



# Messing with the Market II:

## Taxes



BECO-3310 Fall 2025

# Government Intervention

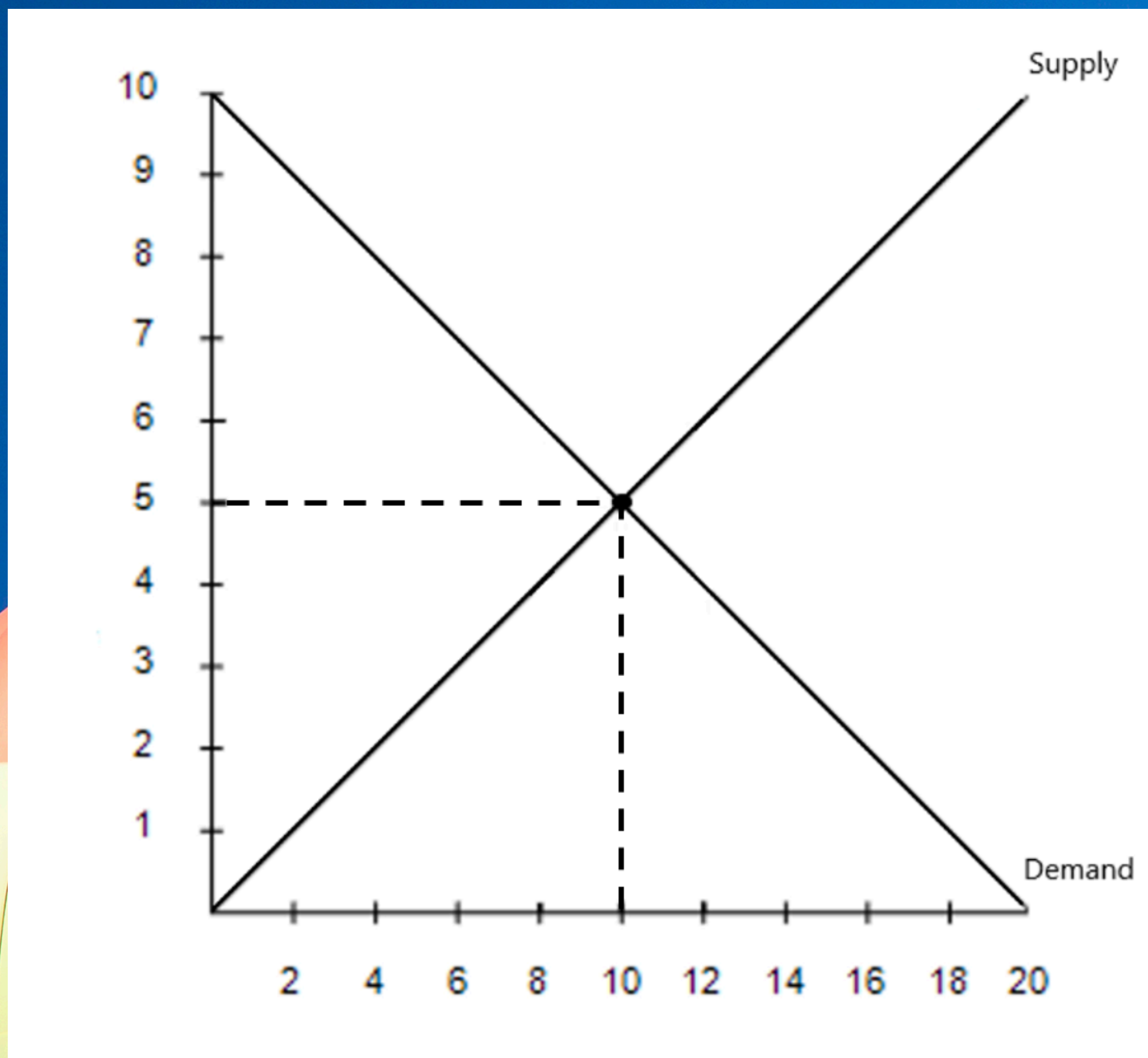
- Price controls constitute one type of government intervention in the market economy.
  - Ceilings & Floors
- Taxes is another.
  - Many forms, but we're focusing on "taxes" broadly speaking.

# Tax Incidence

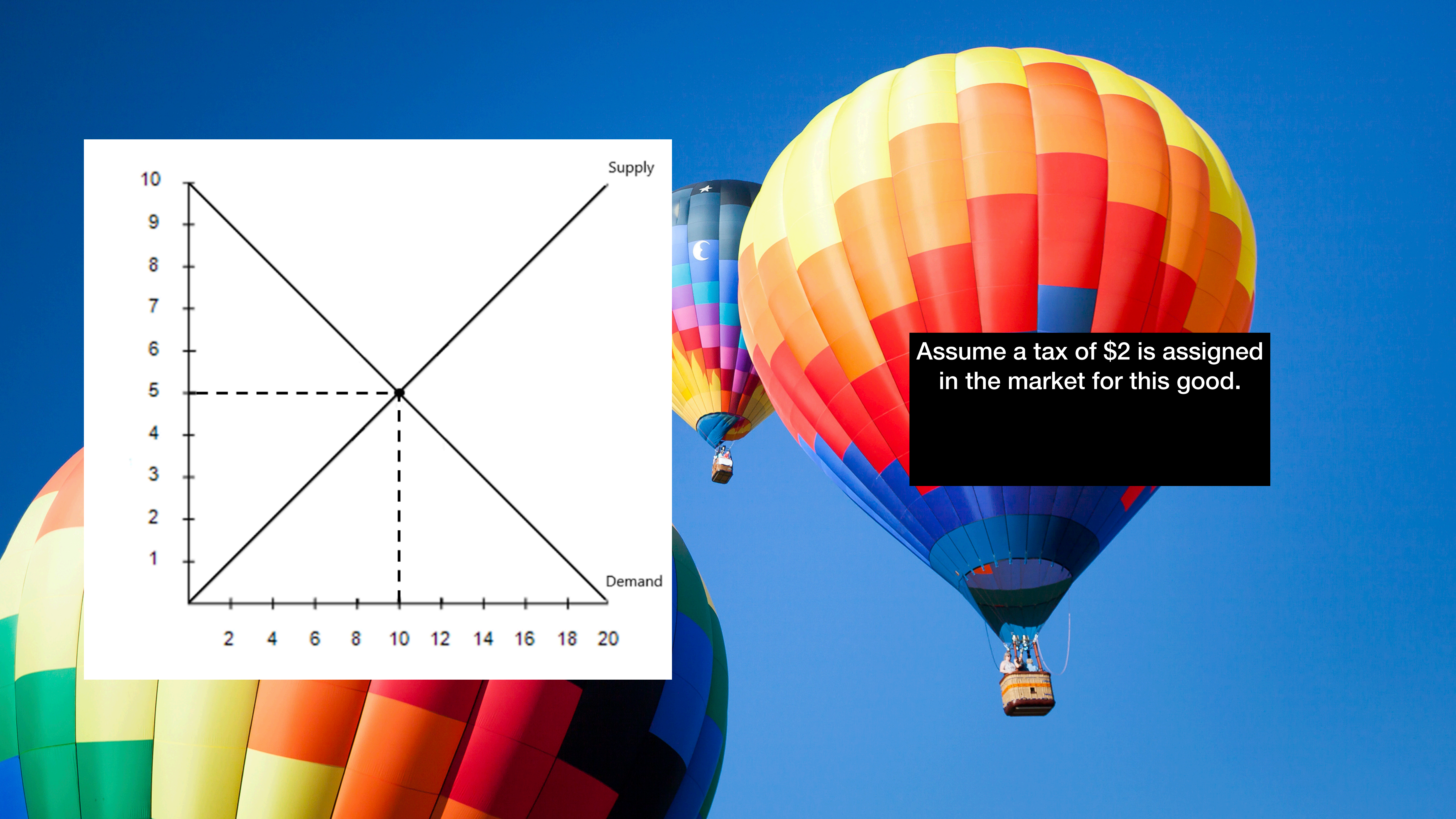
- The legal assignment of the tax is called the tax incidence.
- Cool insight from economics:
  - It doesn't matter who you (legally) "tax," the incidence will remain the same.
  - The tax burden—the share of the tax incidence paid—may differ substantially.
  - The tax burden does not depend on the legal assignment of the tax.

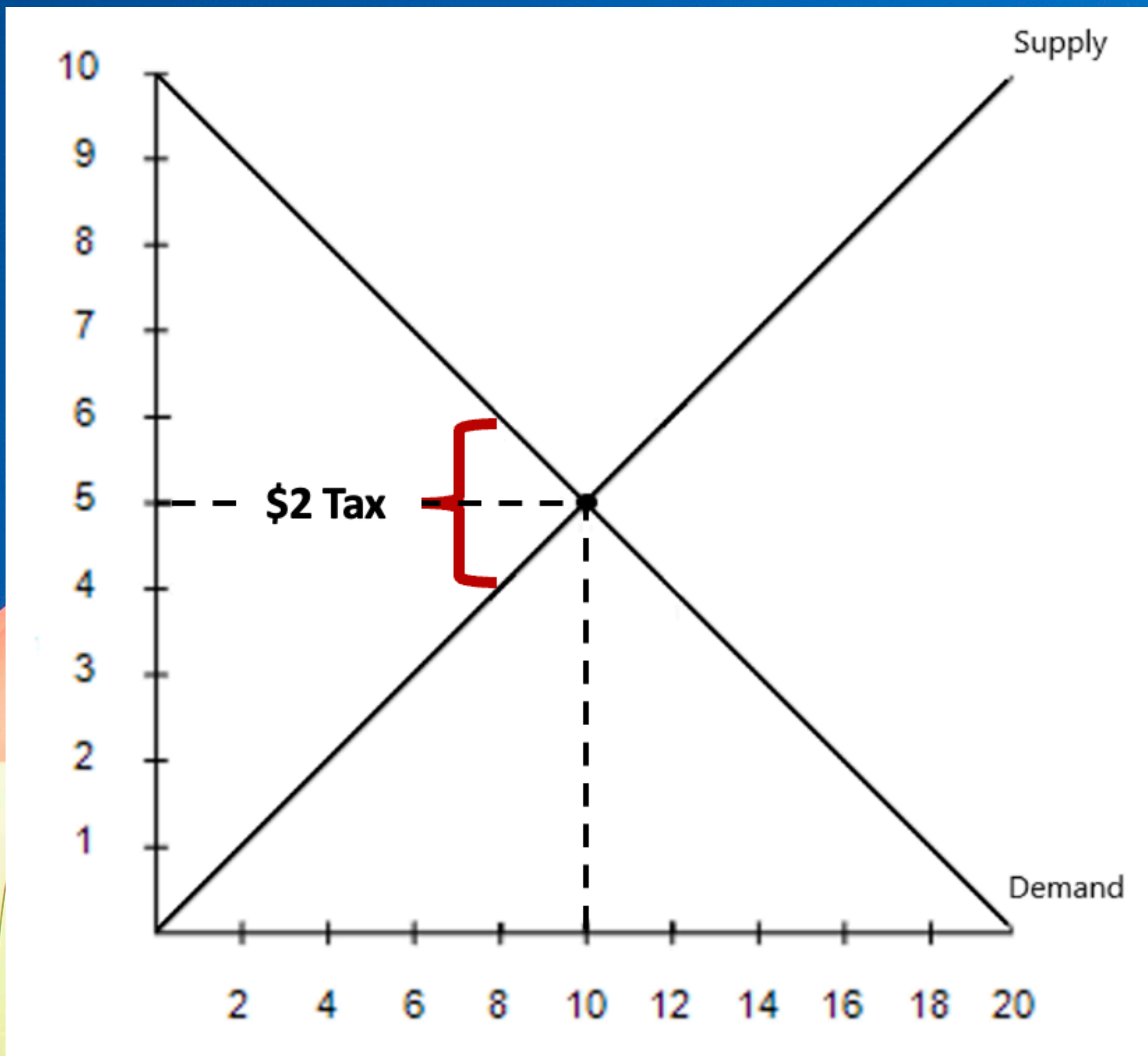
# Tax incidence analysis



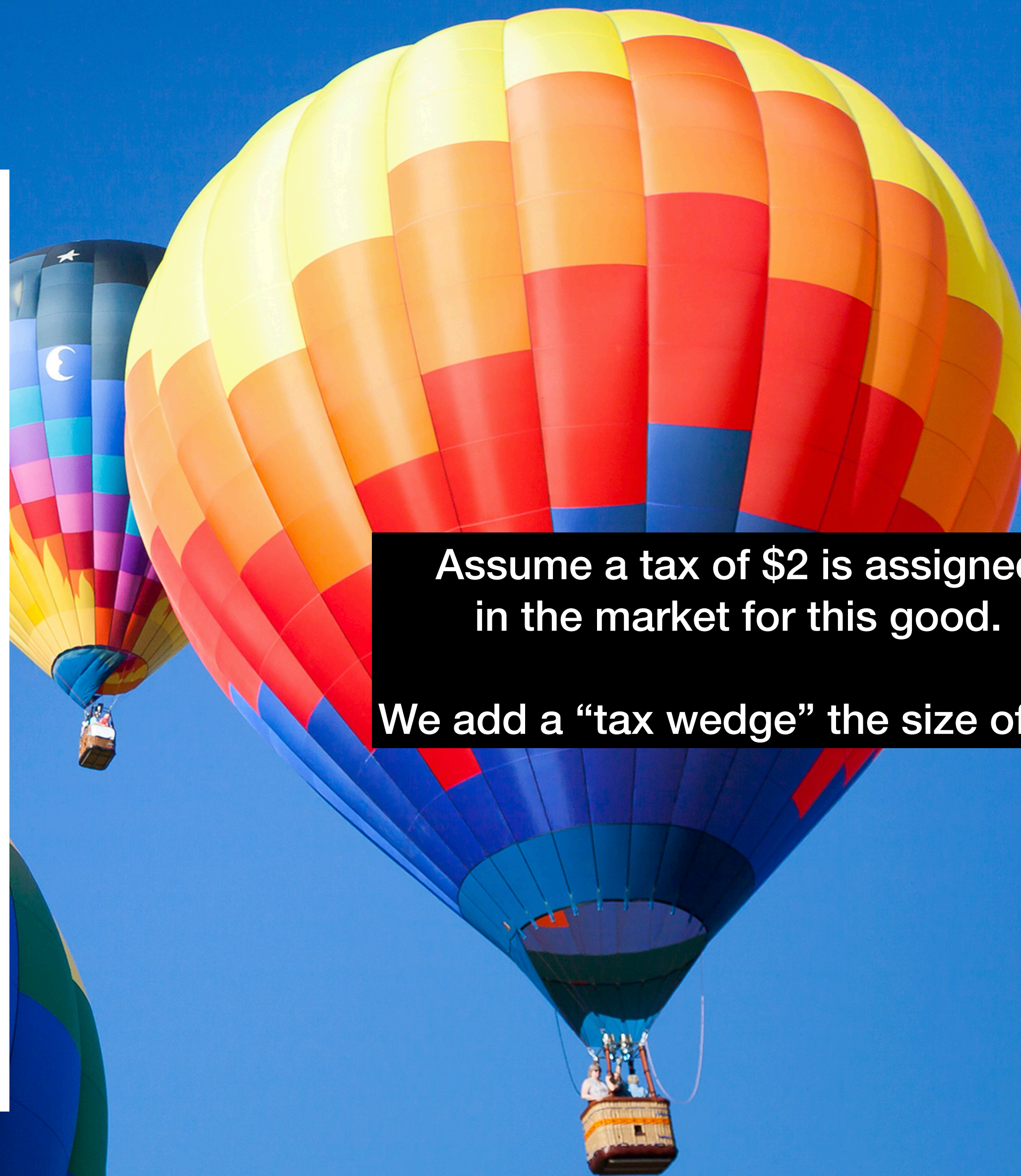
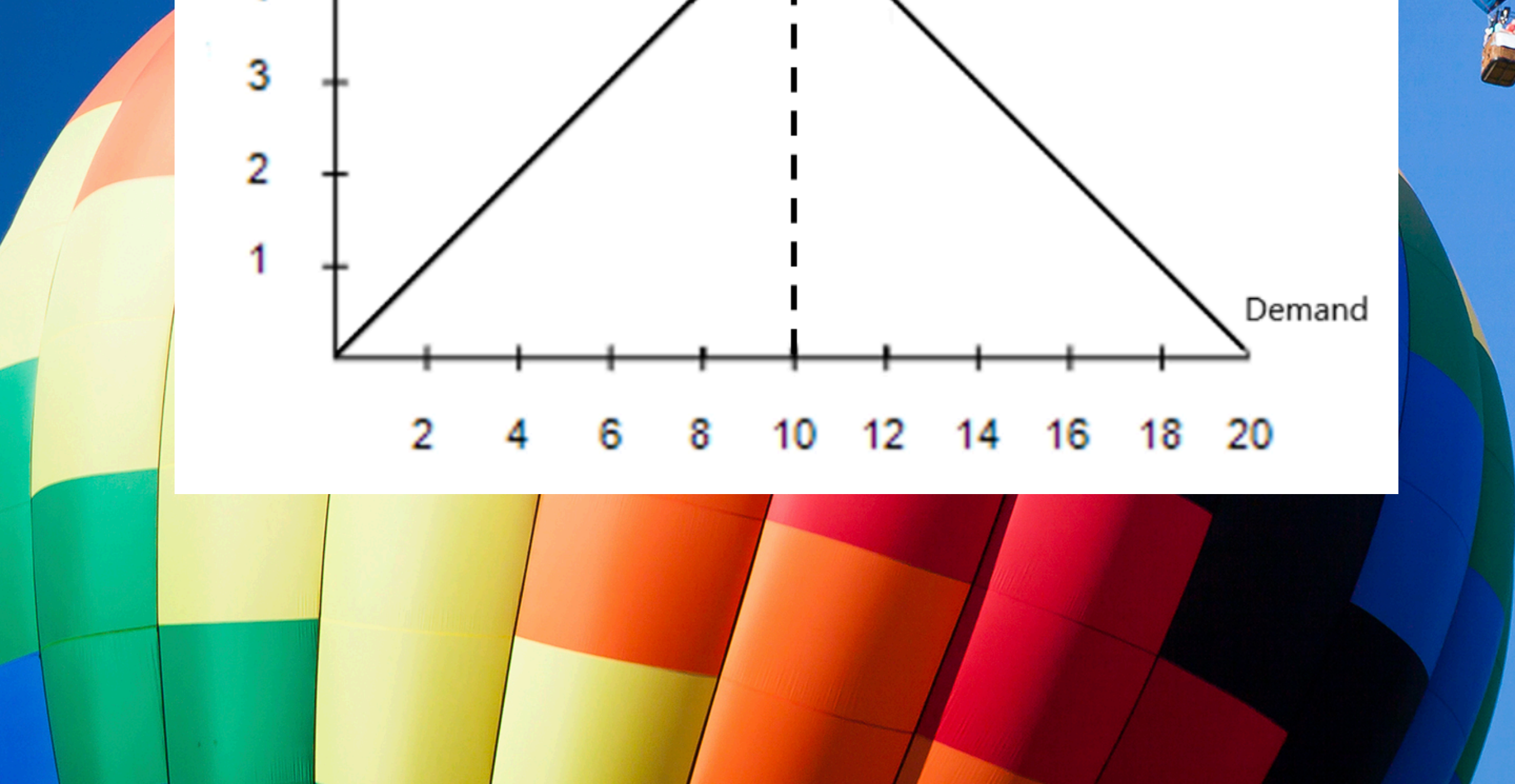


