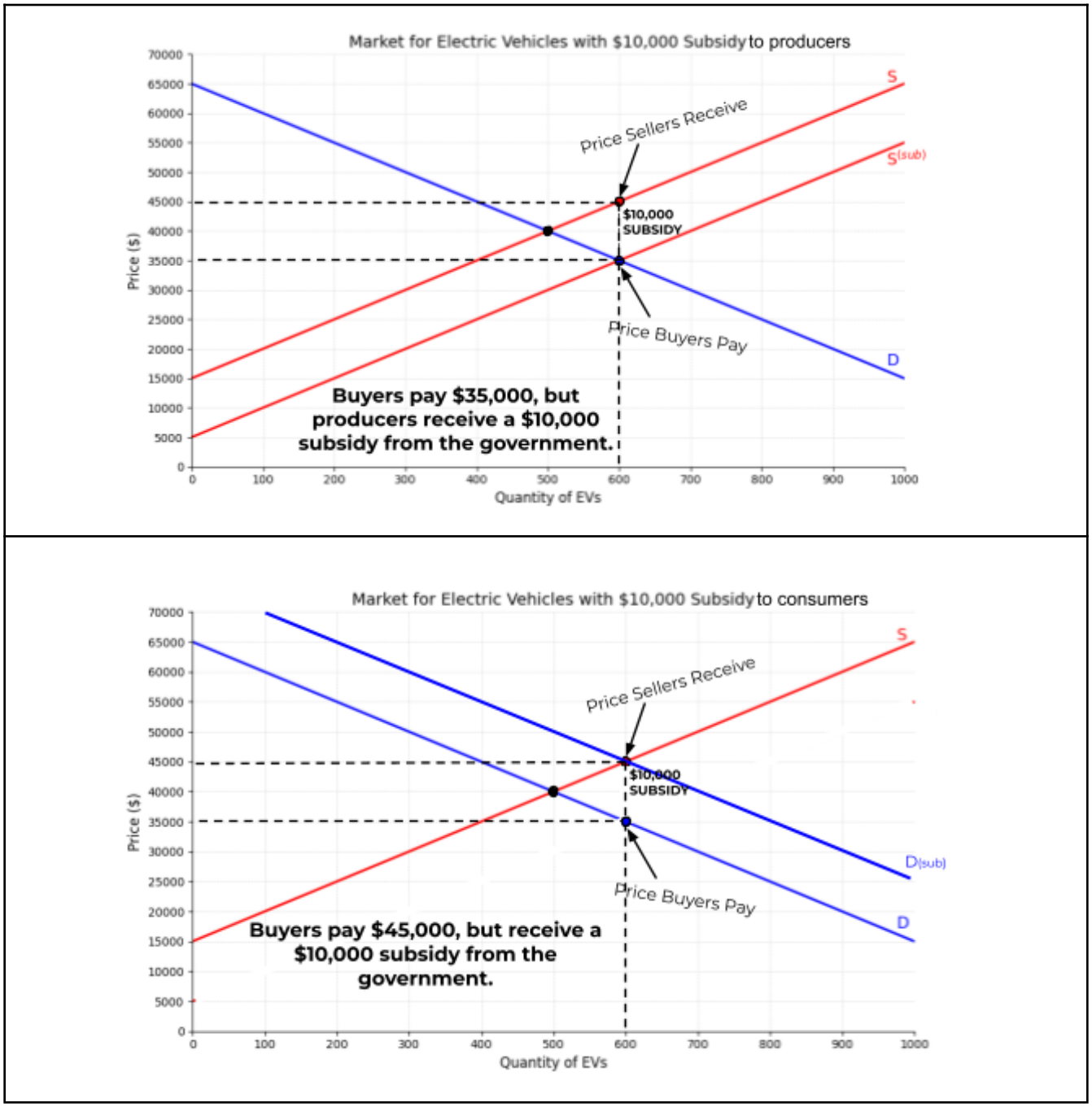
THE STORY TOLD IN GRAPHS

Consider the market for electric vehicles. Prior to a per-unit subsidy, the market price was $40,000 and equilibrium quantity was 500. Then, a $10,000 per-unit subsidy is provided for electric vehicles. The supply curve shifts to the right by a vertical distance equal to the subsidy.The new price will be $35,000 and equilibrium quantity of 600.



It doesn't matter if the subsidy is paid to producers or consumers.

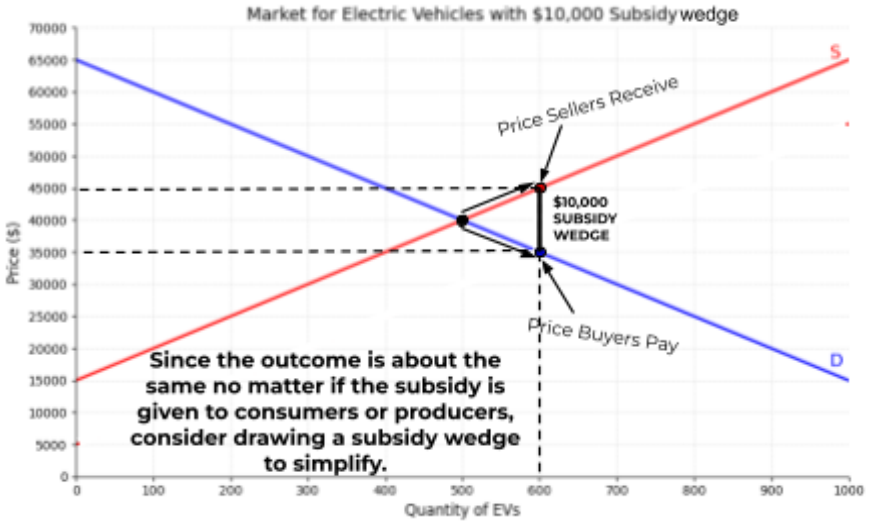
It does not matter whether a per-unit subsidy is paid to consumers or producers because the market outcome is the same. A subsidy to consumers shifts the demand curve to the right by the amount of the subsidy, while a subsidy to producers shifts the supply curve to the right by the same amount. In both cases, the equilibrium quantity increases, the price consumers actually pay falls, the effective price producers receive rises, and the division of the subsidy benefit between buyers and sellers depends only on the relative elasticities of supply and demand, not on who physically receives the government payment.



SUBSIDIES ARE A MIRROR IMAGE OF TAXATION

Taxes shrink markets and subsidies expand them, but both create deadweight loss because they push production away from the efficient quantity. Remember if politicians want less of something they tax it and if they want more of something they subsidize it.