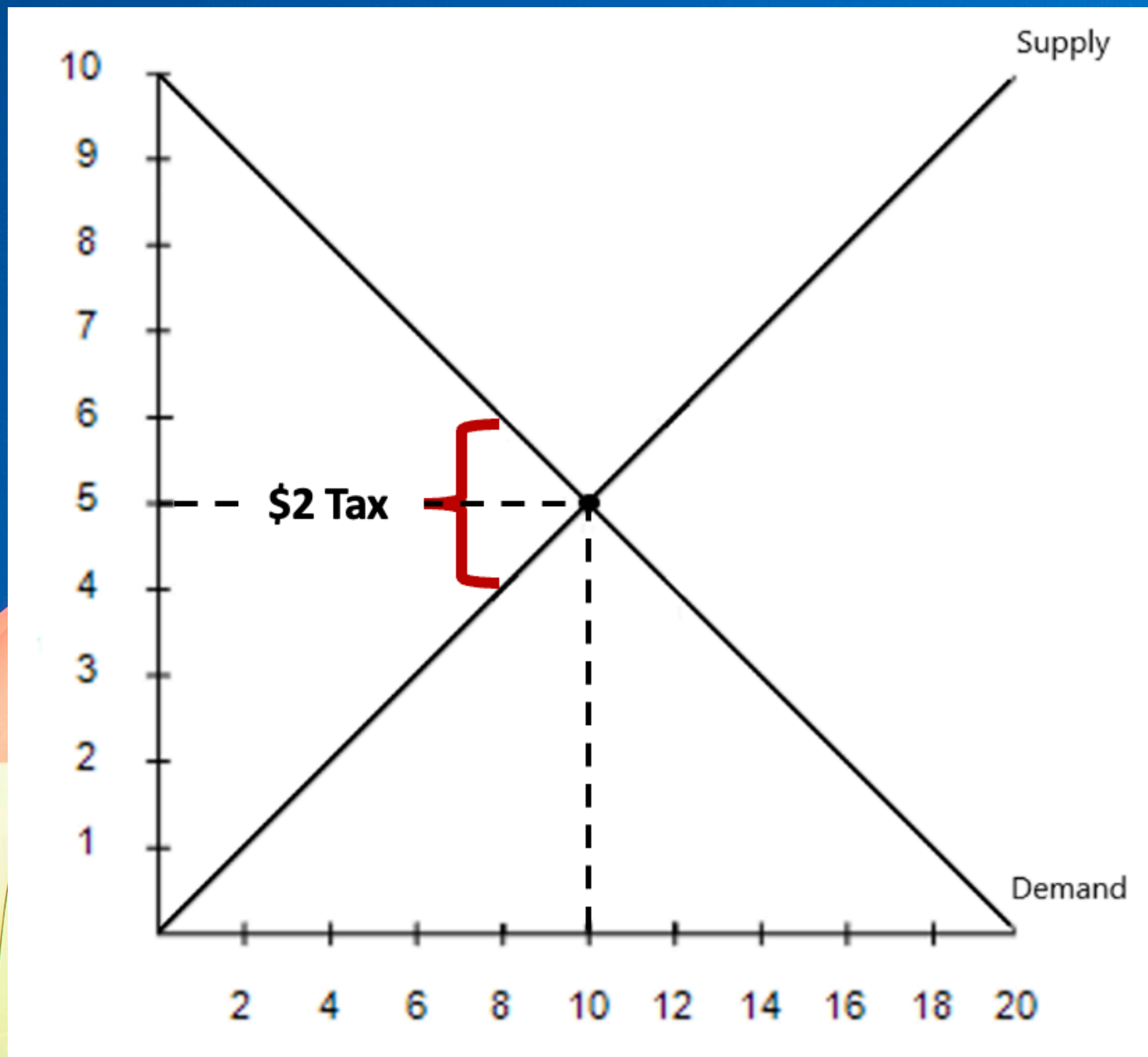
Assume a tax of \$2 is assigned in the market for this good.





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We add a "tax wedge" the size of \$2.

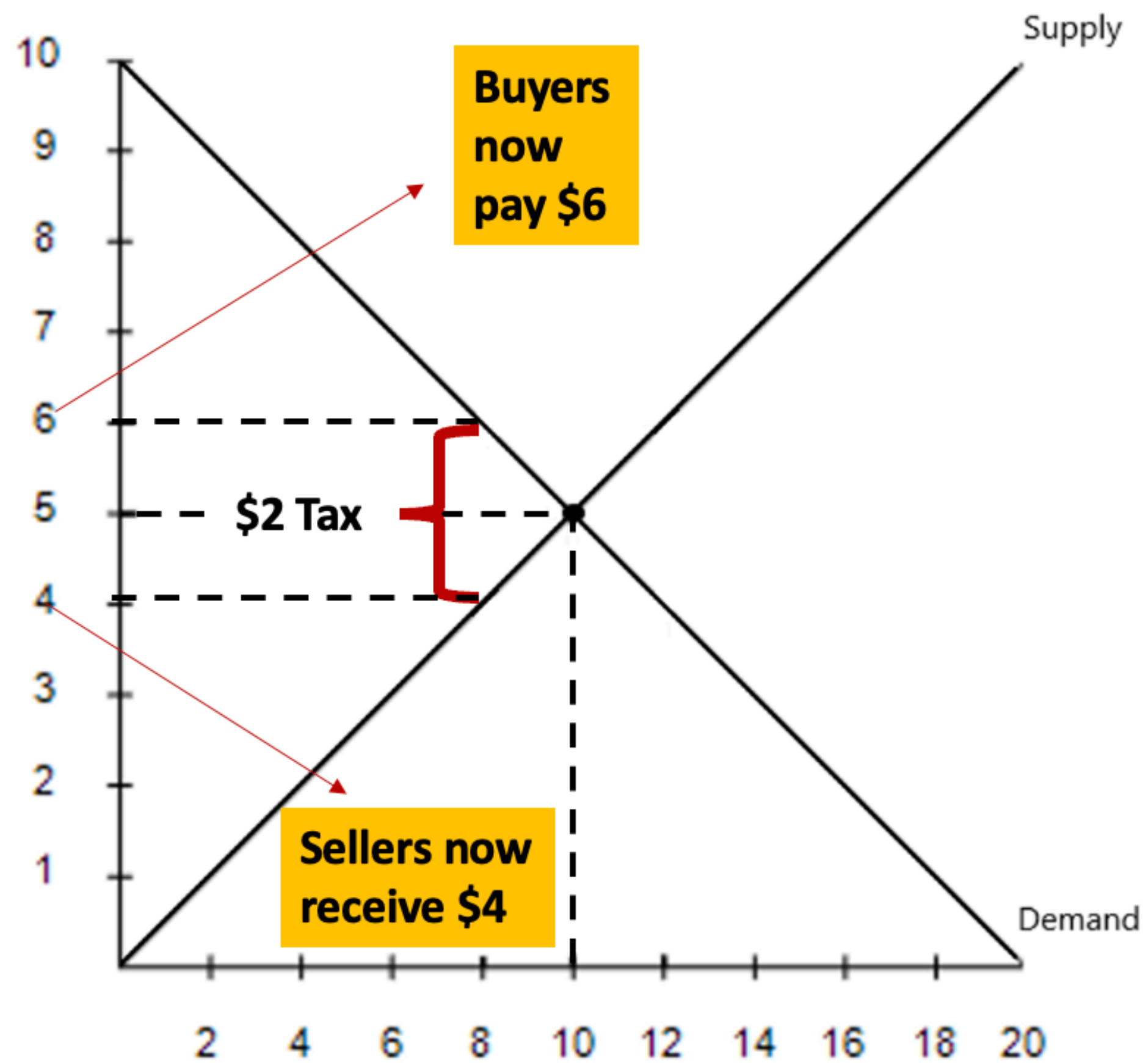




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The vertical distance of the wedge between supply and demand is the \$2 tax.



Assume a tax of \$2 is assigned in the market for this good.

We add a "tax wedge" the size of \$2.

The vertical distance of the wedge between supply and demand is the \$2 tax.

**NOTICE:** Buyers & Sellers each pay a share of the tax!

# Tax Incidence

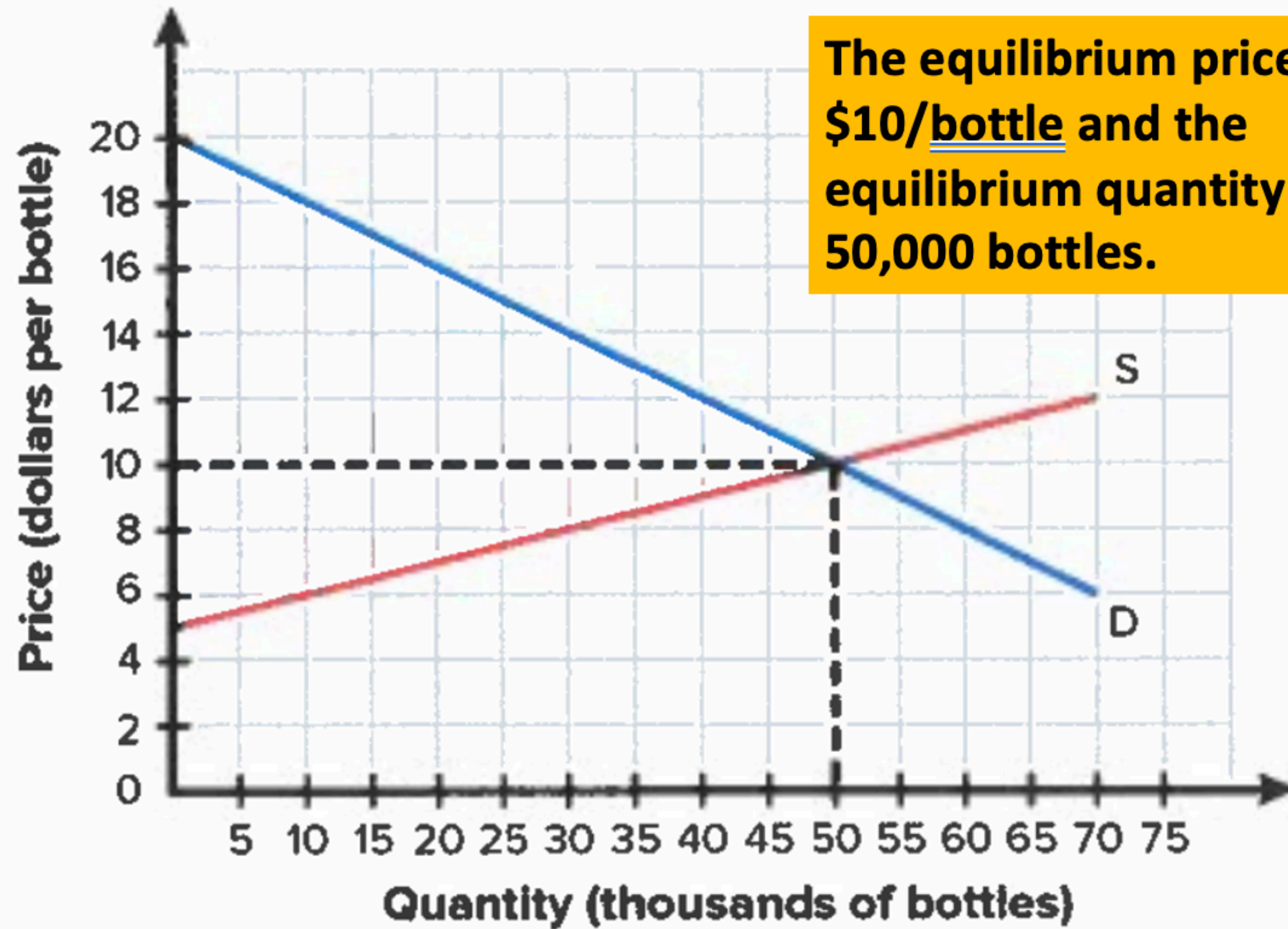
- The legal assignment of the tax is called the tax incidence.
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  - It doesn't matter who you (legally) "tax," the incidence will remain the same.
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# Ex: Tax on Wine Producers



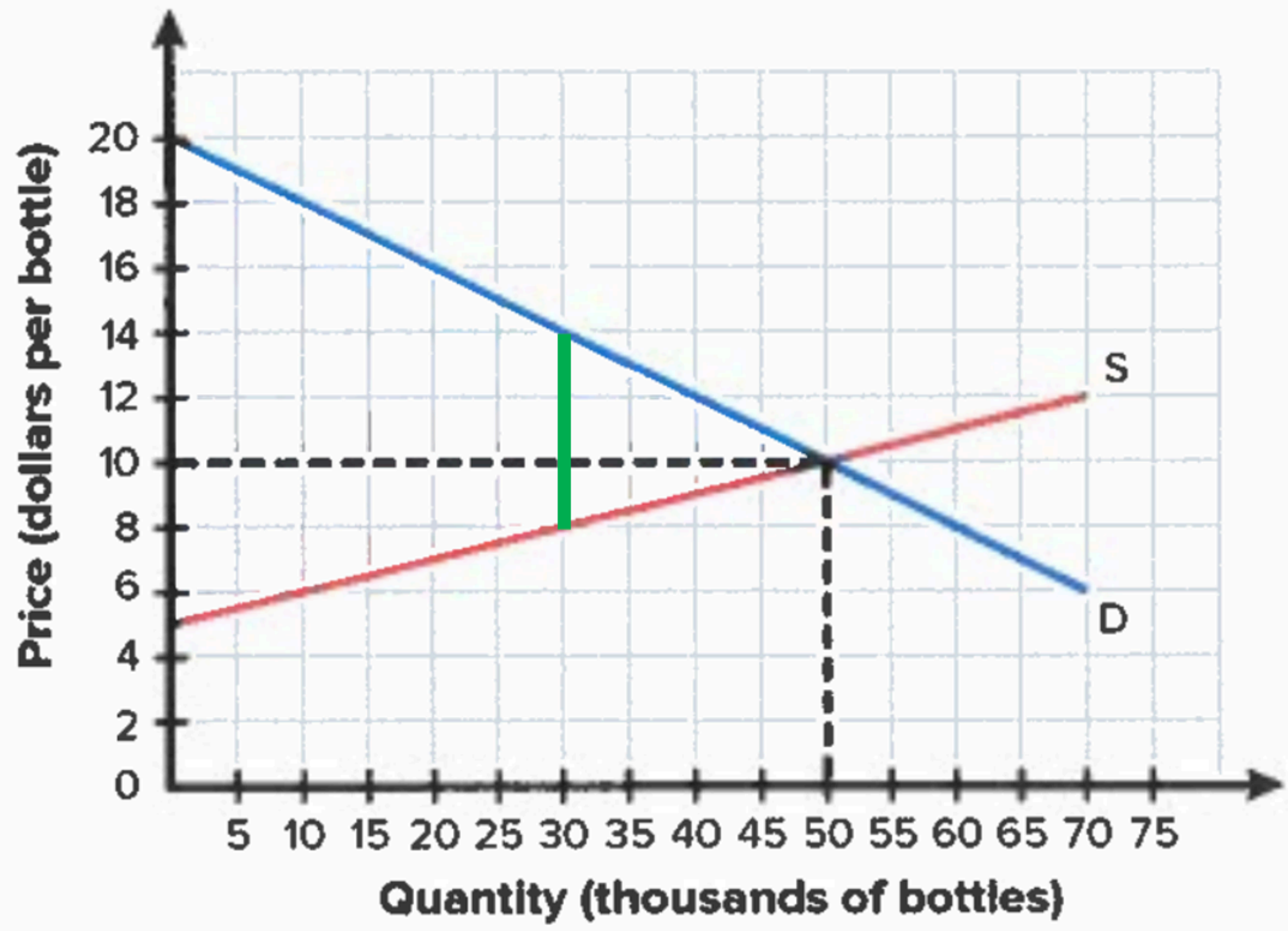
- Suppose that the government imposes a \$6 tax on the sellers of wine.
  - 1. What happens to the quantity supplied in the market after the tax?

## Market for Wine

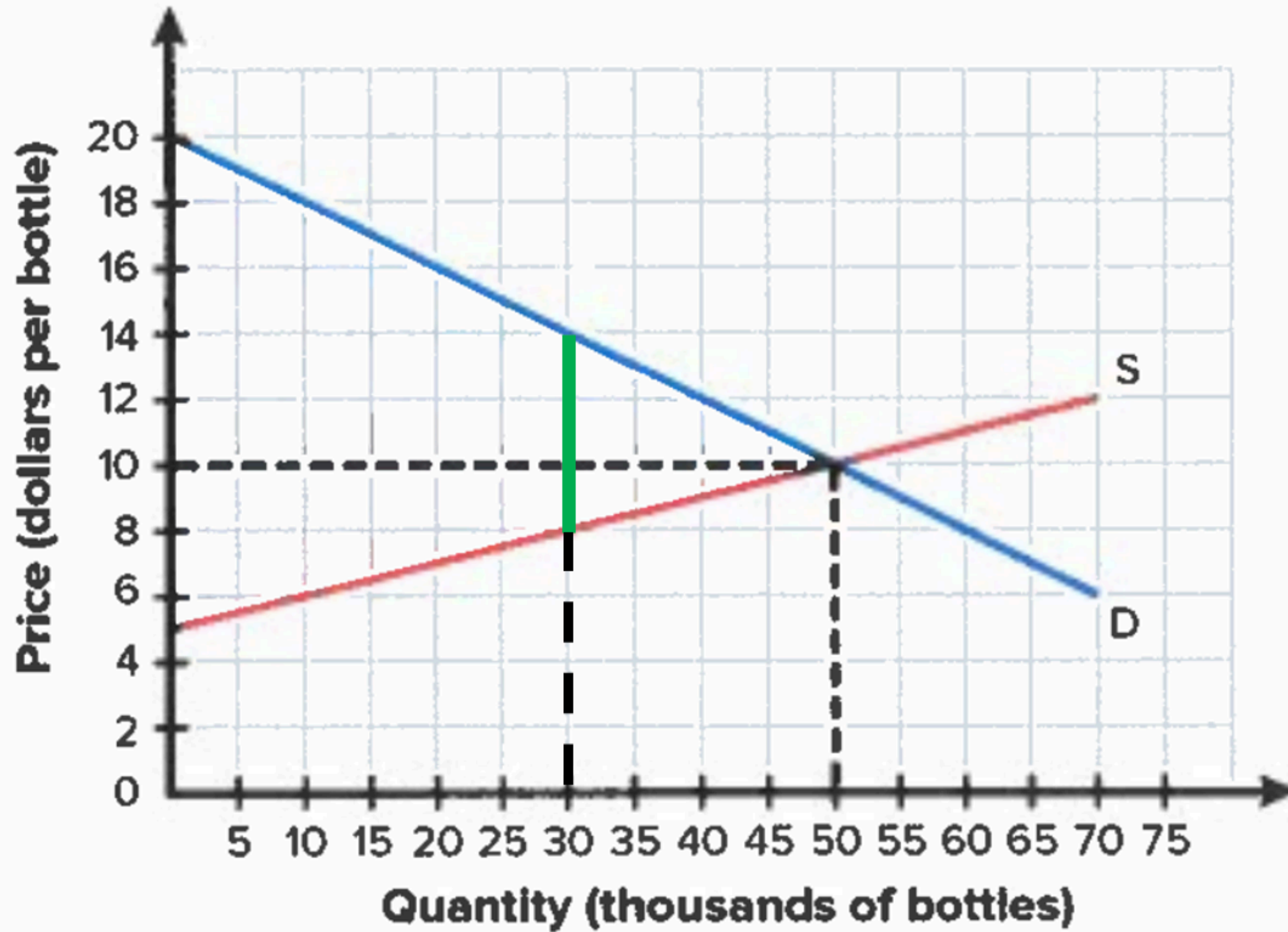


The equilibrium price is \$10/bottle and the equilibrium quantity is 50,000 bottles.

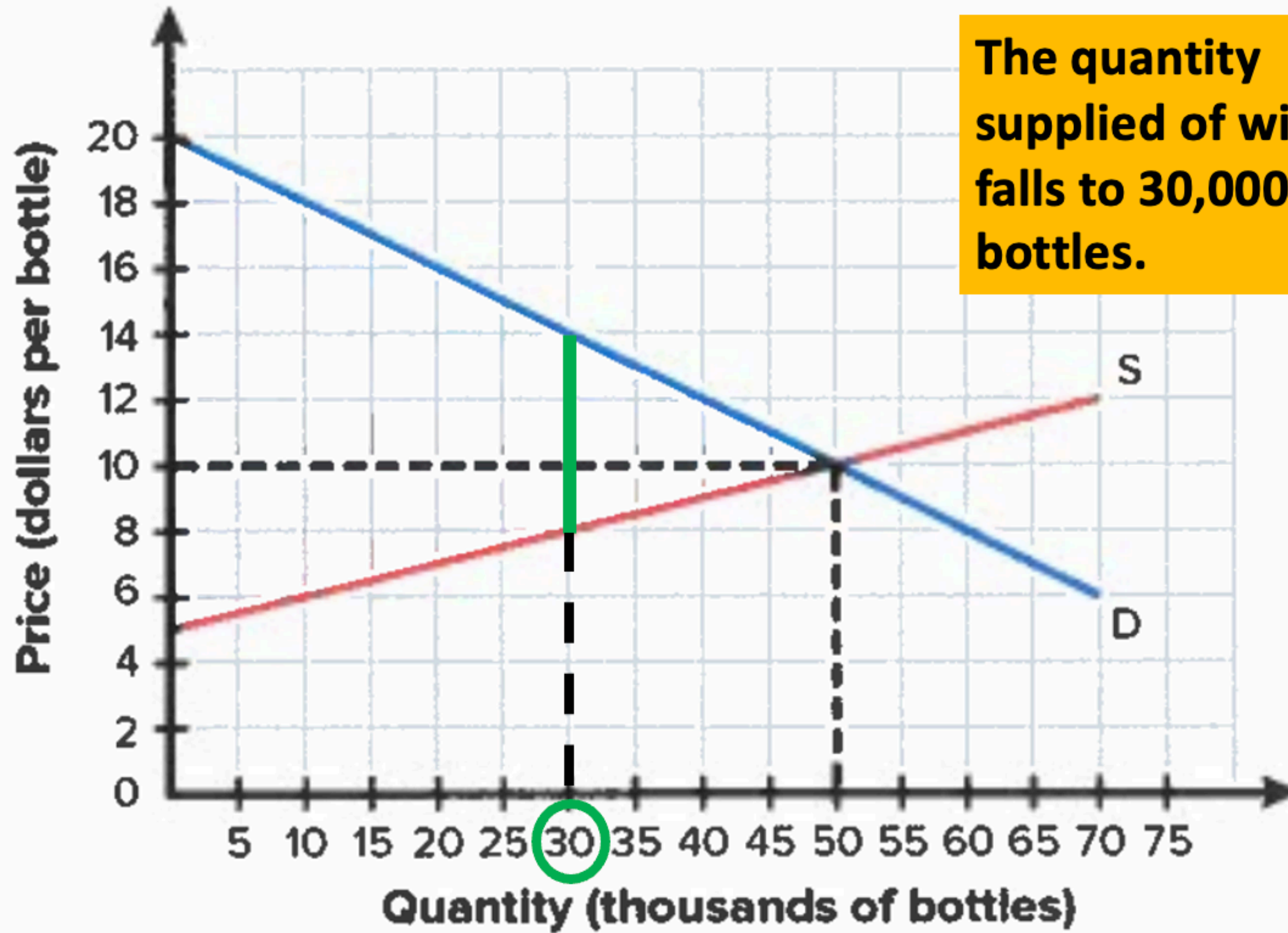
# Market for Wine



# Market for Wine



## Market for Wine



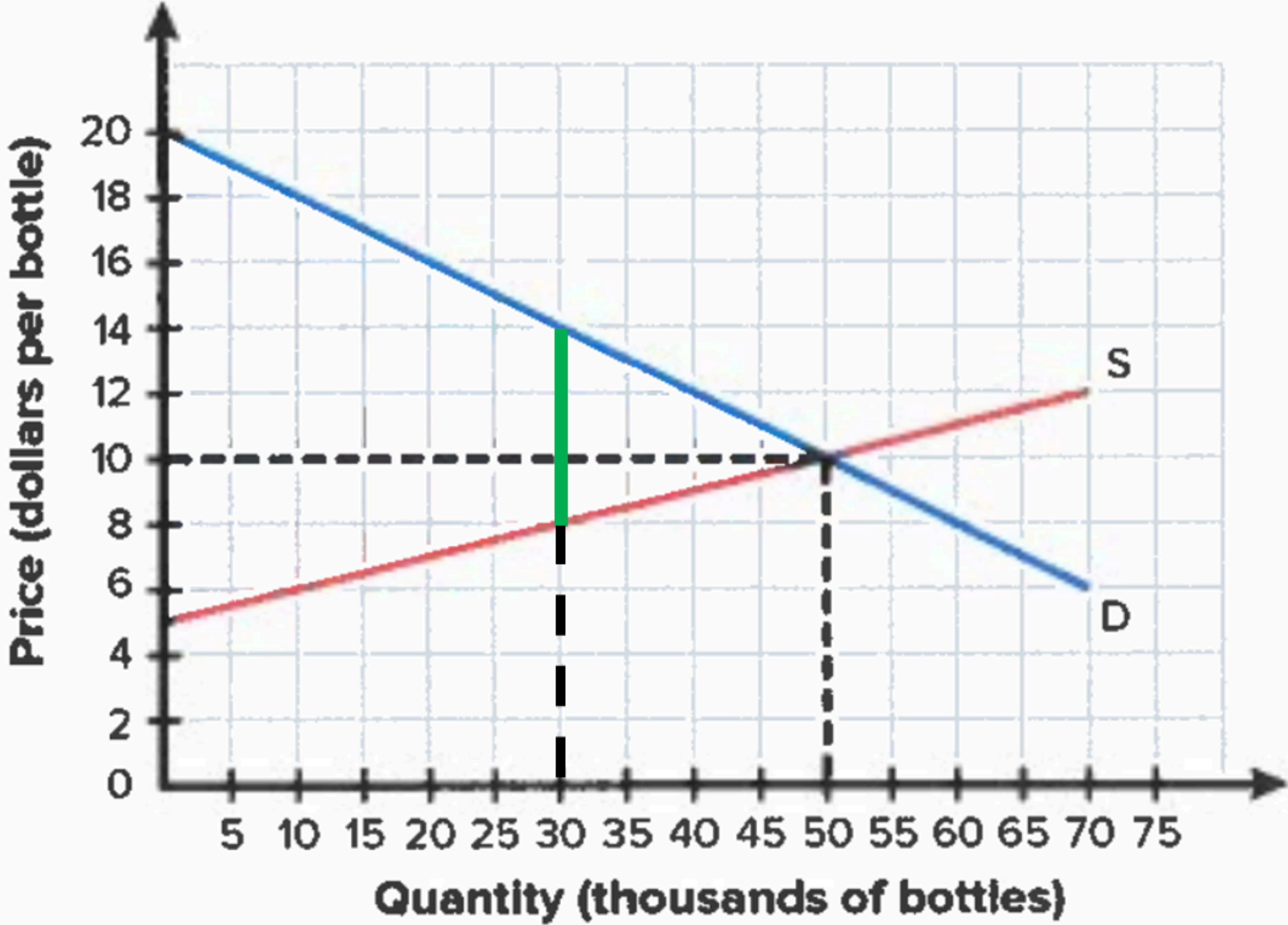
The quantity supplied of wine falls to 30,000 bottles.

# Ex: Tax on Wine Producers

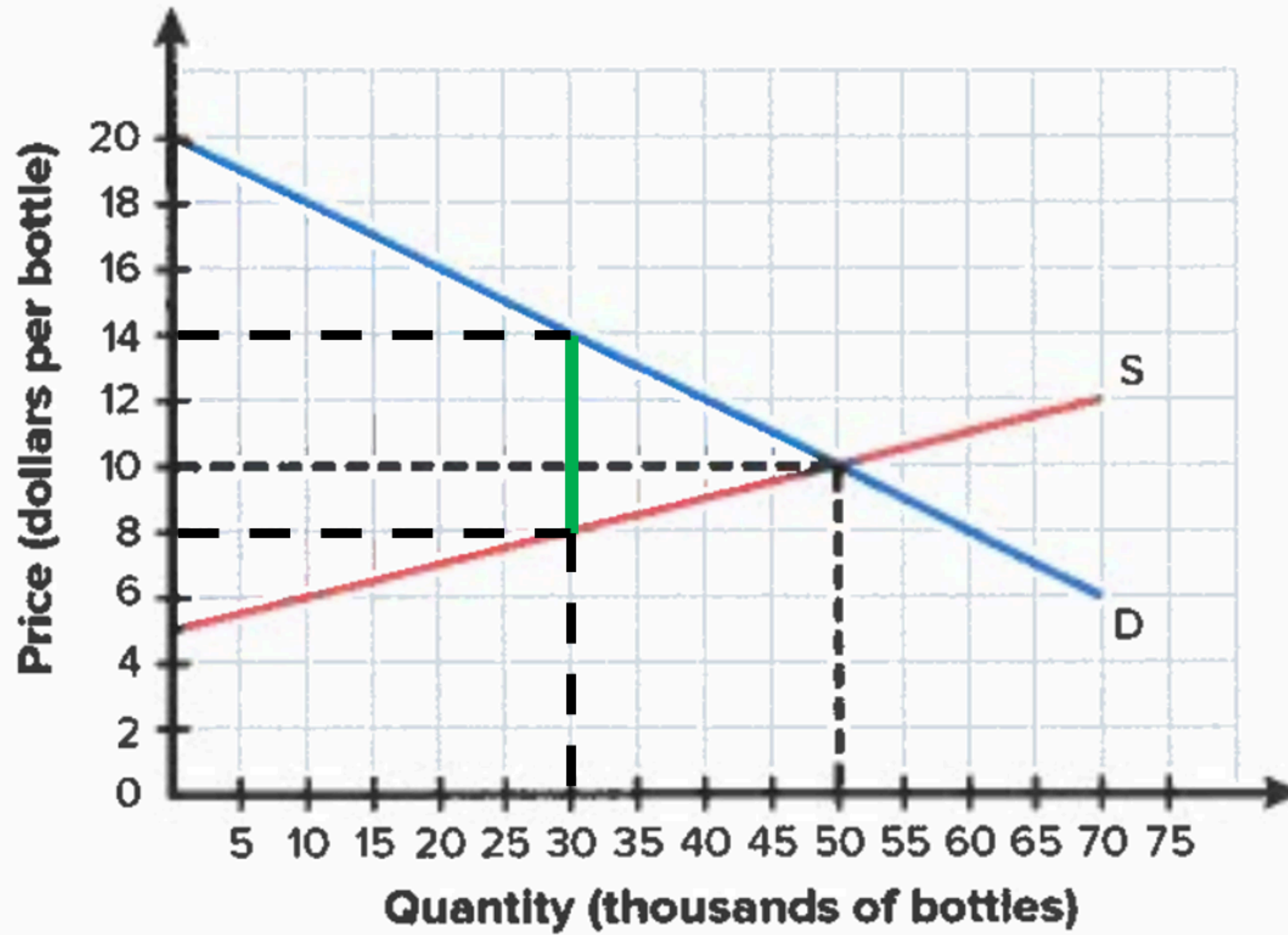


- Suppose that the government imposes a \$6 tax on the sellers of wine.
  - 1. What happens to the quantity supplied in the market after the tax?
  - **2. How much do buyers pay & sellers receive after the tax?**

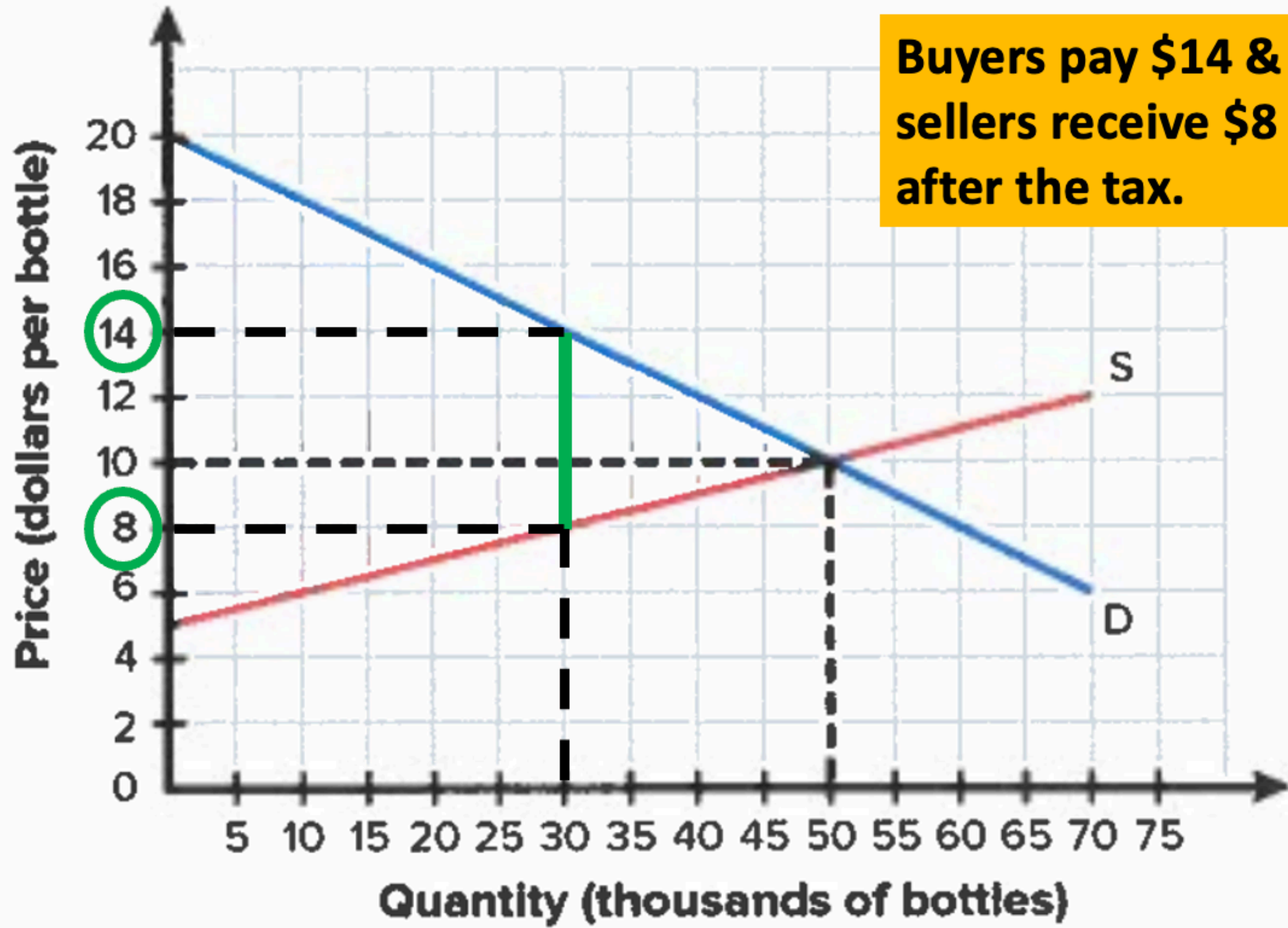
# Market for Wine



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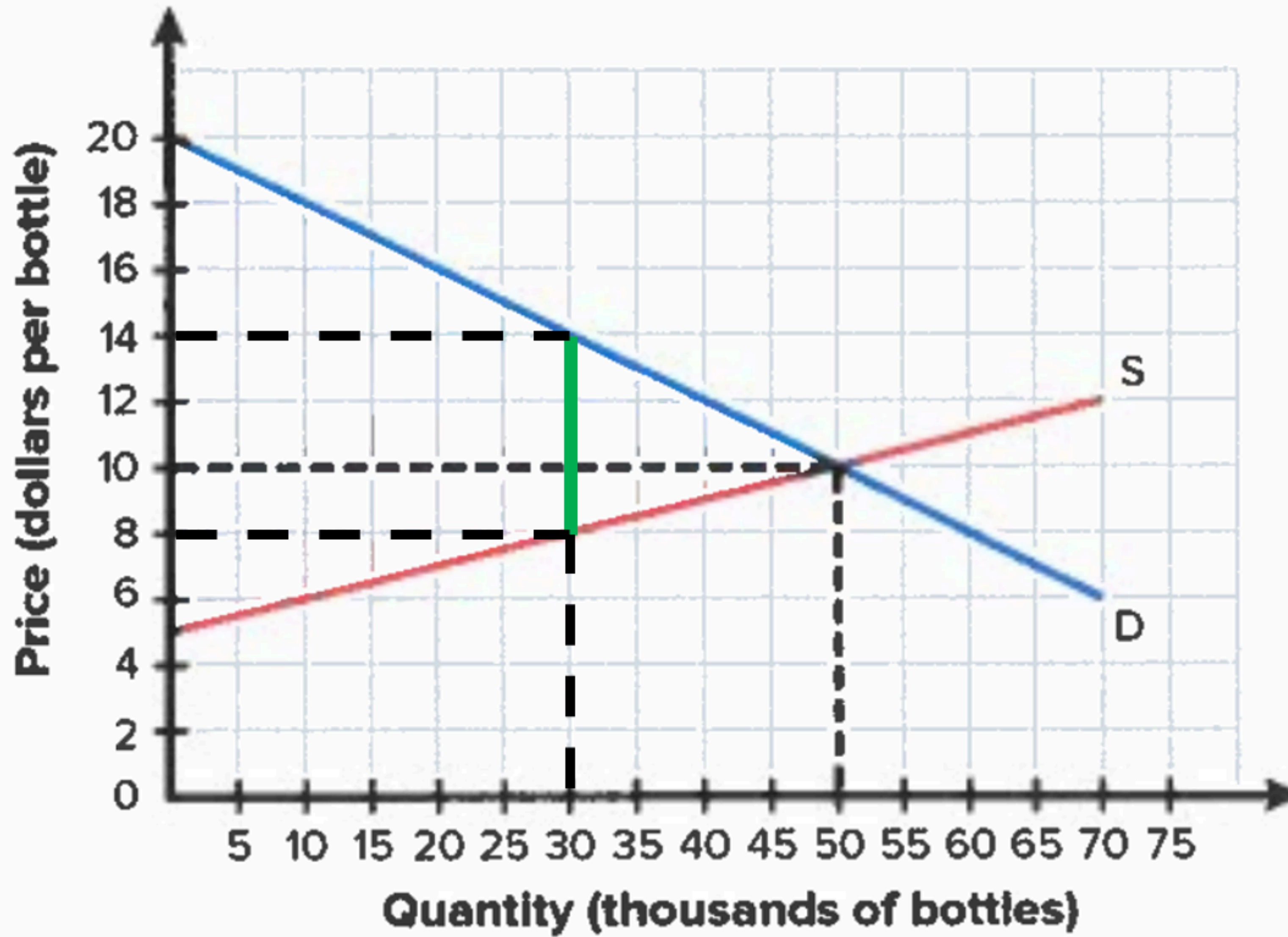
Buyers pay \$14 & sellers receive \$8 after the tax.