Use the "subsidy wedge" shortcut

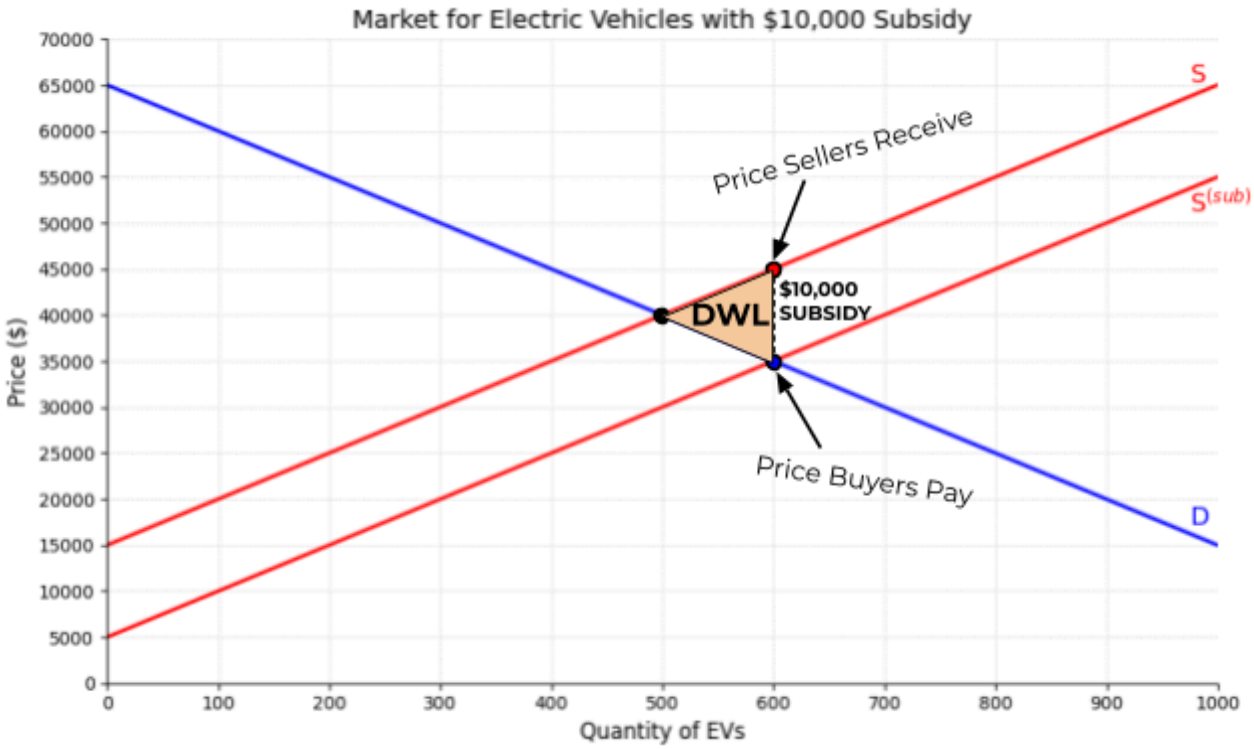


You can find the "subsidy wedge" by starting at equilibrium and moving along the supply and demand curves until the vertical distance of the split is equal to the amount of the per-unit subsidy. This tells you the new equilibrium market quantity.

DEADWEIGHT LOSS

The socially efficient quantity is 500 units, but due to the subsidy the market is now producing 600 units. This overproduction represents deadweight loss. The deadweight loss triangle "points" to the socially efficient quantity.

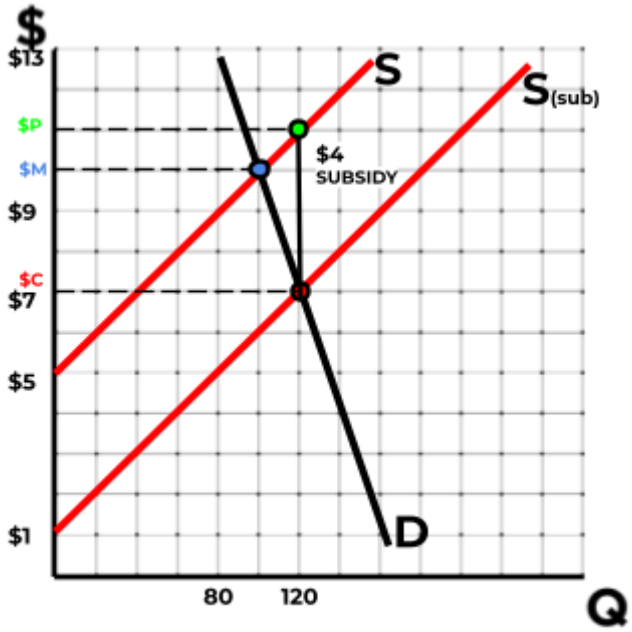
Transactions 501 to 600 should not have occurred because the firm's cost to produce (represented by the original supply curve) is greater than the consumer's willingness to pay (represented by the demand curve). This is called deadweight loss and labeled DWL on the graph below. It can be calculated using the formula for calculating the area of a triangle (½ bh). This DWL means resources are being used to produce extra units that cost more to make than the value consumers place on them and those resources could have produced something else society values more.



DWL = ½ ($10,000)(100) = $500,000

WHO RECEIVES THE BENEFIT FROM A SUBSIDY?

With a subsidy, the side of the market that is less elastic captures more of the benefit. If demand is inelastic, consumers don't change their quantity demanded very much, so the subsidy mostly lowers the price they pay. If supply is inelastic, producers don't change their quantity supplied very much, so the subsidy mostly raises the effective price they receive.