# Ex: Tax on Wine Producers



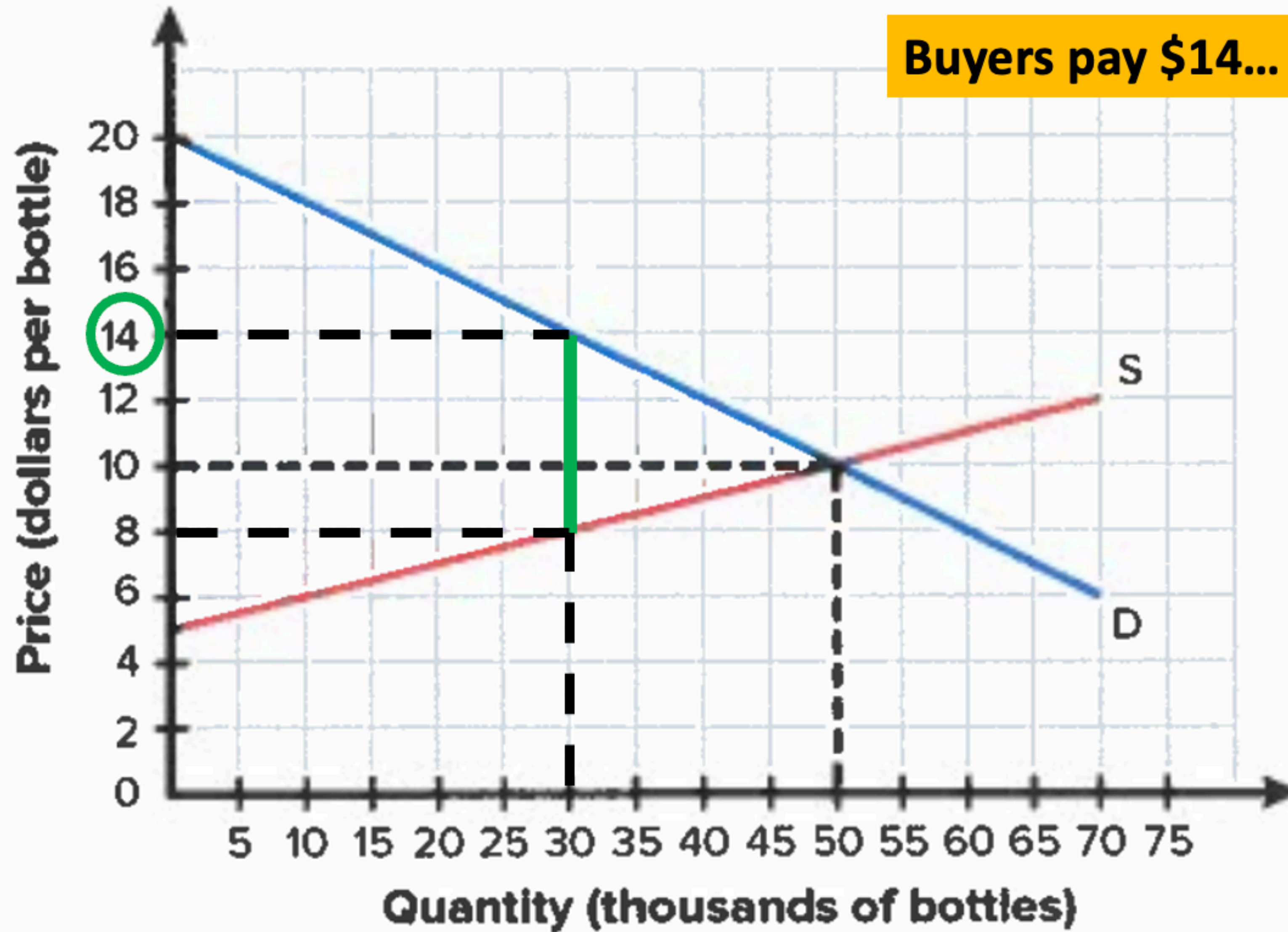
- Suppose that the government imposes a \$6 tax on the sellers of wine.
  - 1. What happens to the quantity supplied in the market after the tax?
  - 2. How much do buyers pay & sellers receive after the tax?
  - **3. What is the buyers share of the tax burden in this market? Sellers?**

# Market for Wine



# Market for Wine

Buyers pay \$14...

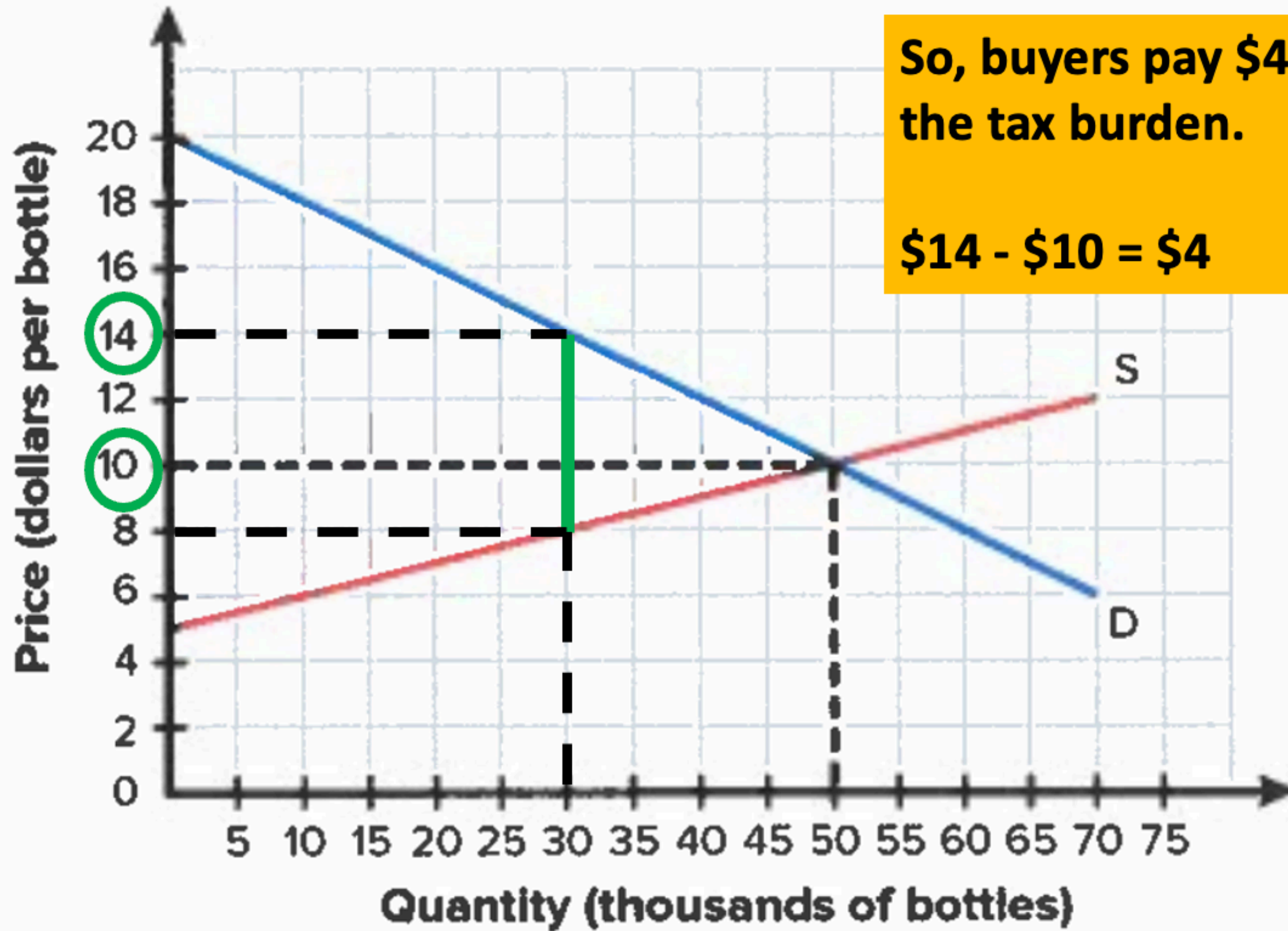


# Market for Wine



Buyers pay \$14...  
...the equilibrium price is only \$10...

# Market for Wine

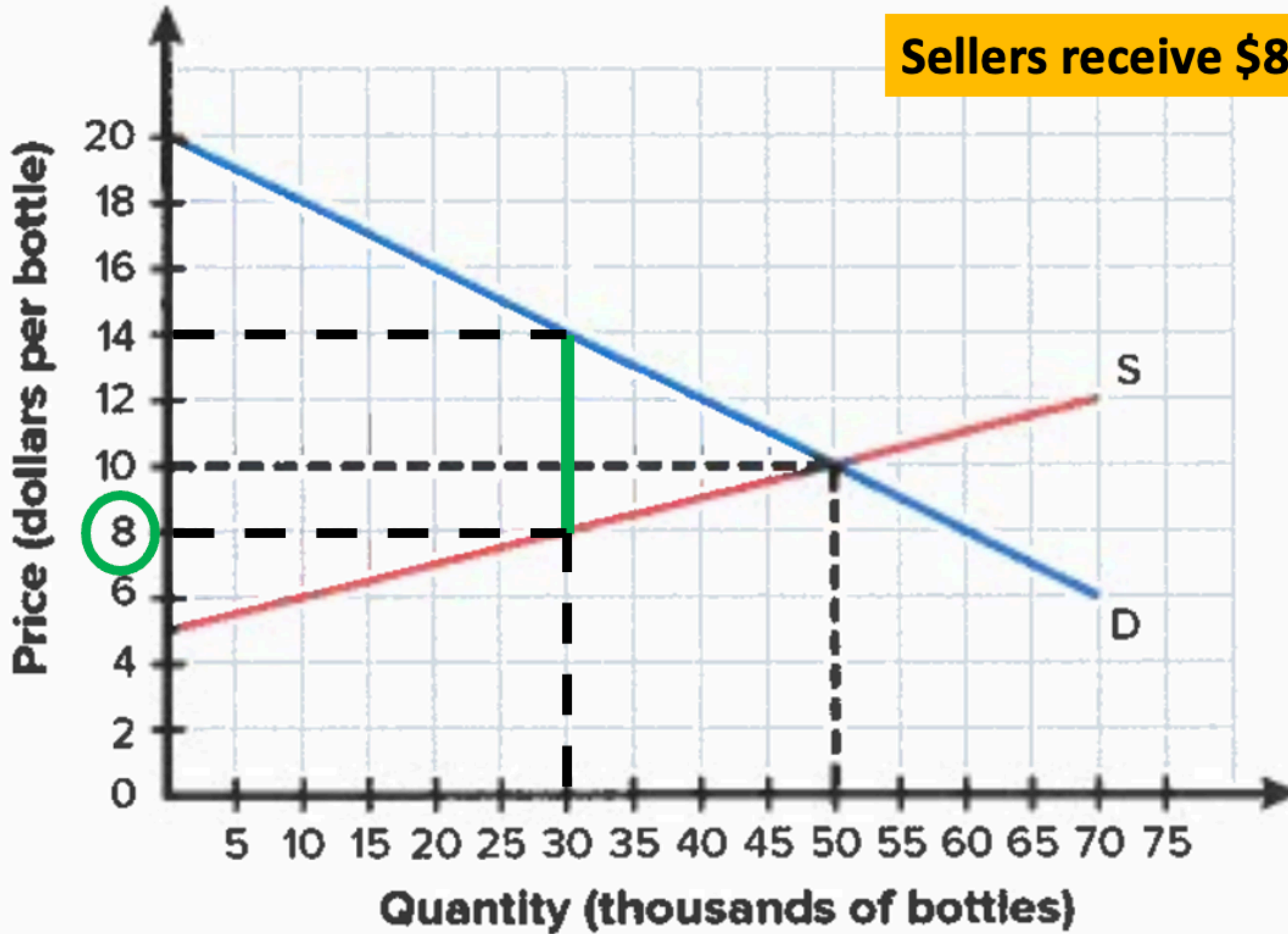


So, buyers pay \$4 of the tax burden.

$$\$14 - \$10 = \$4$$

# Market for Wine

**Sellers receive \$8...**

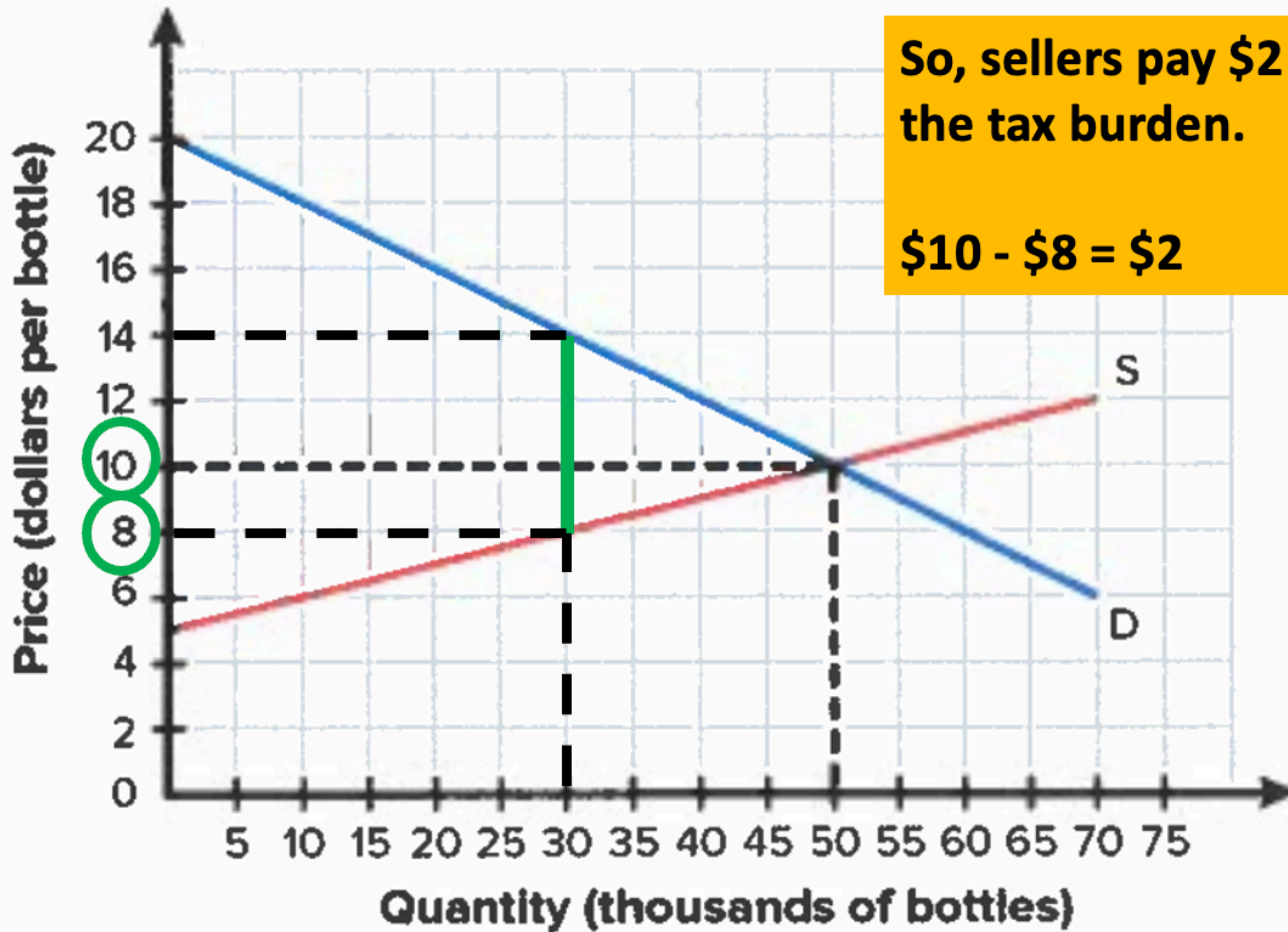


# Market for Wine



**Sellers receive \$8...  
...the equilibrium  
price is \$10...**

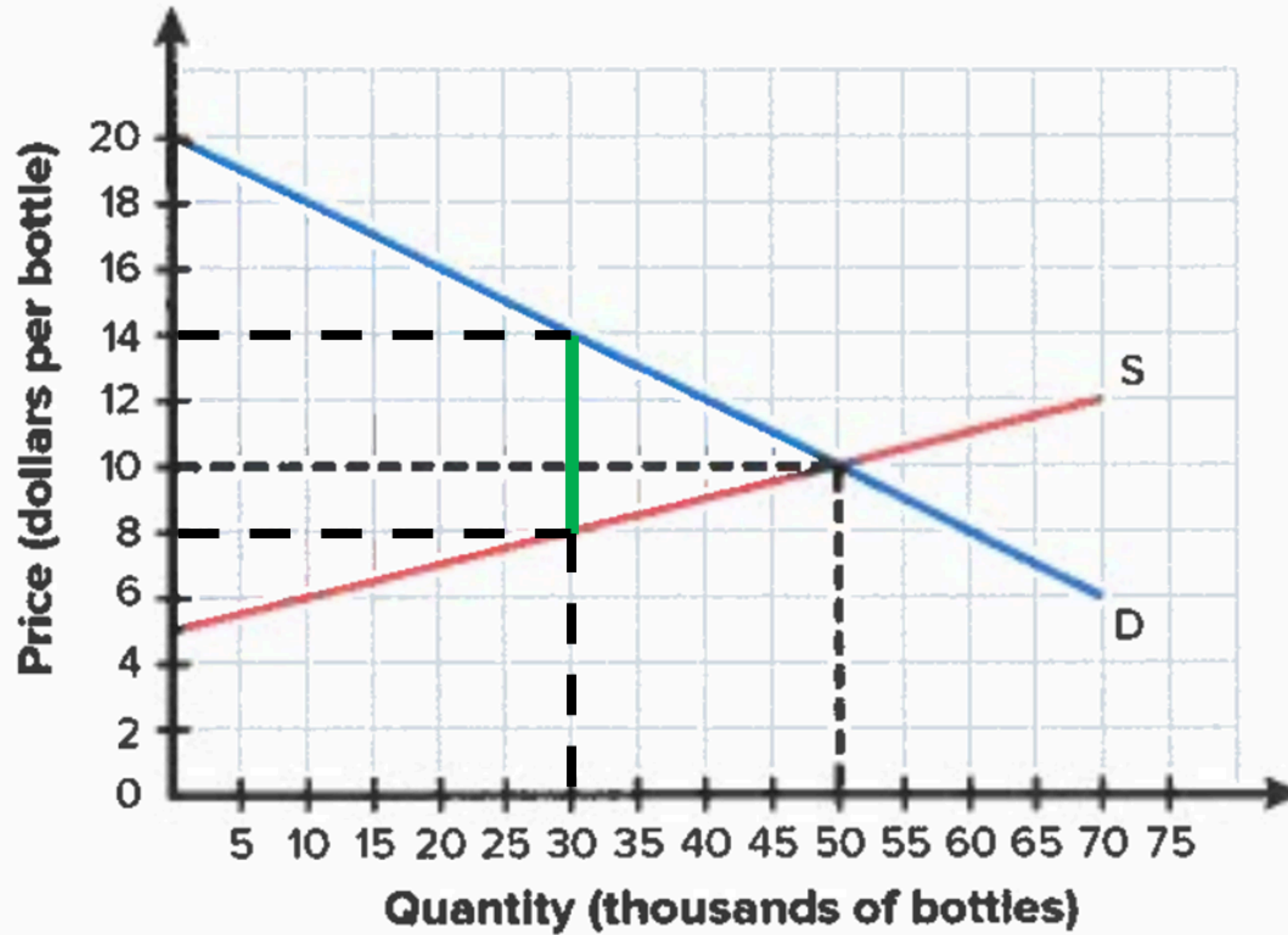
# Market for Wine



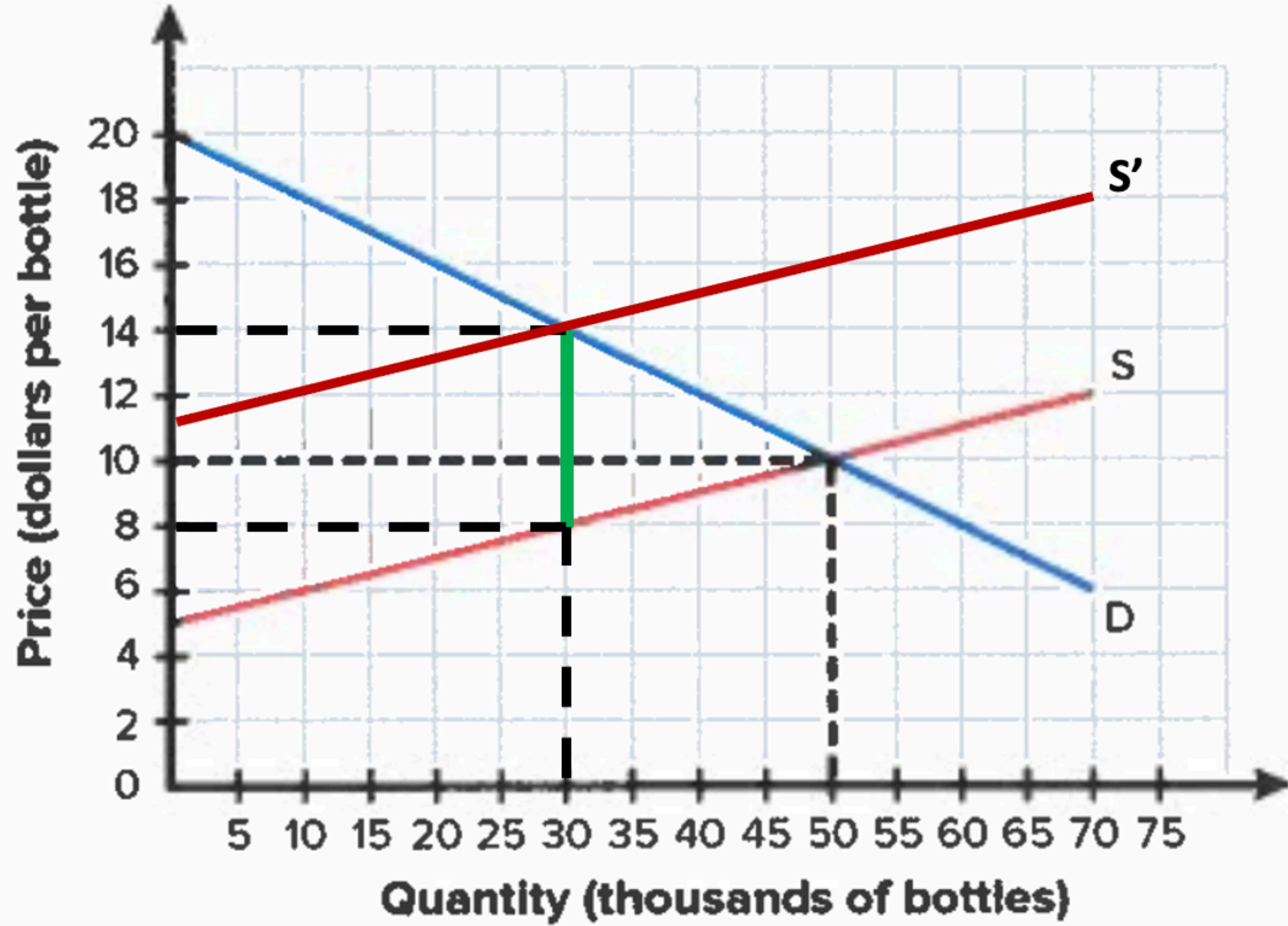
So, sellers pay \$2 of the tax burden.