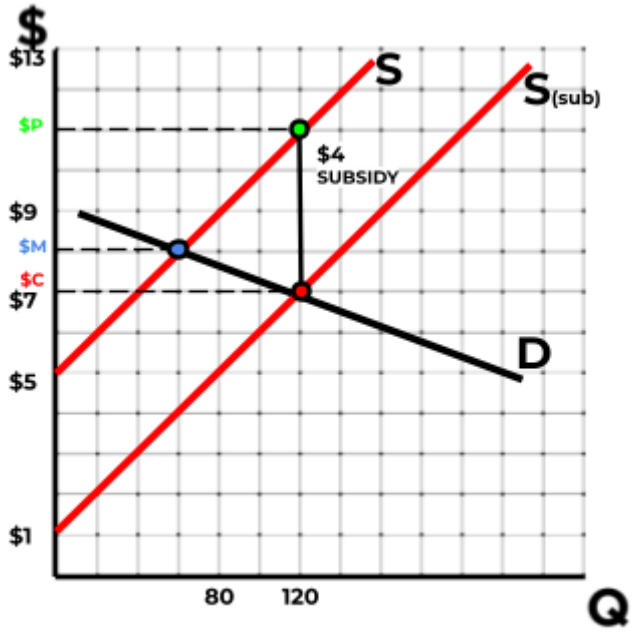


DEMAND MORE INELASTIC THAN SUPPLY

CONSUMERS CAPTURE MORE OF THE SUBSIDY

- MARKET PRICE $10
  $4 SUBSIDY
- CONSUMERS PAY $7
- PRODUCERS RECEIVE $11
  ($7 from consumer & $4 from government)

1. Producers received $10 and sold 100 units prior to the subsidy.
2. The **government institutes a $4 subsidy** paid to producers, effectively reducing their cost and shifting supply right by $4 measured vertically.
3. At the new equilibrium quantity of 120 consumers pay $7 and the government provides $4 so producers receive $11.
4. Thus **producers capture $1** of benefit from the subsidy and **consumers capture $3** of the benefit from the subsidy.



SUPPLY MORE INELASTIC THAN DEMAND

PRODUCERS CAPTURE MORE OF THE SUBSIDY

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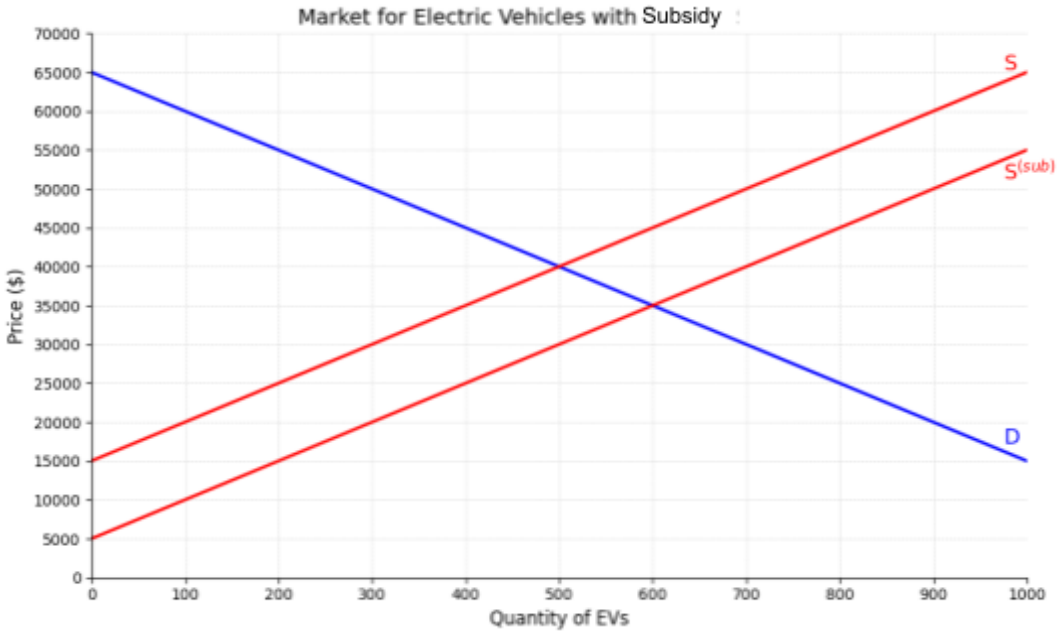
PRACTICE

The following supply and demand curves represent the market for electric vehicles. Then, the government provides a subsidy to producers of electric vehicles. Analyze the impact of the per-unit subsidy in this market.



MARKET PRICE PRIOR TO THE SUBSIDY	
MARKET QUANTITY PRIOR TO THE SUBSIDY	
SUBSIDY PER UNIT	
PRICE PAID BY CONSUMERS PER UNIT AFTER SUBSIDY	
PRICE SELLERS RECEIVE PER UNIT AFTER SUBSIDY	
QUANTITY CONSUMED AFTER SUBSIDY	
TOTAL AMOUNT OF MONEY SPENT ON THE SUBSIDY	
TOTAL AMOUNT THAT CONSUMERS BENEFIT FROM THE SUBSIDY	
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TOTAL DEADWEIGHT LOSS	

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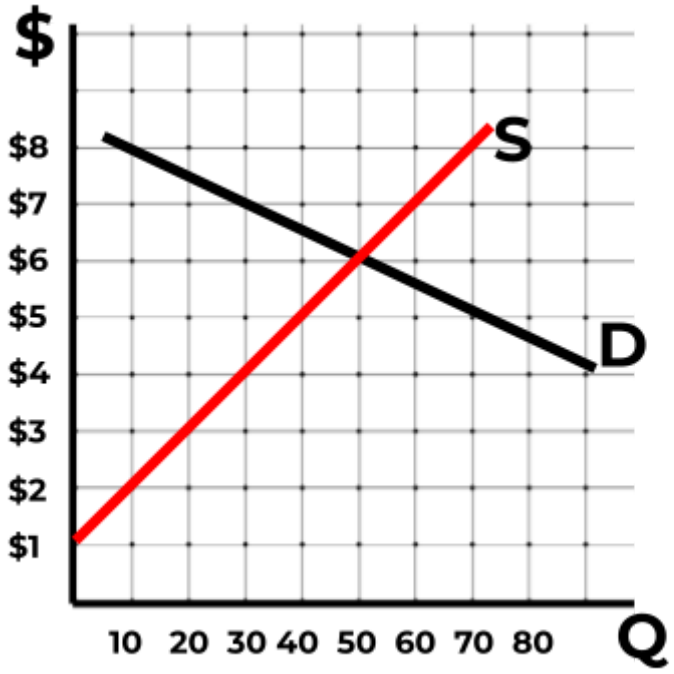

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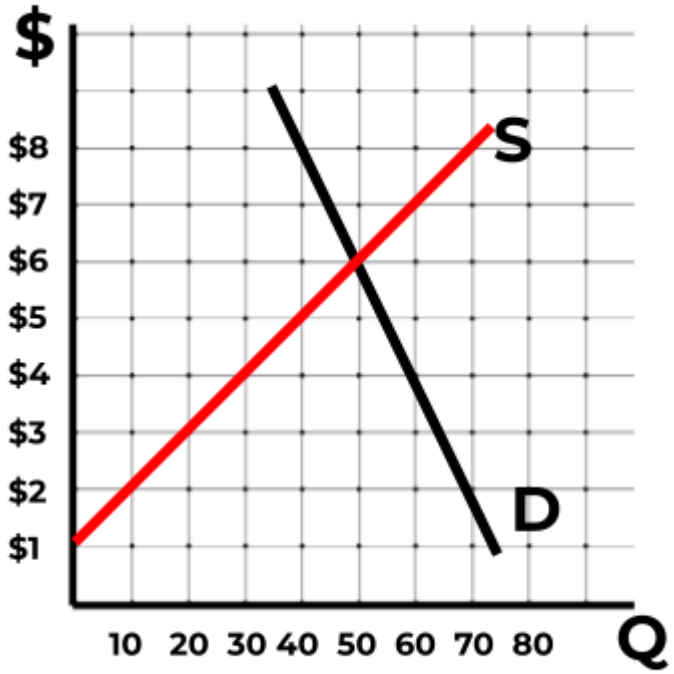

MARKET PRICE PRIOR TO THE SUBSIDY	
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SUBSIDY PER UNIT	
PRICE PAID BY CONSUMERS PER UNIT AFTER SUBSIDY	
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PROVE - ADVANCED PRACTICE QUESTIONS

1. A per-unit subsidy on a good will cause which of the following changes in the market?
    a. Supply shifts leftward by the amount of the subsidy.
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    d. Equilibrium quantity decreases.
    e. The market price rises by more than the subsidy.

2. In a competitive market, a per-unit subsidy will lead to which of the following outcomes?
    a. Both consumer surplus and producer surplus increase.
    b. Consumer surplus increases, producer surplus decreases.
    c. Producer surplus increases, consumer surplus decreases.
    d. Both consumer surplus and producer surplus decrease.
    e. Neither consumer nor producer surplus changes.

3. The benefit of a per-unit subsidy is shared between buyers and sellers. The side of the market that is less elastic will:
    a. Receive more of the subsidy benefit.
    b. Receive less of the subsidy benefit.
    c. Not benefit at all.
    d. Always receive exactly half of the benefit.
    e. Bear the entire cost of the subsidy.

4. A government grants a $1 per-unit subsidy to the sellers of apples. Provided neither demand nor supply is perfectly inelastic, which of the following will happen?
    a. The supply curve shifts leftward by $1.
    b. The new equilibrium price consumers pay rises by $1.
    c. The effective price sellers receive increases by less than $1.
    d. The effective price sellers receive increases by exactly $1.
    e. Equilibrium quantity falls below the pre-subsidy level.

5. Subsidies, like taxes, create deadweight loss because:
    a. They decrease government revenue.
    b. They lead to underproduction relative to the socially efficient output.
    c. They lead to overproduction relative to the socially efficient output.
    d. They eliminate mutually beneficial trades.
    e. They lower both consumer and producer surplus.

6. The market for energy drinks has equilibrium at $4 and 180 units. The government grants a $2 per-unit subsidy to sellers, increasing the quantity to 200 units. After the subsidy, consumers pay $3 per unit and producers receive $5 per unit. What portion of the subsidy benefit goes to consumers?
    a. $200
    b. $300
    c. $400
    d. $600
    e. $800

7. Suppose the government grants a $1 subsidy per bushel of wheat. Before the subsidy, equilibrium price was $5 and quantity was 100 bushels. After the subsidy, consumers pay $4.50, producers receive $5.50, and 120 bushels are sold. What is the deadweight loss that results from the subsidy?
    a. $5
    b. $10
    c. $20
    d. $50
    e. $100

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    a. $50
    b. $100
    c. $120
    d. $150
    e. $200

9. In Question 8 above, how much of the total subsidy benefit goes to consumers?
    a. $30
    b. $50
    c. $60
    d. $70
    e. $120

10. A per-unit subsidy of $3 is granted on a good. After the subsidy, equilibrium quantity increases from 100 to 130 units. The price buyers pay falls from $10 to $9. How much of the subsidy benefit is captured by producers?
    a. $100
    b. $130
    c. $150
    d. $200
    e. $260

SCAN TO SEE THE CORRECT ANSWERS AND EXPLANATION

WONDER - BEYOND THE GRAPH

*Read **Electric-Vehicle Subsidies: Kill the Tax Credits and Let Consumers Decide** independently. Then, respond to the following three questions. Be prepared to discuss your answers with a partner and the whole class in order to be exposed to a variety of perspectives.*

1. Explain how per-unit subsidies for electric vehicles create inefficiencies in the market. Use the concepts of deadweight loss and consumer choice in your response.

2. The article argues that EV subsidies are a form of "cronyism." What does this mean, and why would a free-market economist be critical of this practice?

3. According to the article, EV subsidies benefit mostly wealthier households and have little climate impact. From a free-market perspective, why is this problematic?

TEACHER ANSWER KEY

LEARN

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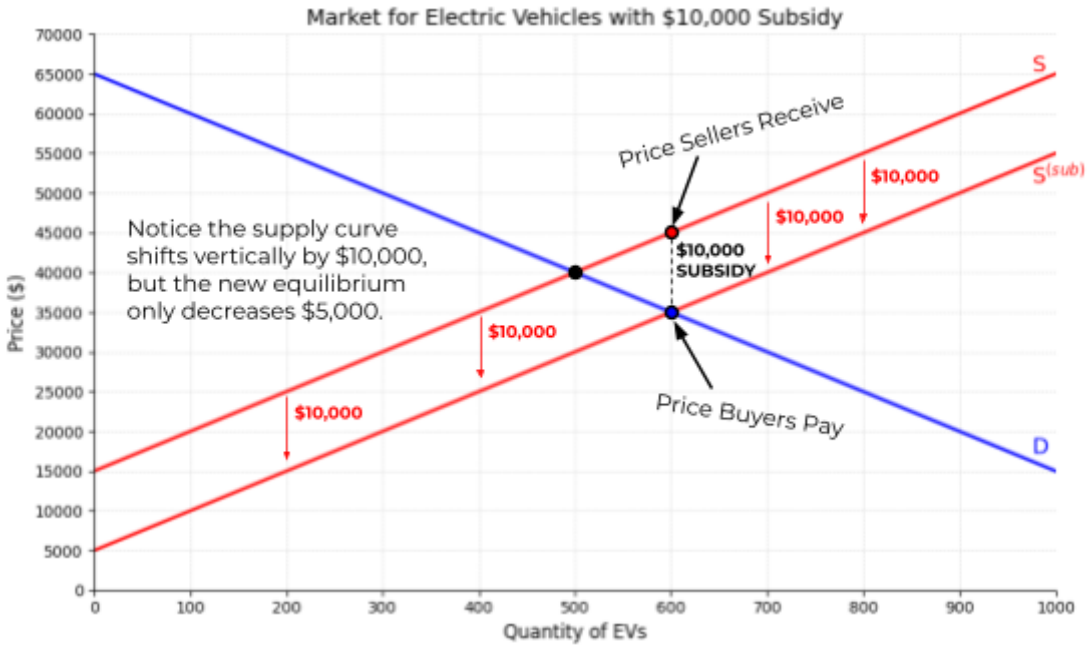