$$\$10 - \$8 = \$2$$

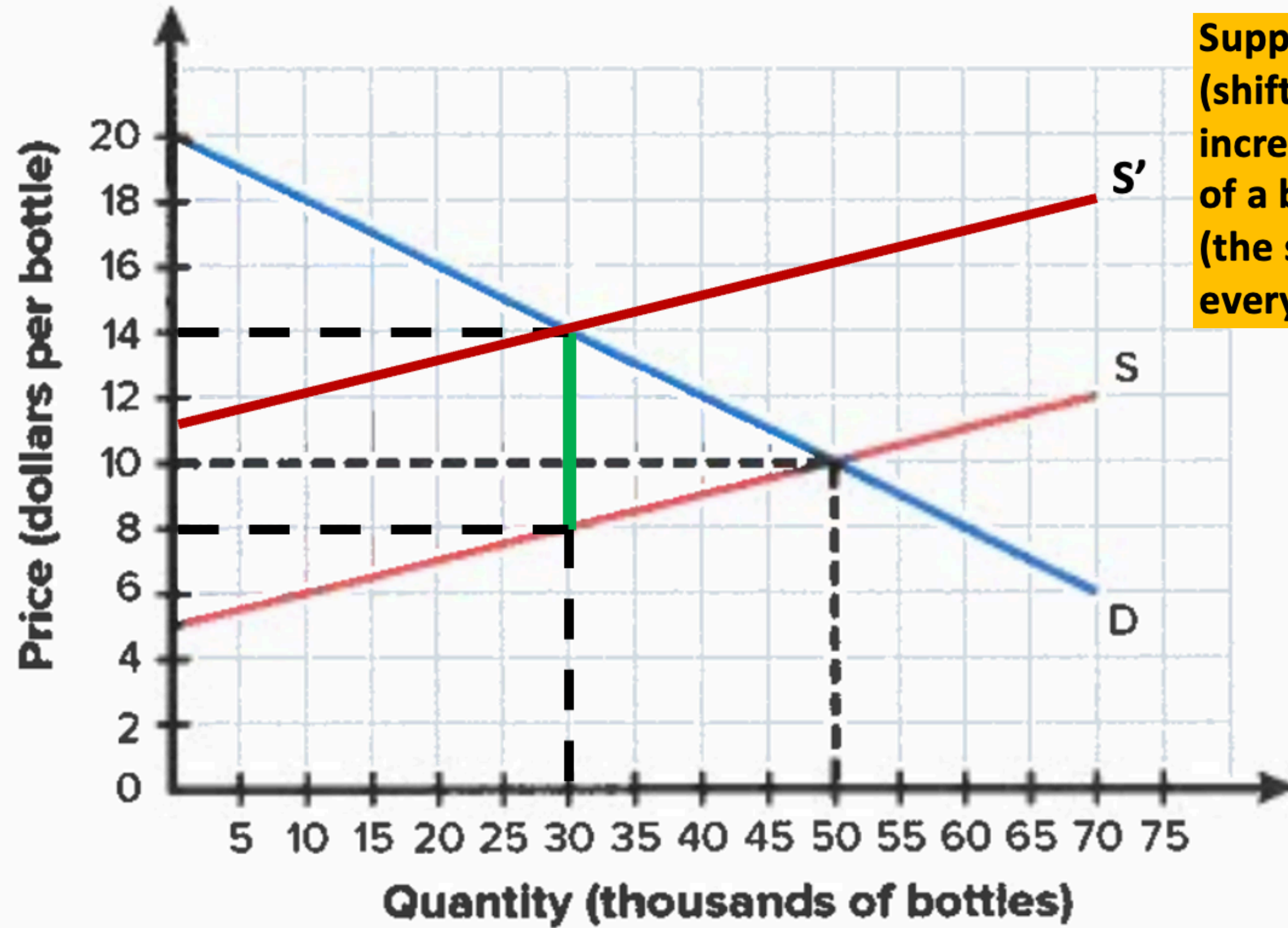
# Market for Wine



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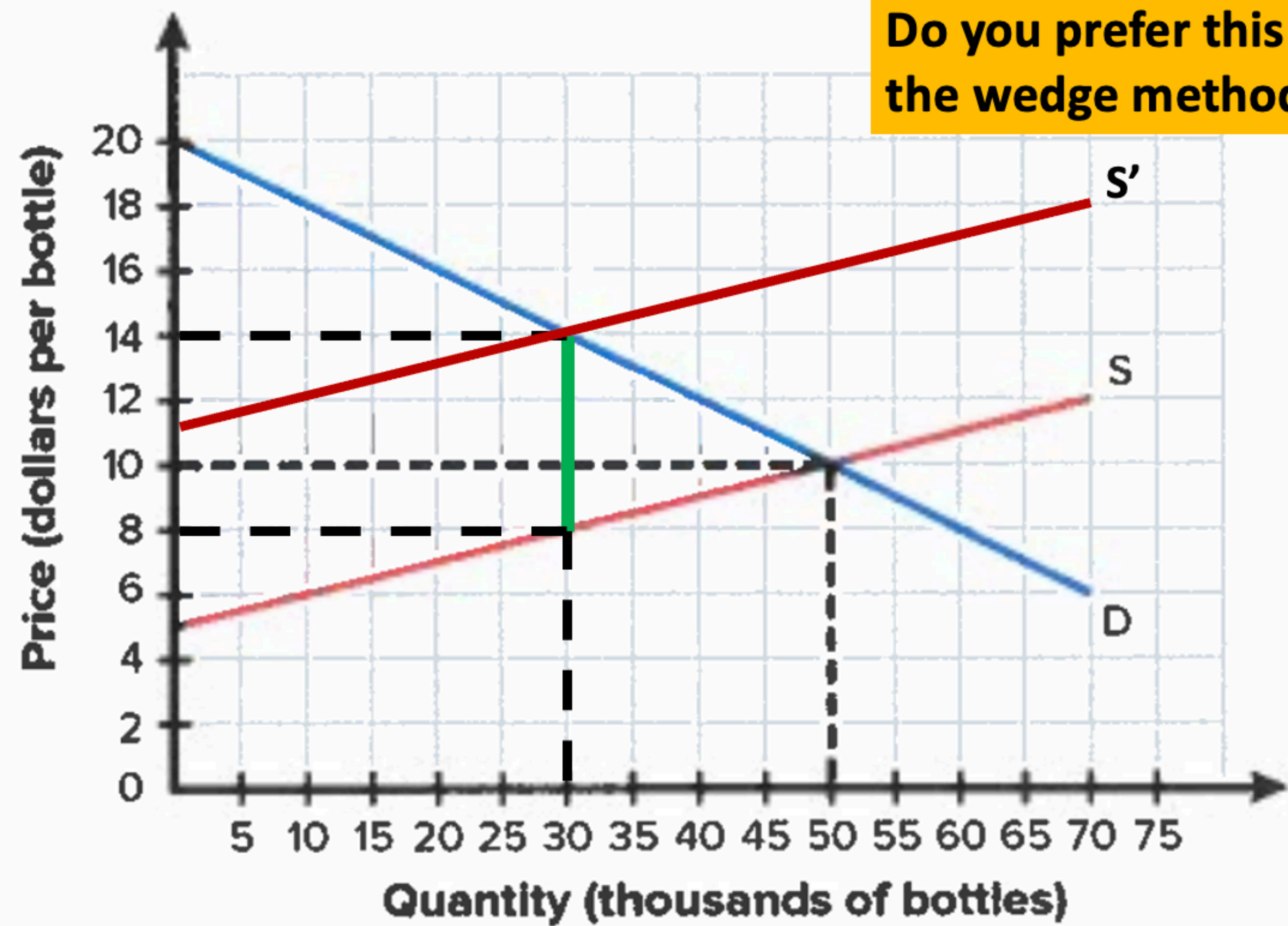
## Market for Wine



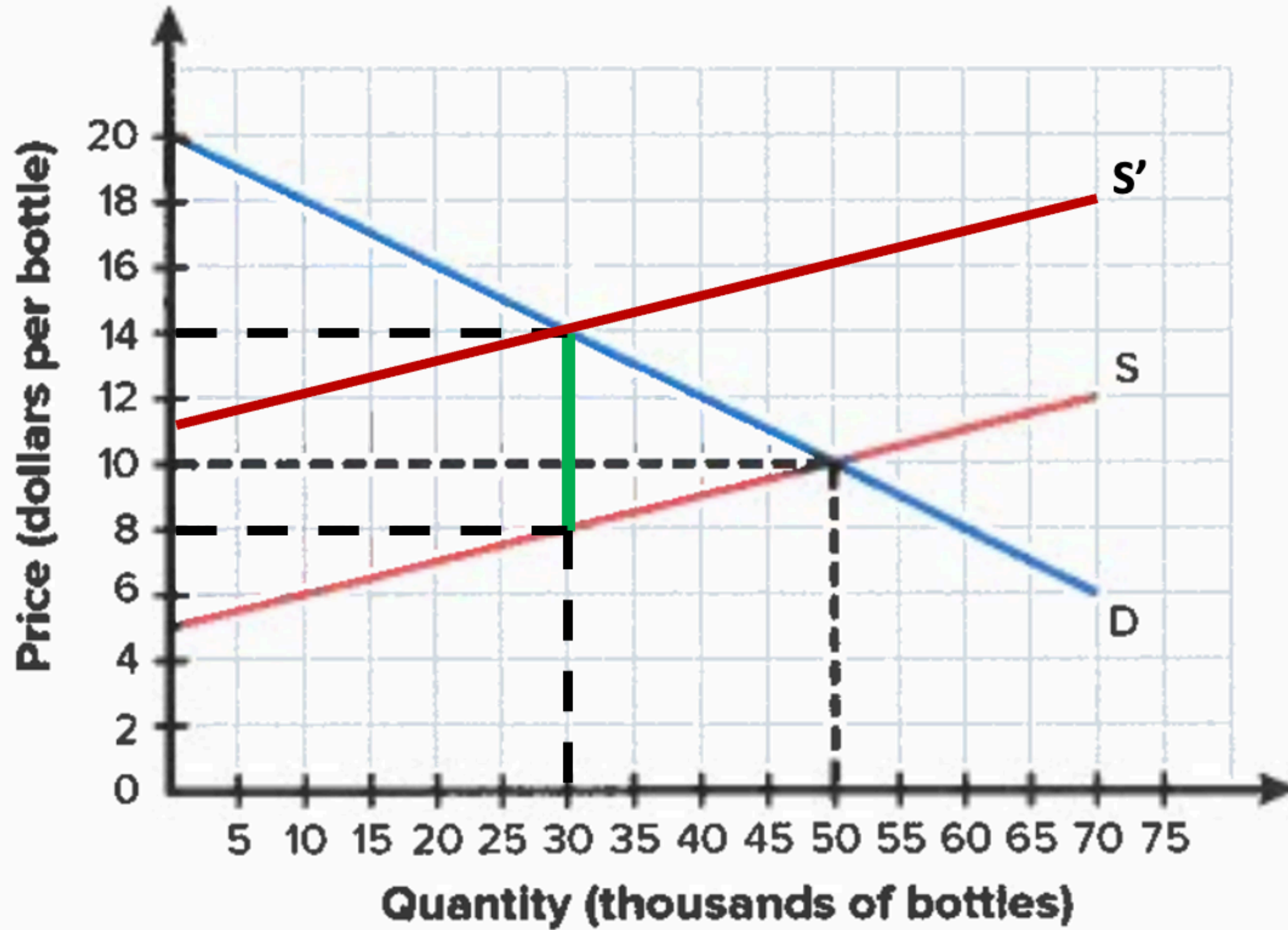
Supply decreases (shifts left), increasing the price of a bottle of wine \$6 (the size of the tax) at every price.

# Market for Wine

Do you prefer this or the wedge method?

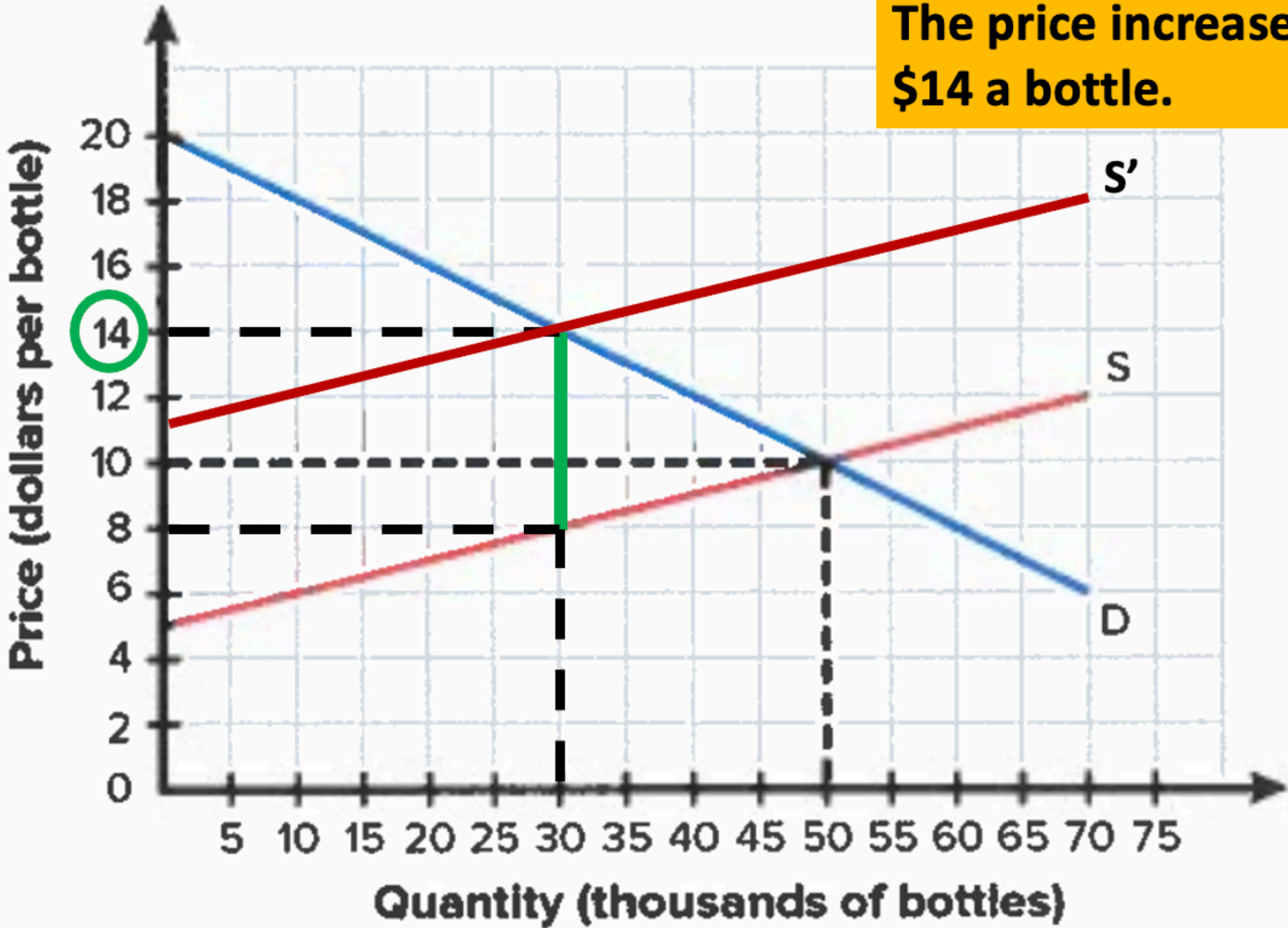


# Market for Wine

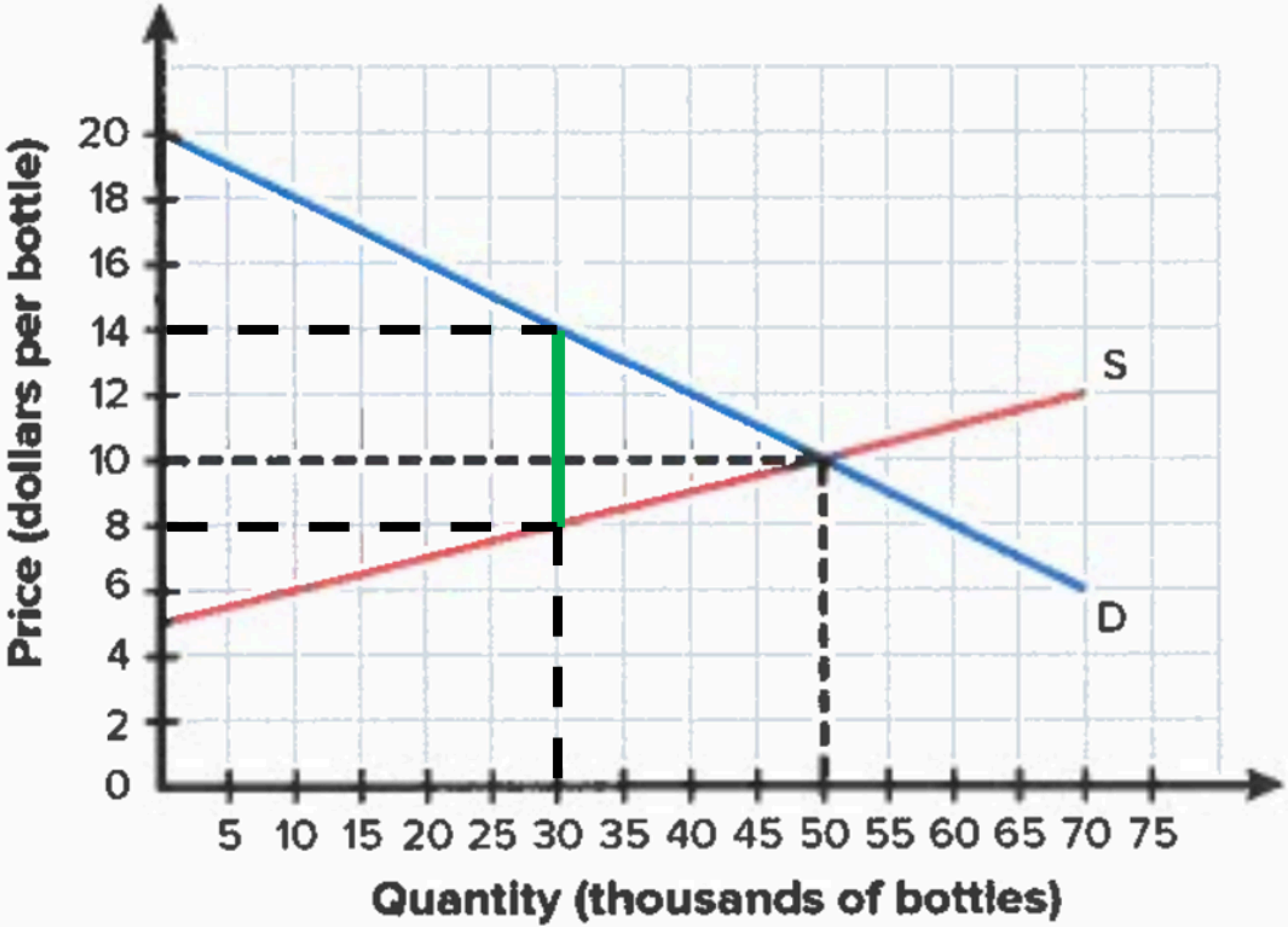


# Market for Wine

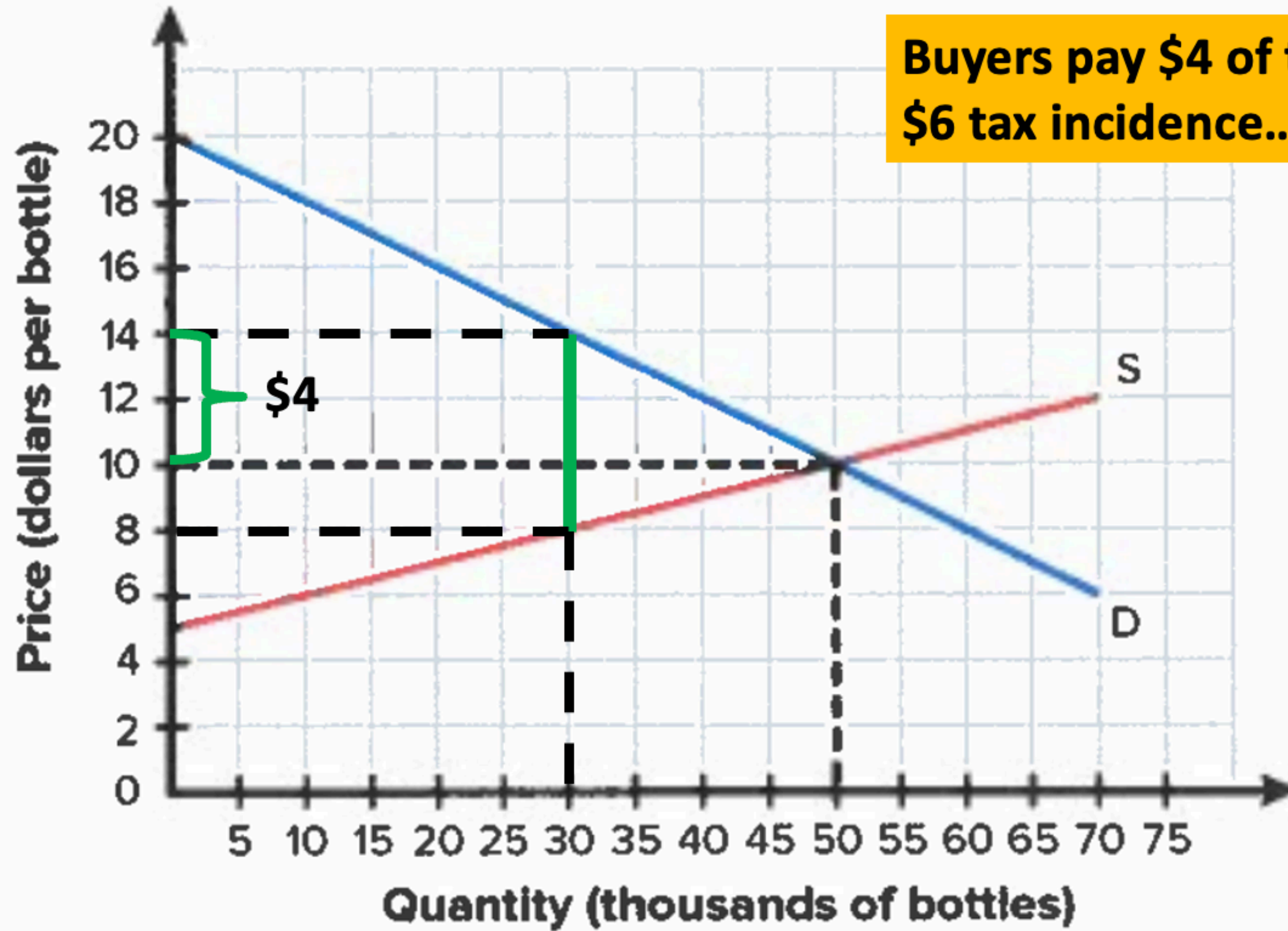
The price increases to \$14 a bottle.



# Market for Wine

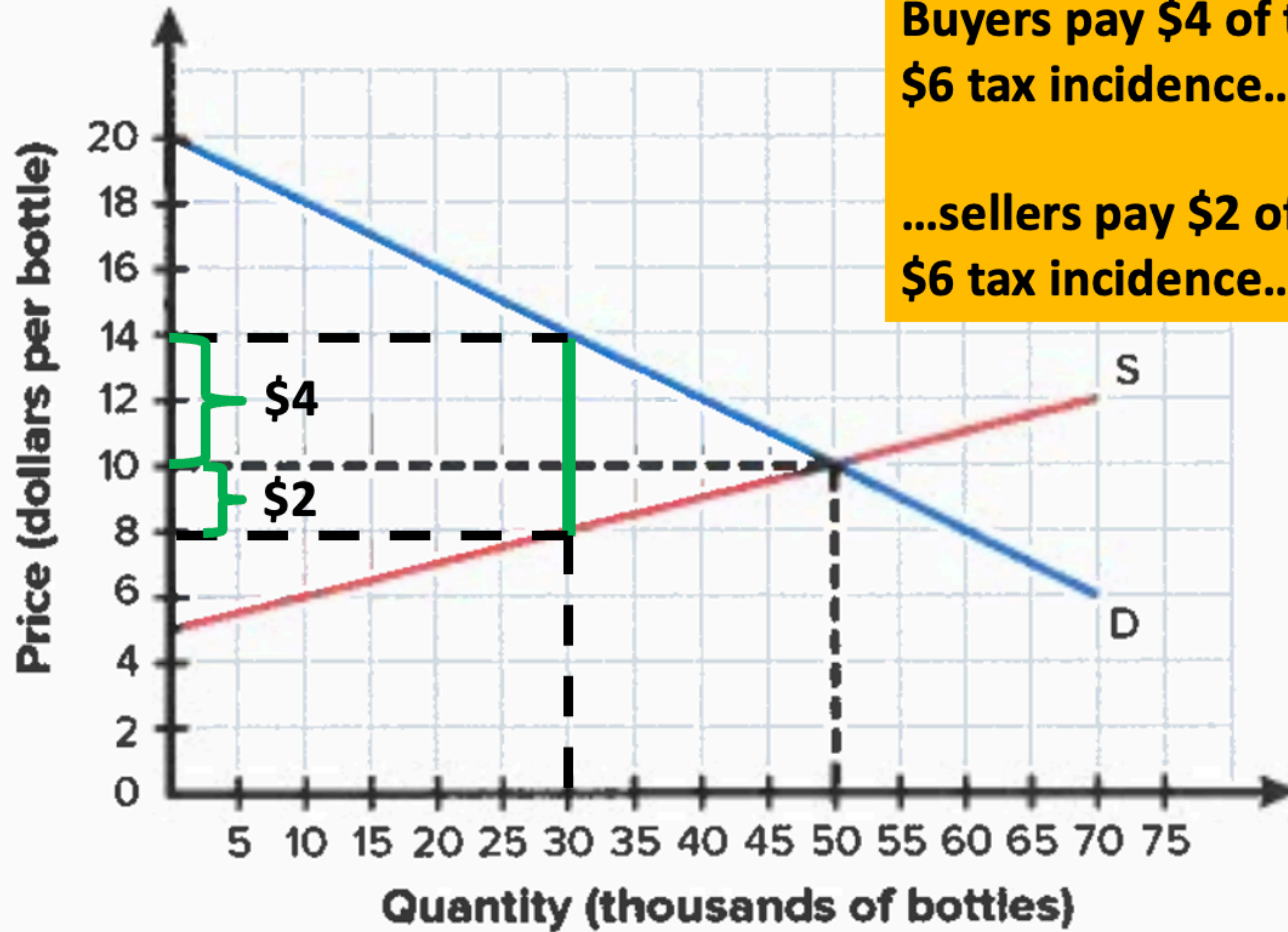


# Market for Wine



Buyers pay \$4 of the \$6 tax incidence...

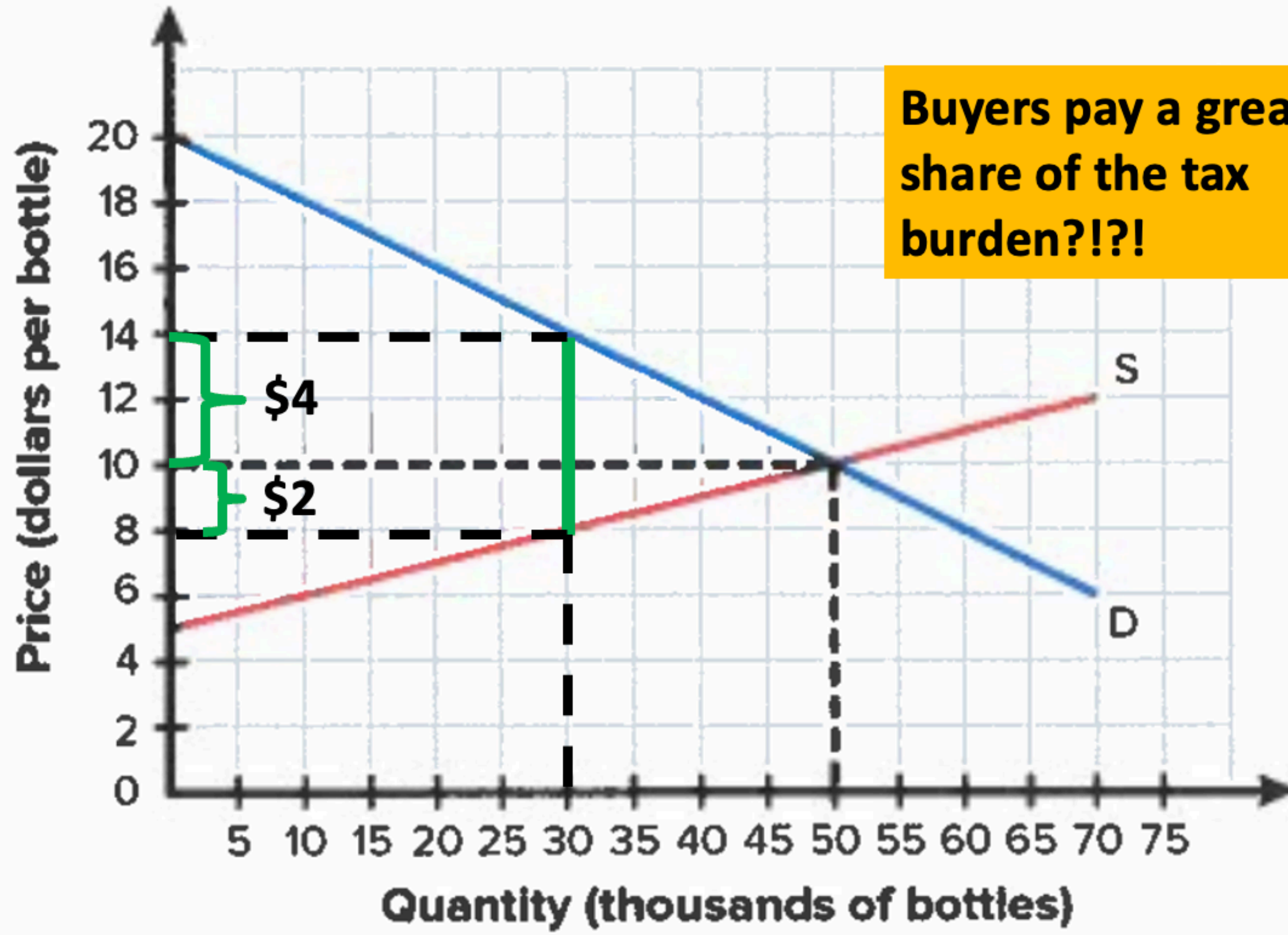
## Market for Wine



Buyers pay \$4 of the \$6 tax incidence...

...sellers pay \$2 of the \$6 tax incidence...

# Market for Wine



**Buyers pay a greater share of the tax burden?!?!**

# Taxes on Sellers (Generally)

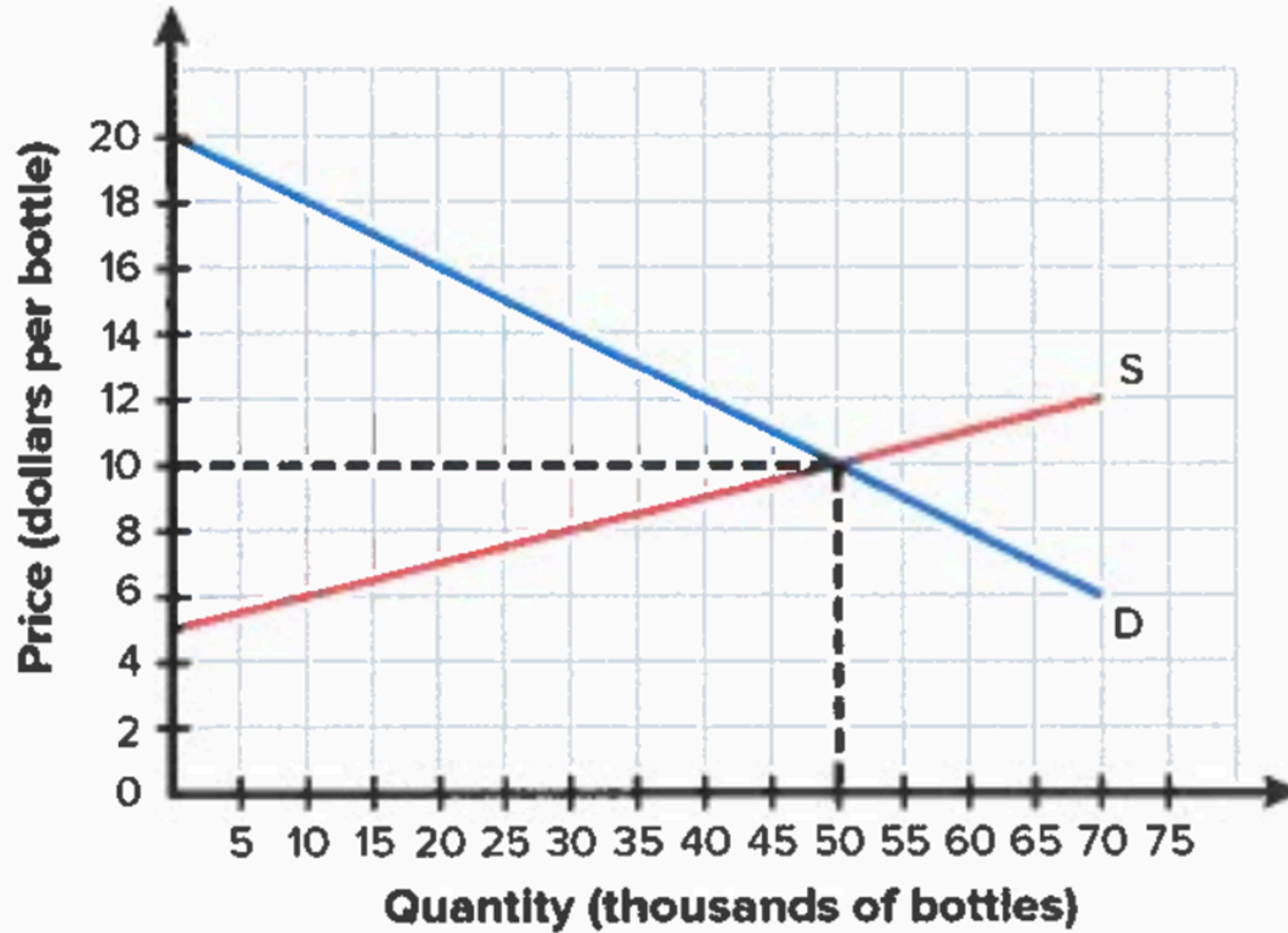
- Taxes decreases supply (shifts it left).
  - The price of the good increases & the quantity supplied decreases.
  - The size of the market shrinks!
  - Why?
- Incentives!
  - Producers don't want to produce if they lose money on each good.