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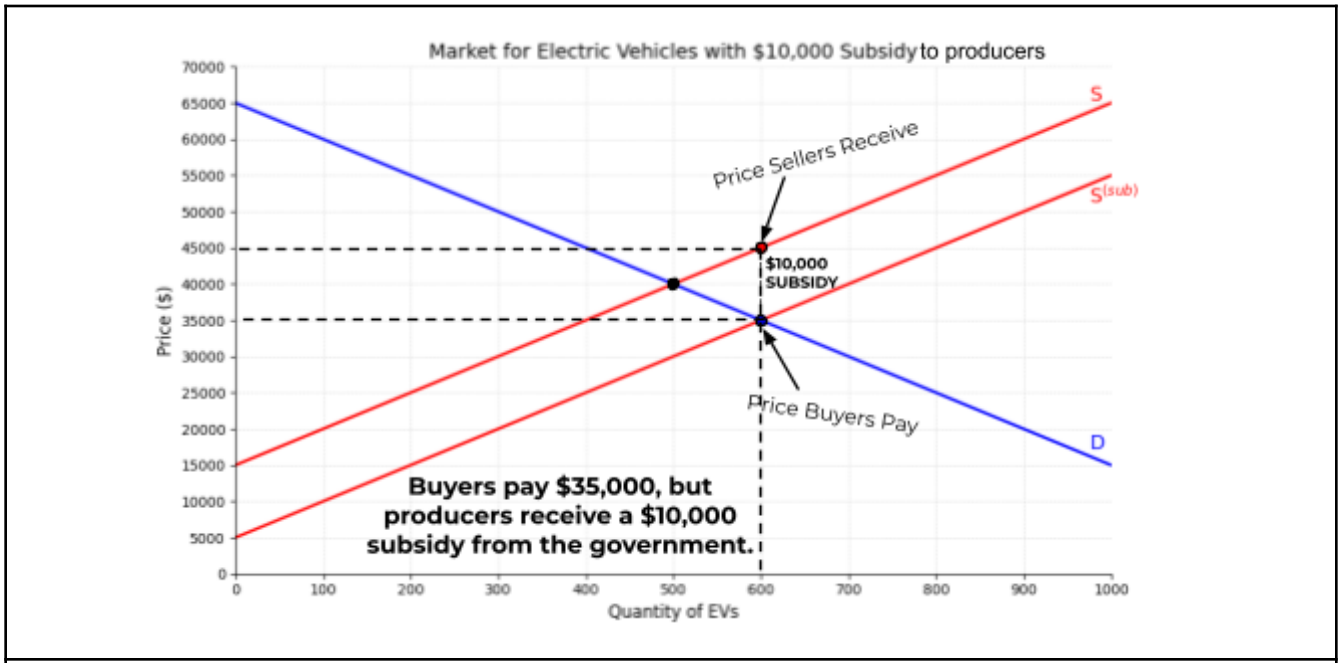