# Ex: Tax on Wine Producers

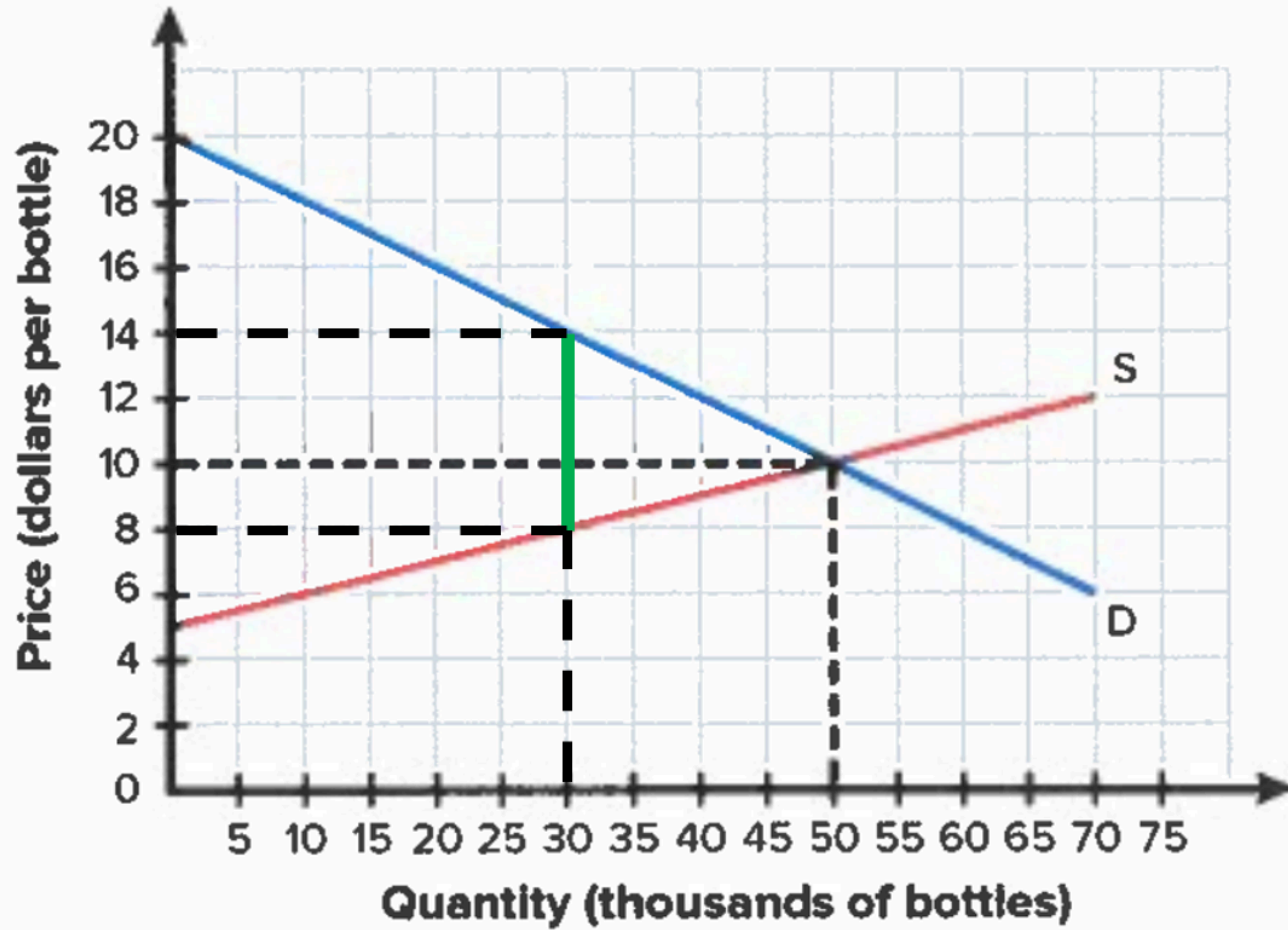


- Suppose that the government imposes a \$6 tax on the buyers of wine.
  - **1. Assuming all else equal, how does the problem change now that the tax is imposed on the buyers?**

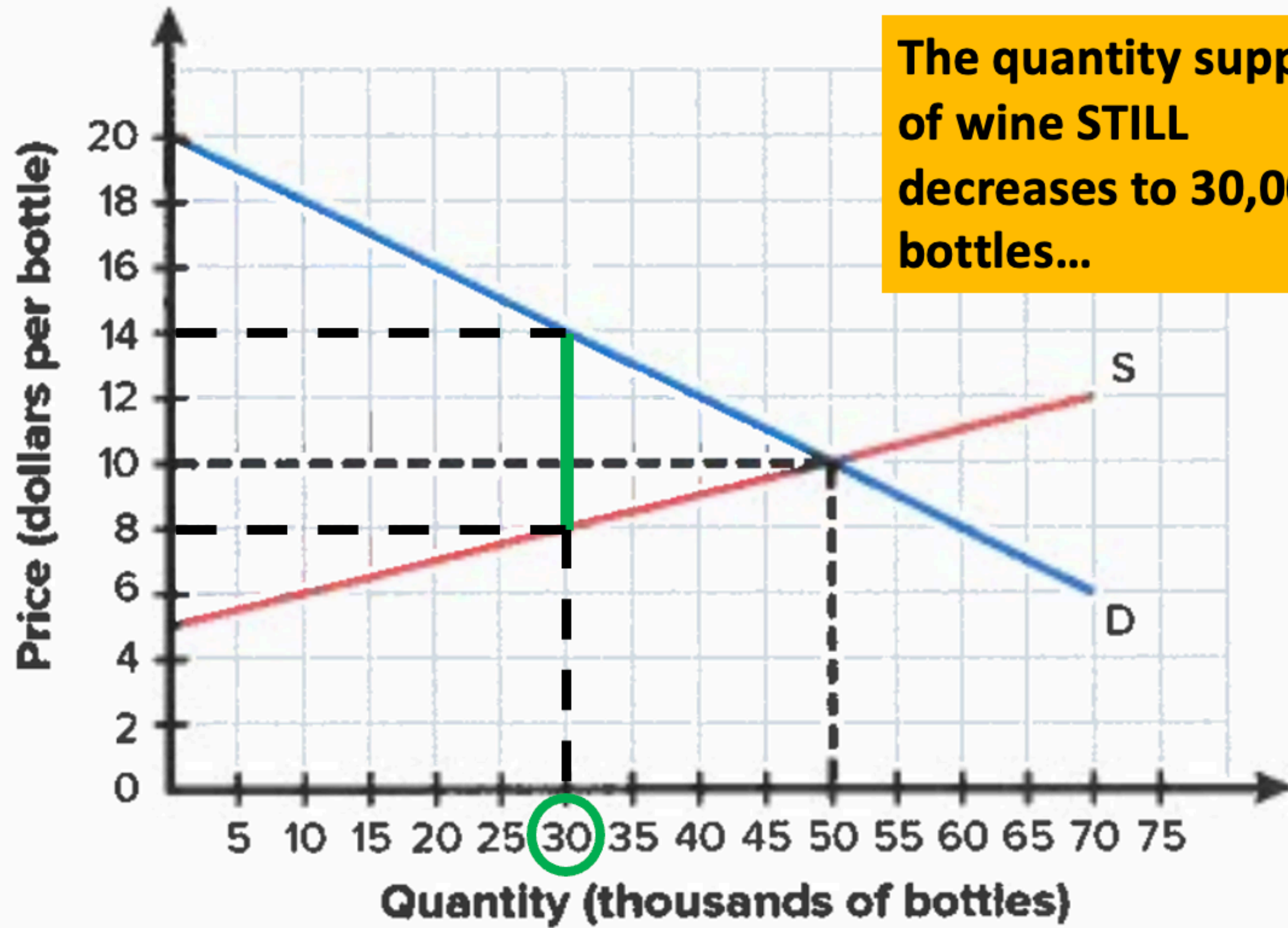
## Market for Wine



# Market for Wine

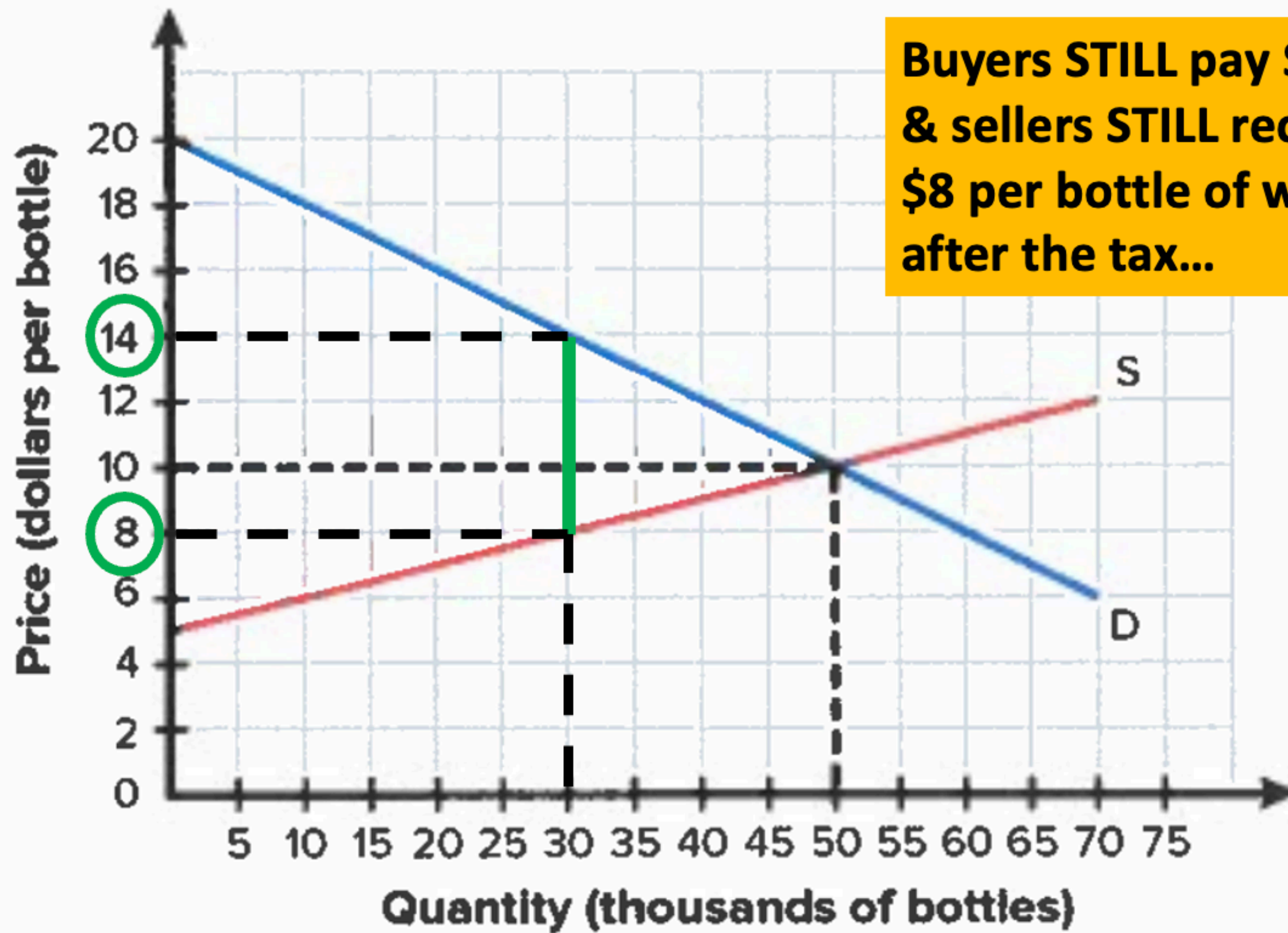


## Market for Wine



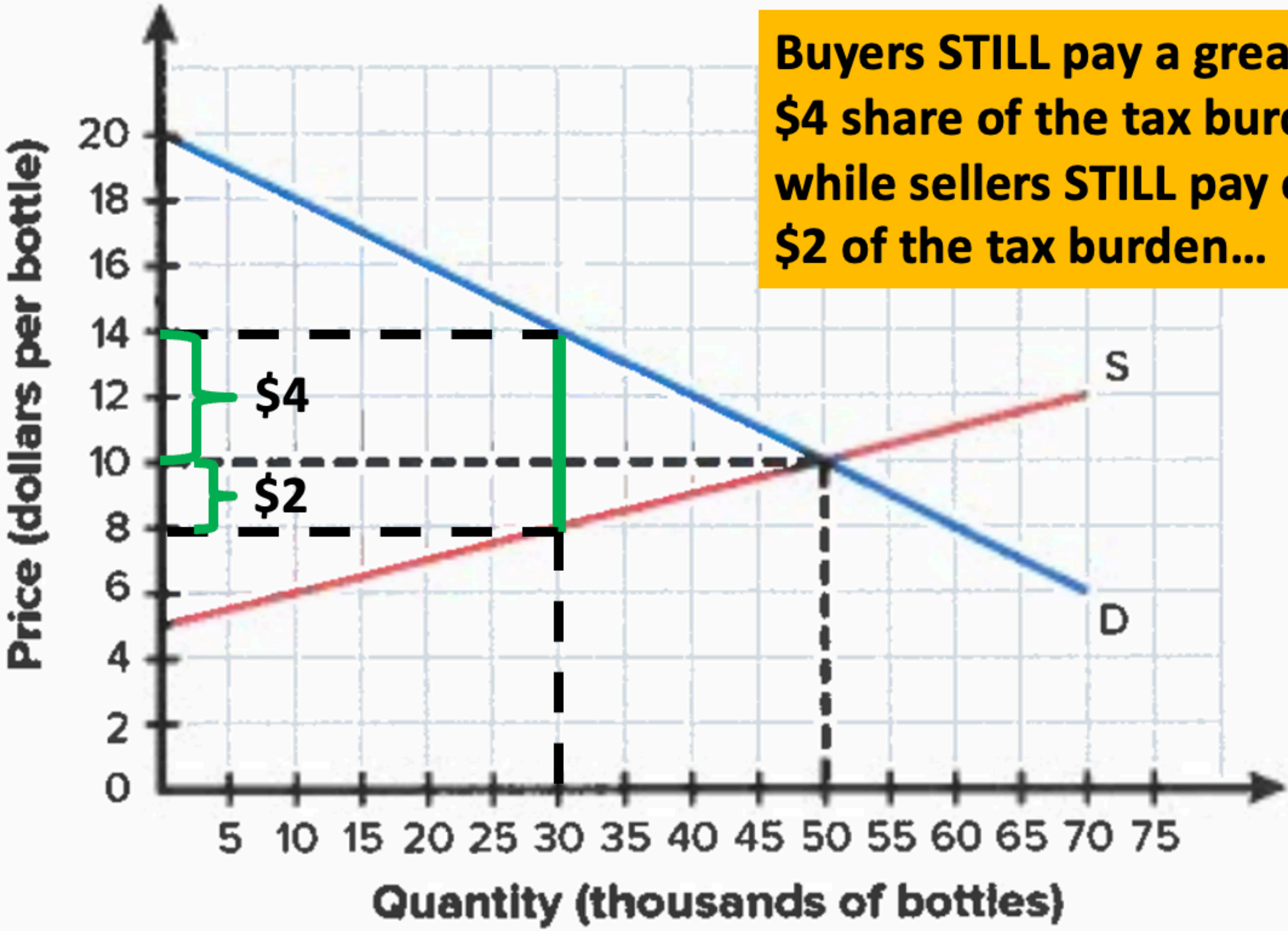
The quantity supplied of wine **STILL** decreases to 30,000 bottles...

# Market for Wine



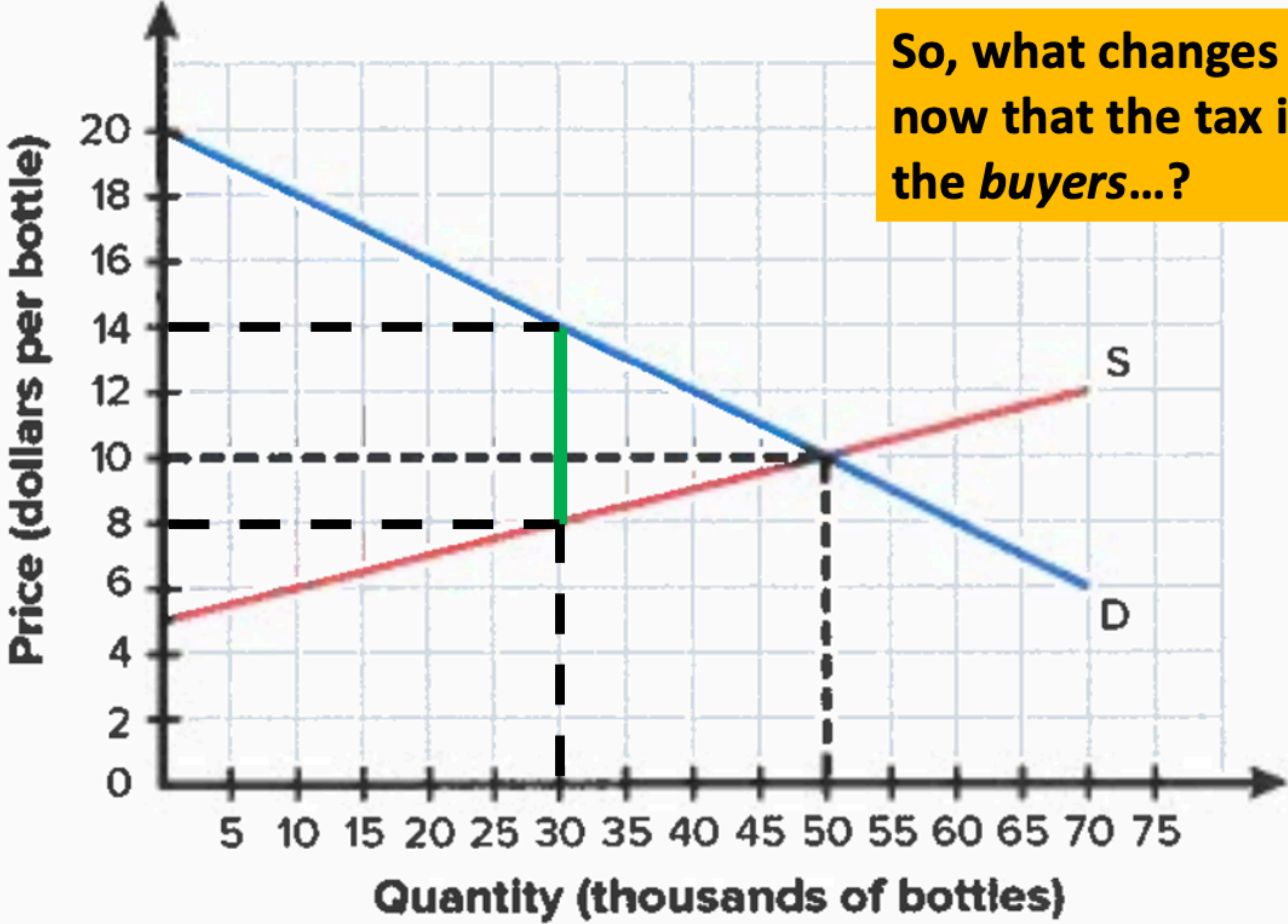
**Buyers STILL pay \$14  
& sellers STILL receive  
\$8 per bottle of wine  
after the tax...**

# Market for Wine



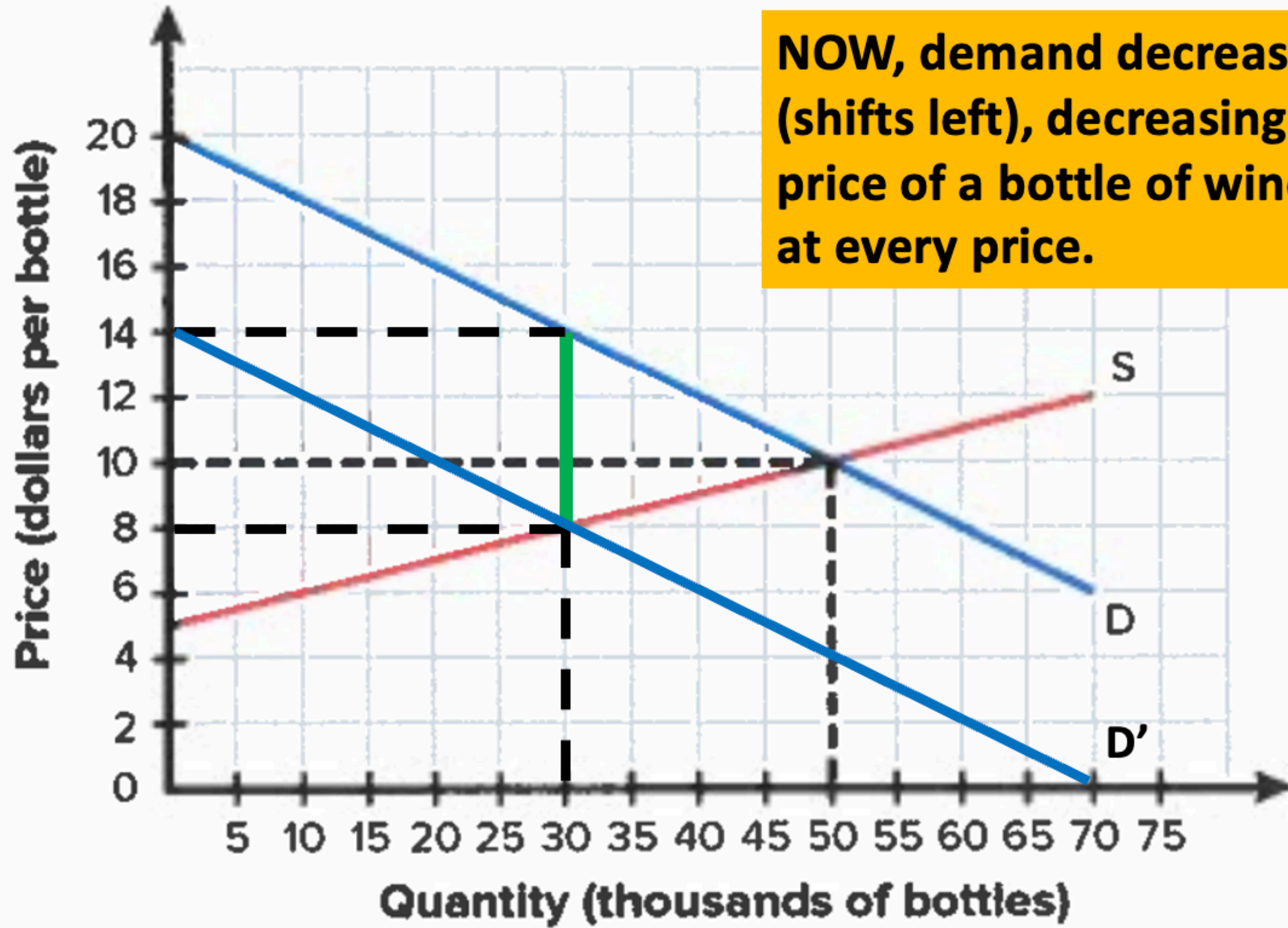
**Buyers STILL pay a greater \$4 share of the tax burden, while sellers STILL pay only \$2 of the tax burden...**