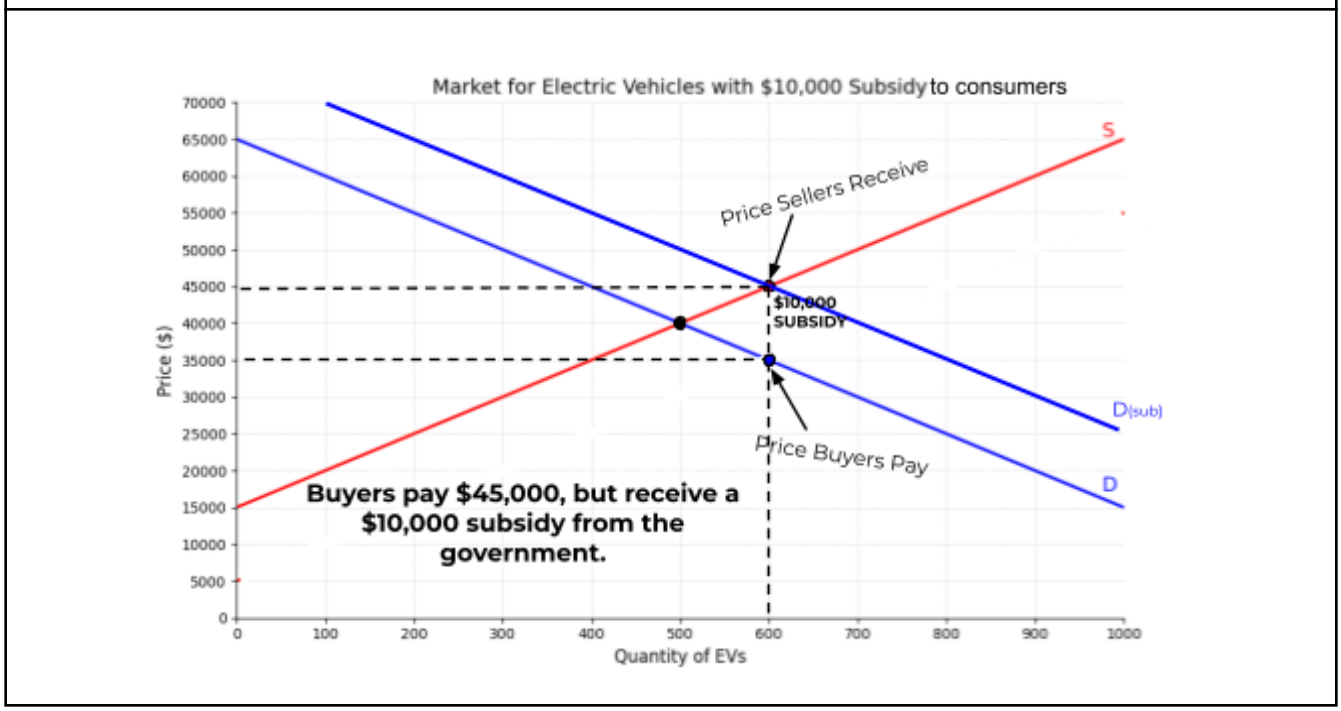

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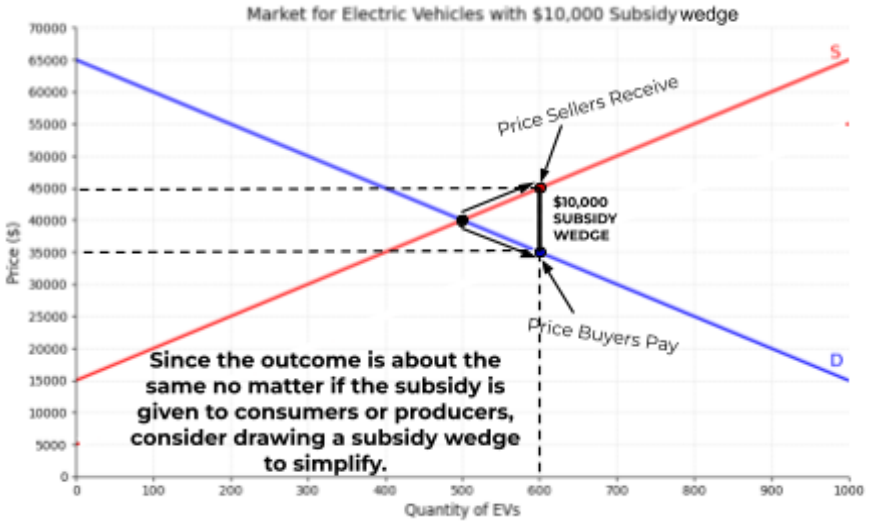

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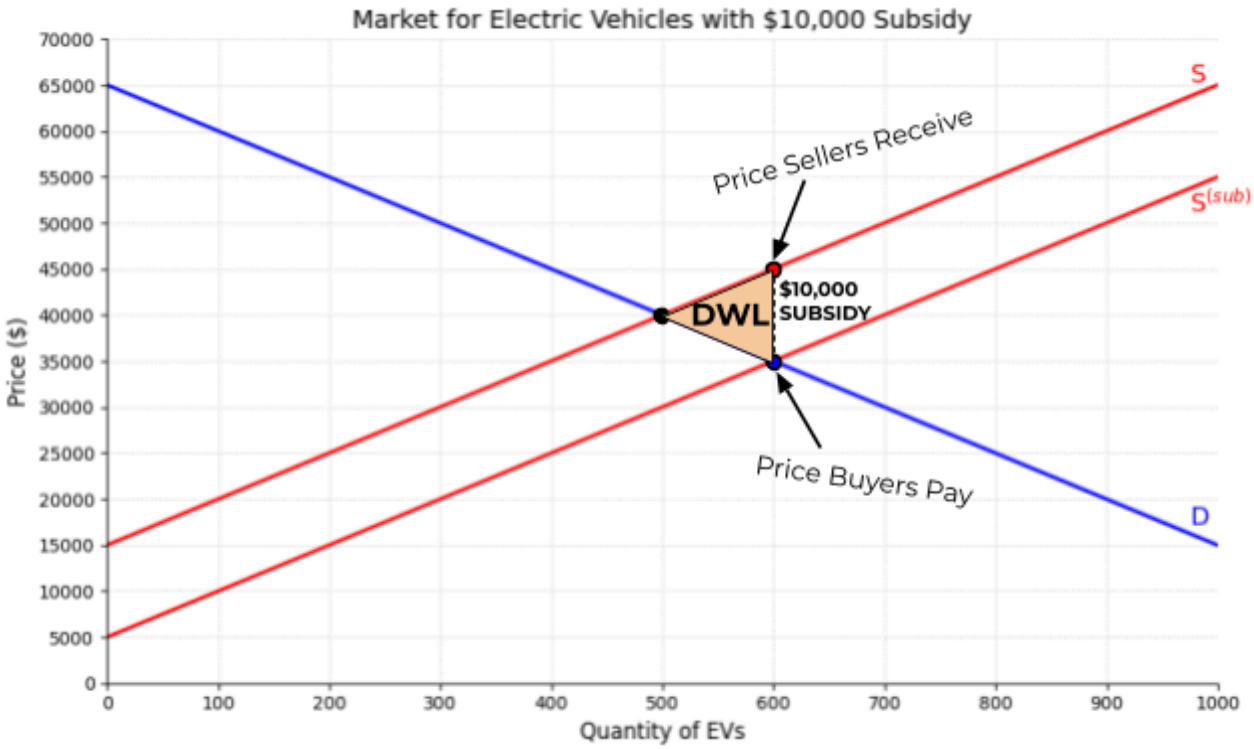

DWL = ½ ($10,000)(100) = $500,000

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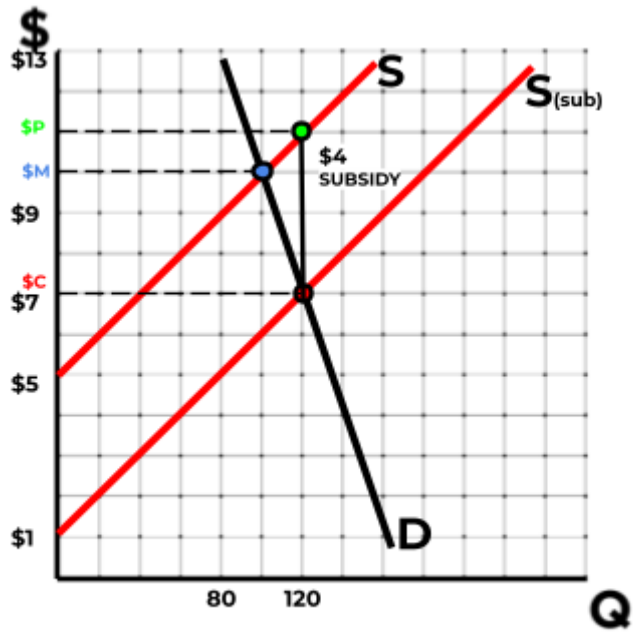

DEMAND MORE INELASTIC THAN SUPPLY

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- CONSUMERS PAY $7
- PRODUCERS RECEIVE $11
  ($7 from consumer & $4 from government)

5. Producers received $10 and sold 100 units prior to the subsidy.
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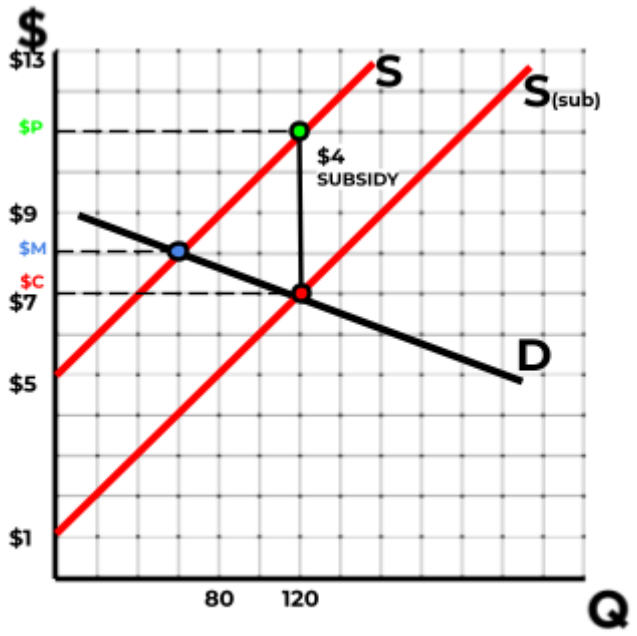

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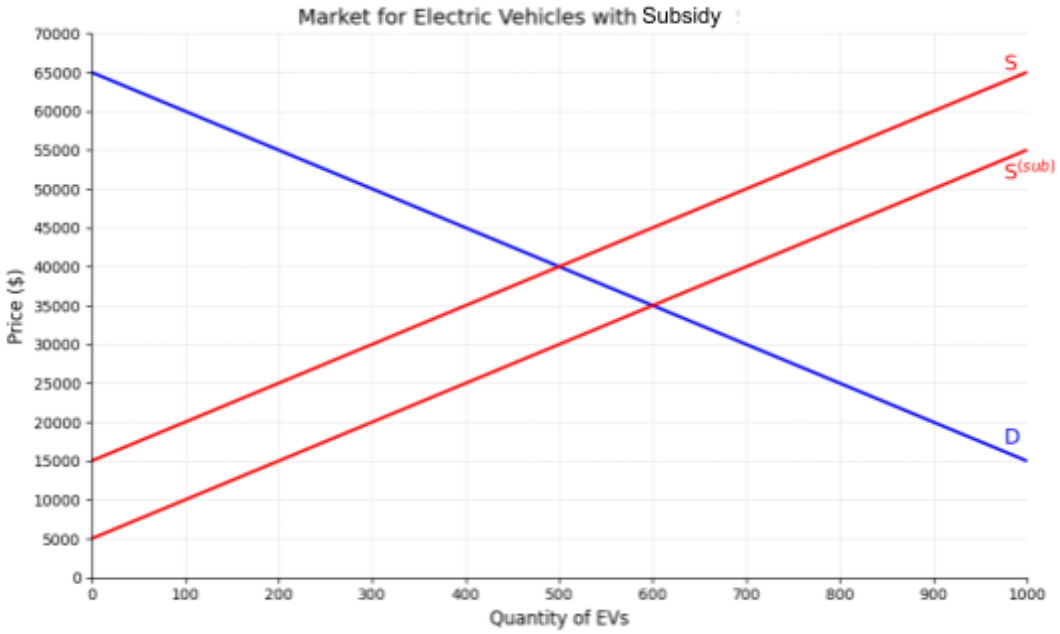
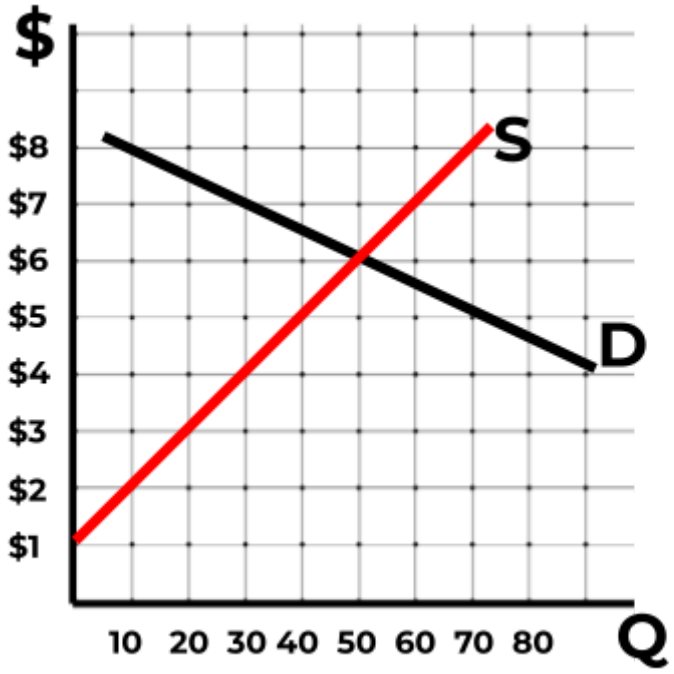


MARKET PRICE PRIOR TO THE SUBSIDY	**$40,000**
MARKET QUANTITY PRIOR TO THE SUBSIDY	**500**
SUBSIDY PER UNIT	**$10,000**
PRICE PAID BY CONSUMERS PER UNIT AFTER SUBSIDY	**$35,000**
PRICE SELLERS RECEIVE PER UNIT AFTER SUBSIDY	**$45,000**
QUANTITY CONSUMED AFTER SUBSIDY	**600**
TOTAL AMOUNT OF MONEY SPENT ON THE SUBSIDY	**$6,000,000**
TOTAL AMOUNT THAT CONSUMERS BENEFIT FROM THE SUBSIDY	**$3,000,000**
TOTAL AMOUNT THAT PRODUCERS BENEFIT FROM THE SUBSIDY	**$3,000,000**
TOTAL DEADWEIGHT LOSS	**$500,000**

The following supply and demand curves represent the market for apple cider. Then, the government provides a $3 per-unit subsidy to producers of apple cider. Analyze the impact of the per-unit subsidy in this market.



MARKET PRICE PRIOR TO THE SUBSIDY	**$6**
MARKET QUANTITY PRIOR TO THE SUBSIDY	**50**
SUBSIDY PER UNIT	**$3**
PRICE PAID BY CONSUMERS PER UNIT AFTER SUBSIDY	**$5**
PRICE SELLERS RECEIVE PER UNIT AFTER SUBSIDY	**$8**
QUANTITY CONSUMED AFTER SUBSIDY	**70**
TOTAL AMOUNT OF MONEY SPENT ON THE SUBSIDY	**$210**
TOTAL AMOUNT THAT CONSUMERS BENEFIT FROM THE SUBSIDY	**$70**
TOTAL AMOUNT THAT PRODUCERS BENEFIT FROM THE SUBSIDY	**$140**
TOTAL DEADWEIGHT LOSS	**$30**

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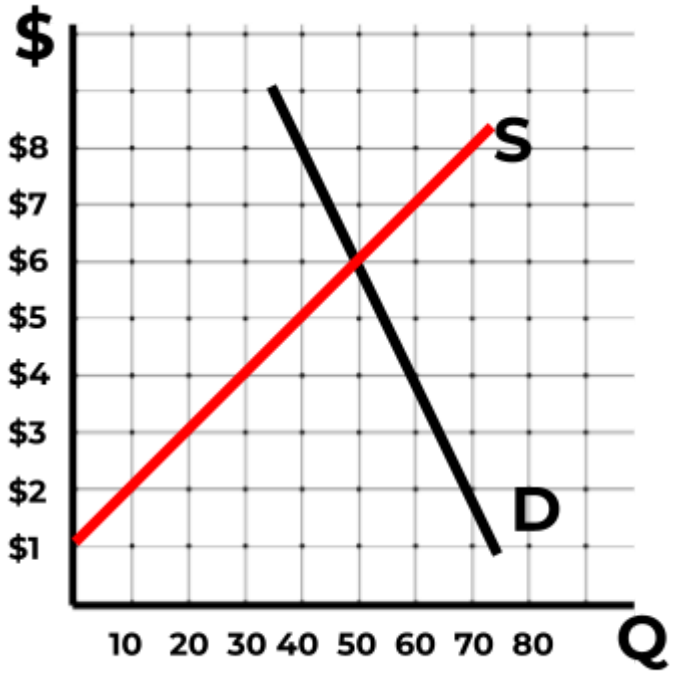

MARKET PRICE PRIOR TO THE SUBSIDY	**$6**
MARKET QUANTITY PRIOR TO THE SUBSIDY	**50**
SUBSIDY PER UNIT	**$3**
PRICE PAID BY CONSUMERS PER UNIT AFTER SUBSIDY	**$4**
PRICE SELLERS RECEIVE PER UNIT AFTER SUBSIDY	**$7**
QUANTITY CONSUMED AFTER SUBSIDY	**60**
TOTAL AMOUNT OF MONEY SPENT ON THE SUBSIDY	**$180**
TOTAL AMOUNT THAT CONSUMERS BENEFIT FROM THE SUBSIDY	**$120**
TOTAL AMOUNT THAT PRODUCERS BENEFIT FROM THE SUBSIDY	**$60**
TOTAL DEADWEIGHT LOSS	**$15**

PROVE - ADVANCED PRACTICE QUESTIONS

1. A per-unit subsidy on a good will cause which of the following changes in the market?
    a. Supply shifts leftward by the amount of the subsidy.
    b. Supply shifts rightward by the amount of the subsidy.
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    d. Always receive exactly half of the benefit.
    e. Bear the entire cost of the subsidy.

4. A government grants a $1 per-unit subsidy to the sellers of apples. Provided neither demand nor supply is perfectly inelastic, which of the following will happen?
    a. The supply curve shifts leftward by $1.
    b. The new equilibrium price consumers pay rises by $1.
    c. The effective price sellers receive increases by less than $1.
    d. The effective price sellers receive increases by exactly $1.
    e. Equilibrium quantity falls below the pre-subsidy level.

5. Subsidies, like taxes, create deadweight loss because:
    a. They decrease government revenue.
    b. They lead to underproduction relative to the socially efficient output.
    c. They lead to overproduction relative to the socially efficient output.
    d. They eliminate mutually beneficial trades.
    e. They lower both consumer and producer surplus.

6. The market for energy drinks has equilibrium at $4 and 180 units. The government grants a $2 per-unit subsidy to sellers, increasing the quantity to 200 units. After the subsidy, consumers pay $3 per unit and producers receive $5 per unit. What portion of the subsidy benefit goes to consumers?
    a. $200
    b. $300
    c. $400
    d. $600
    e. $800

7. Suppose the government grants a $1 subsidy per bushel of wheat. Before the subsidy, equilibrium price was $5 and quantity was 100 bushels. After the subsidy, consumers pay $4.50, producers receive $5.50, and 120 bushels are sold. What is the deadweight loss that results from the subsidy?
    a. $5
    b. $10
    c. $20
    d. $50
    e. $100

8. Suppose the government grants a $1 subsidy per bushel of wheat. Before the subsidy, equilibrium price was $5 and quantity was 100 bushels. After the subsidy, consumers pay $4.50, producers receive $5.50, and 120 bushels are sold. What is the total government expenditure on the subsidy?
    a. $50
    b. $100
    c. $120
    d. $150
    e. $200

9. In Question 8 above, how much of the total subsidy benefit goes to consumers?
    a. $30
    b. $50
    c. $60
    d. $70
    e. $120

10. A per-unit subsidy of $3 is granted on a good. After the subsidy, equilibrium quantity increases from 100 to 130 units. The price buyers pay falls from $10 to $9. How much of the subsidy benefit is captured by producers?
    a. $100
    b. $130
    c. $150
    d. $200
    e. $260

SCAN TO SEE THE CORRECT ANSWERS AND EXPLANATION

WONDER - BEYOND THE GRAPH

*Read **Electric-Vehicle Subsidies: Kill the Tax Credits and Let Consumers Decide** independently. Then, respond to the following three questions. Be prepared to discuss your answers with a partner and the whole class in order to be exposed to a variety of perspectives.*

1. Explain how per-unit subsidies for electric vehicles create inefficiencies in the market. Use the concepts of deadweight loss and consumer choice in your response.

Subsidies artificially lower the cost of producing and purchasing electric vehicles, which encourages overproduction beyond the efficient market equilibrium. This creates deadweight loss because resources are pulled away from uses consumers actually value more. Instead of letting buyers decide freely, government subsidies distort prices and direct resources toward politically favored industries, reducing overall economic efficiency.

2. The article argues that EV subsidies are a form of "cronyism." What does this mean, and why would a free-market economist be critical of this practice?

Cronyism occurs when businesses gain advantages through political favoritism rather than competition and consumer choice. A free-market economist criticizes subsidies for EVs because they reward certain companies like Tesla or GM, not because they make the best cars, but because politicians decide to give them tax breaks. This undermines competition and directs wealth from taxpayers to already wealthy consumers and politically connected firms.

3. According to the article, EV subsidies benefit mostly wealthier households and have little climate impact. From a free-market perspective, why is this problematic?

From a free-market perspective, subsidies should not force all taxpayers to fund purchases that mainly help higher-income families who could afford electric vehicles anyway. At the same time, if the claimed environmental benefit is minimal, then society is paying a high cost for very little gain. Free markets would allow consumers to weigh costs and benefits themselves, encouraging innovation without forcing others to subsidize their choices.