# Market for Wine



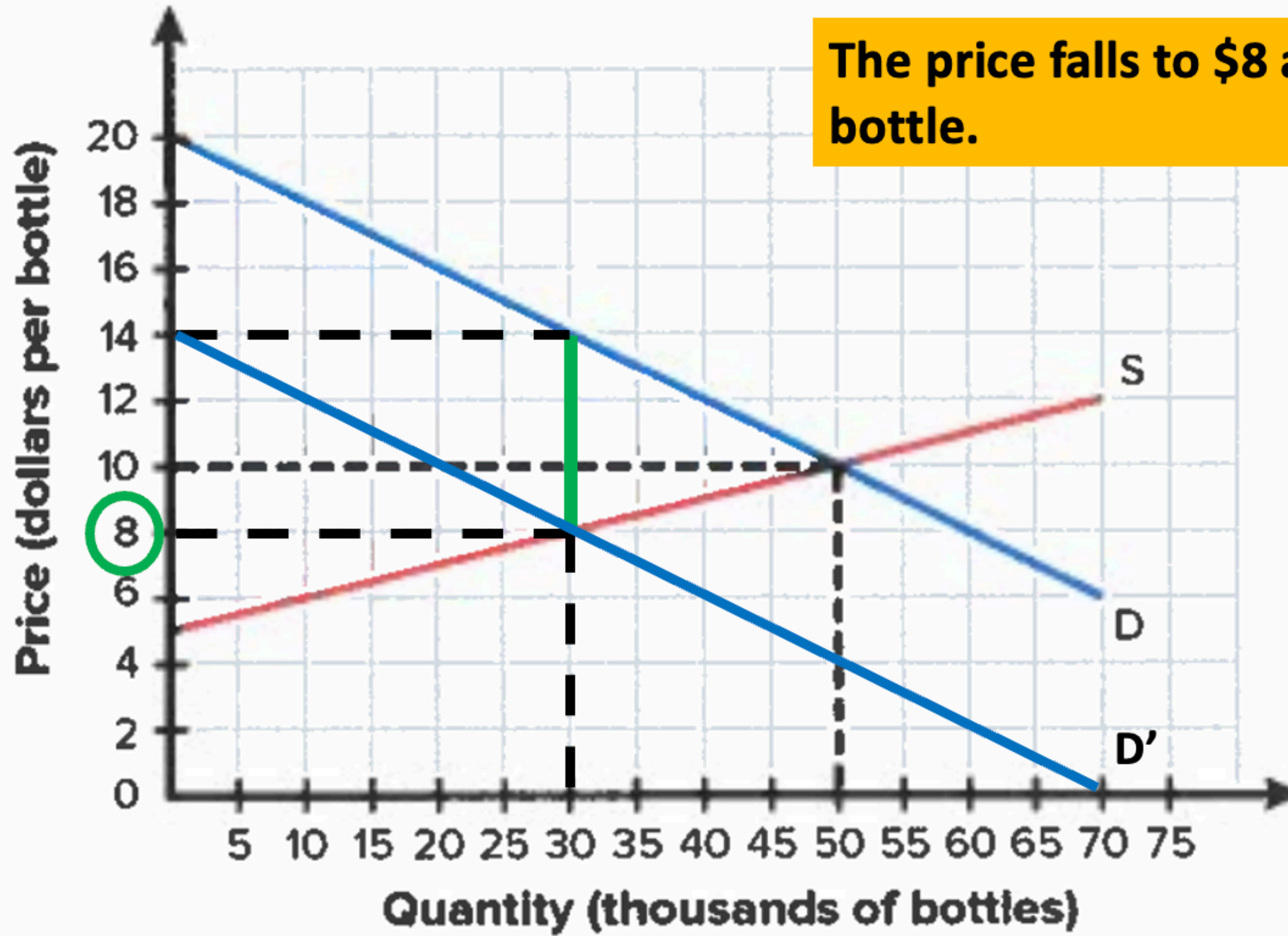
So, what changes now that the tax is on the *buyers*...?

## Market for Wine

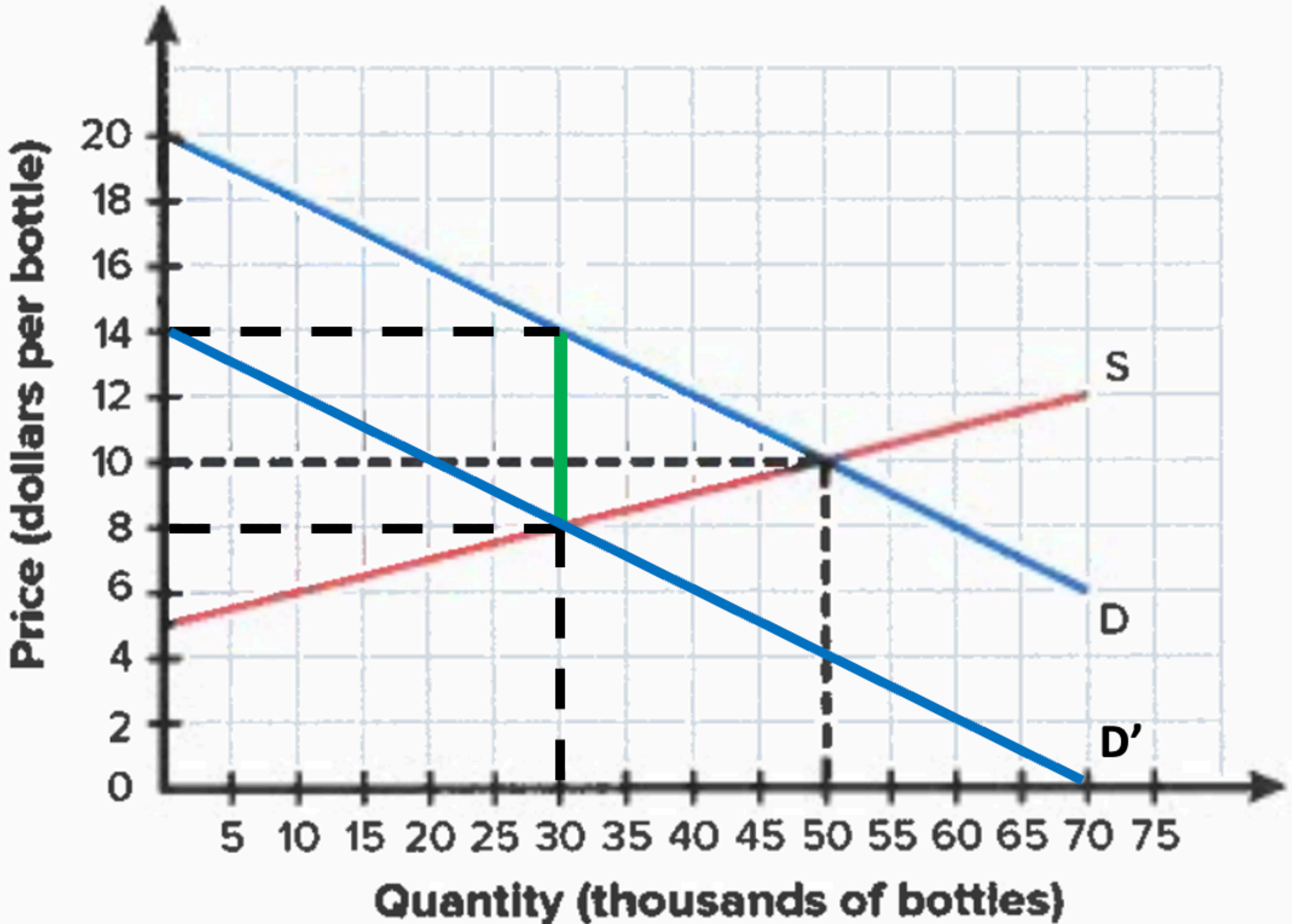


**NOW, demand decreases (shifts left), decreasing the price of a bottle of wine \$6 at every price.**

## Market for Wine



# Market for Wine



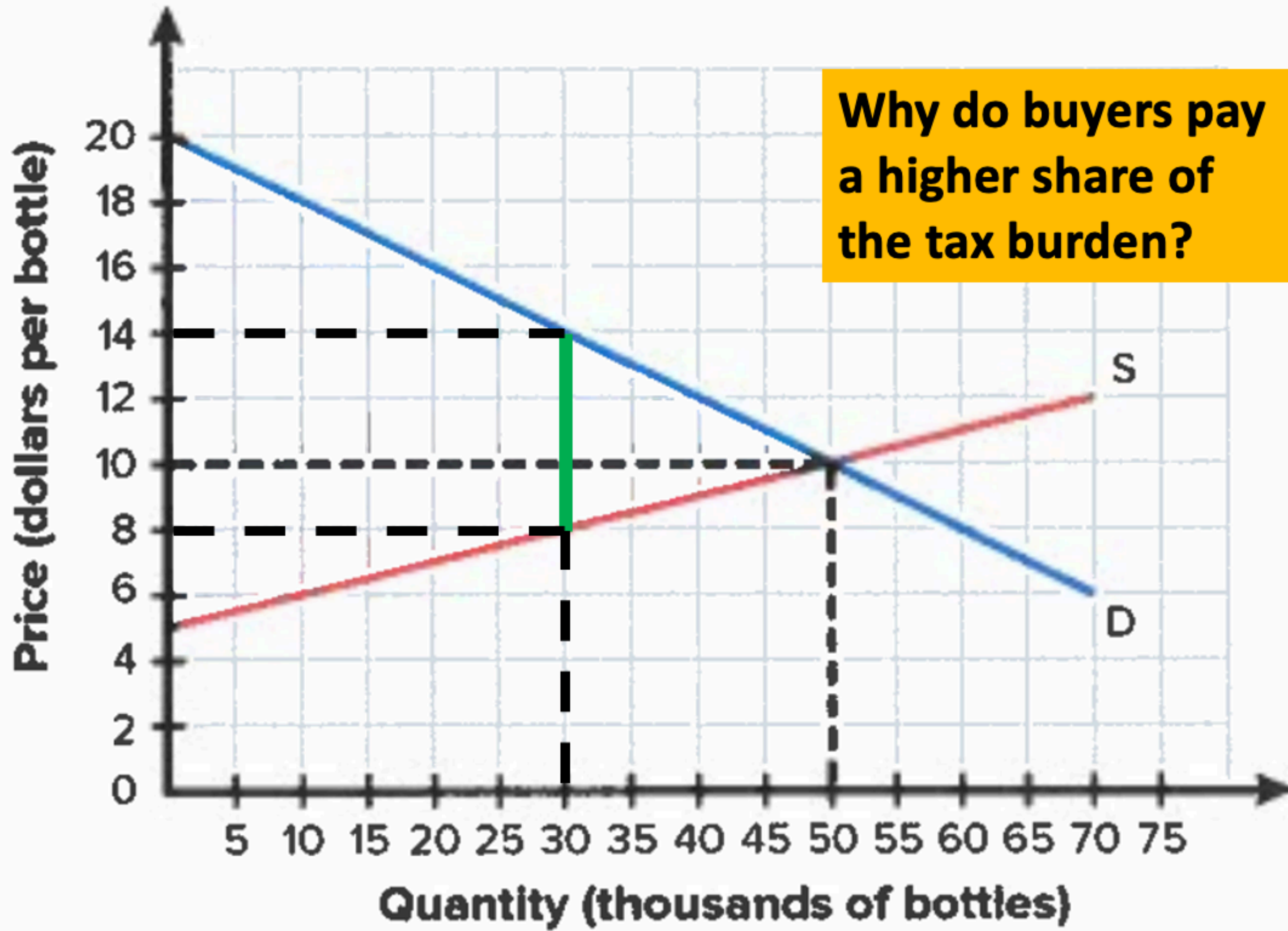
# Taxes on Buyers (Generally)

- Taxes decreases demand (shifts it left).
  - The price of the good decreases & the quantity supplied decreases.
  - The size of the market shrinks!
  - Why?
- Tradeoffs!
  - Consumers don't want a good they pay a high burden for & producers are supplying less, so they find alternatives.

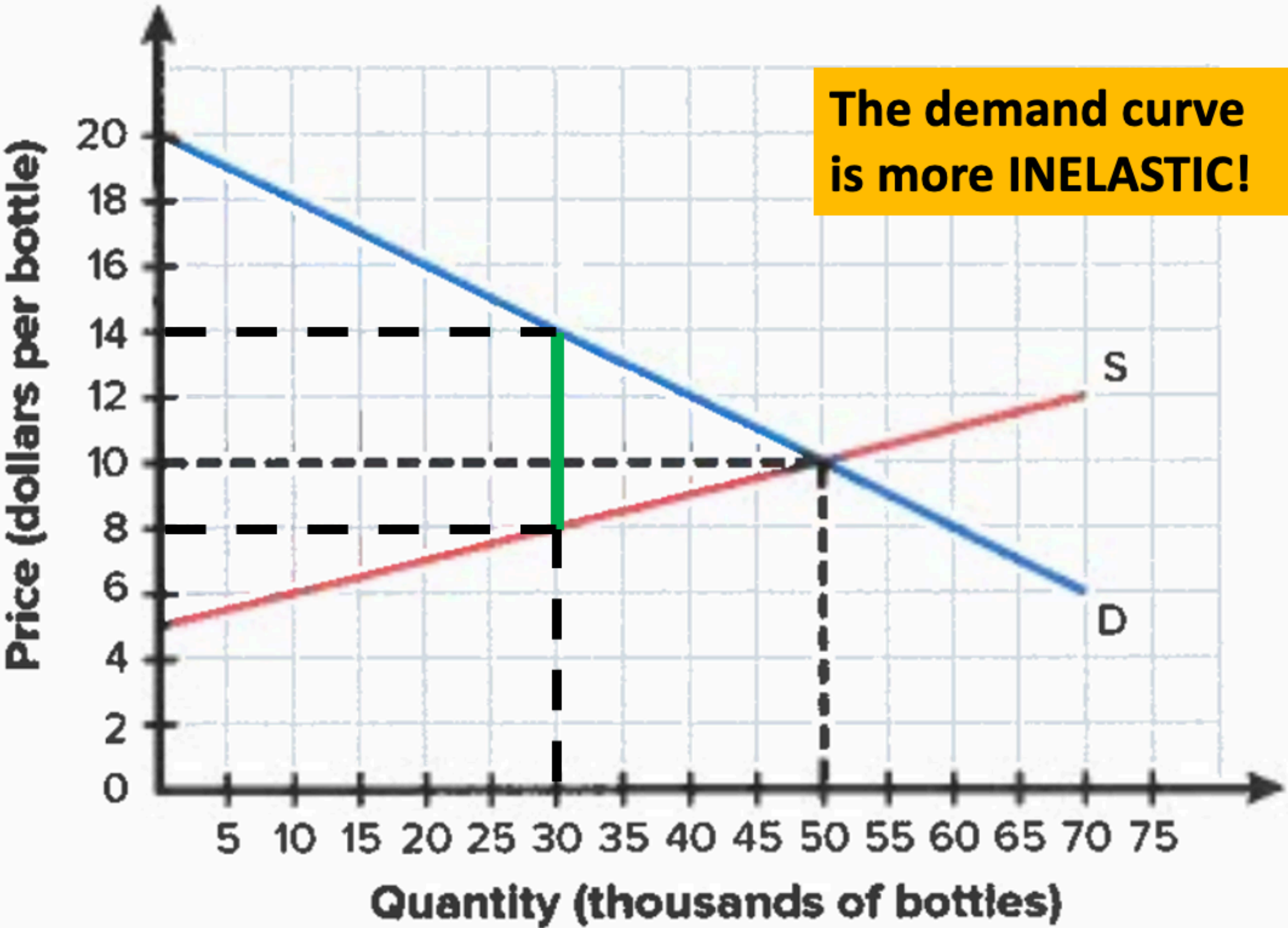
# Tax Incidence

- The tax burden does not depend on the legal assignment if the tax incidence.
- Whether you tax buyers or sellers, they will (mostly) both share some of the tax burden.
- Why, in the wine example, did the buyers pay a higher share of the tax burden than the sellers? (Remember elasticities)

# Market for Wine



# Market for Wine



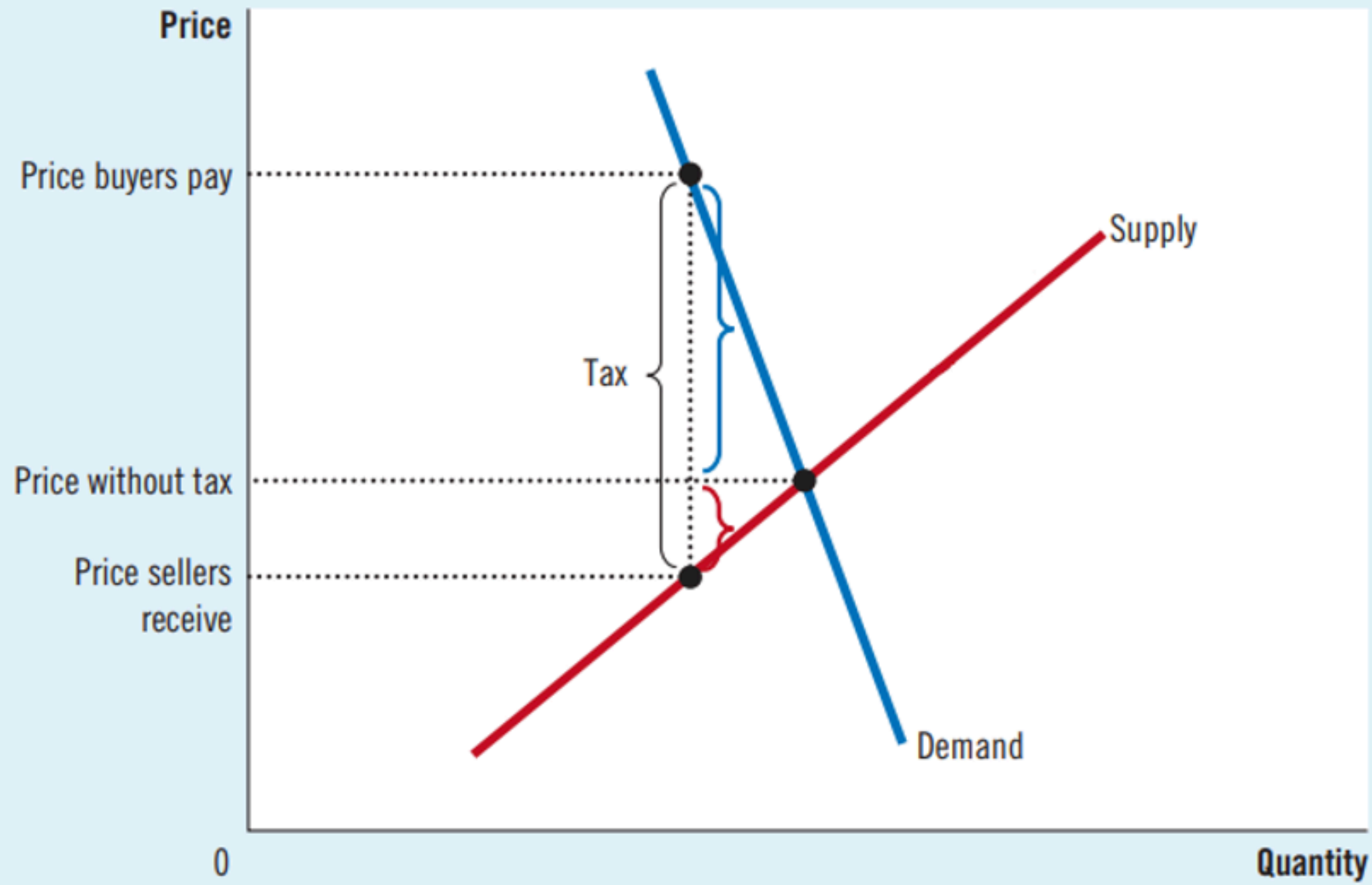
# Taxes & Elasticity



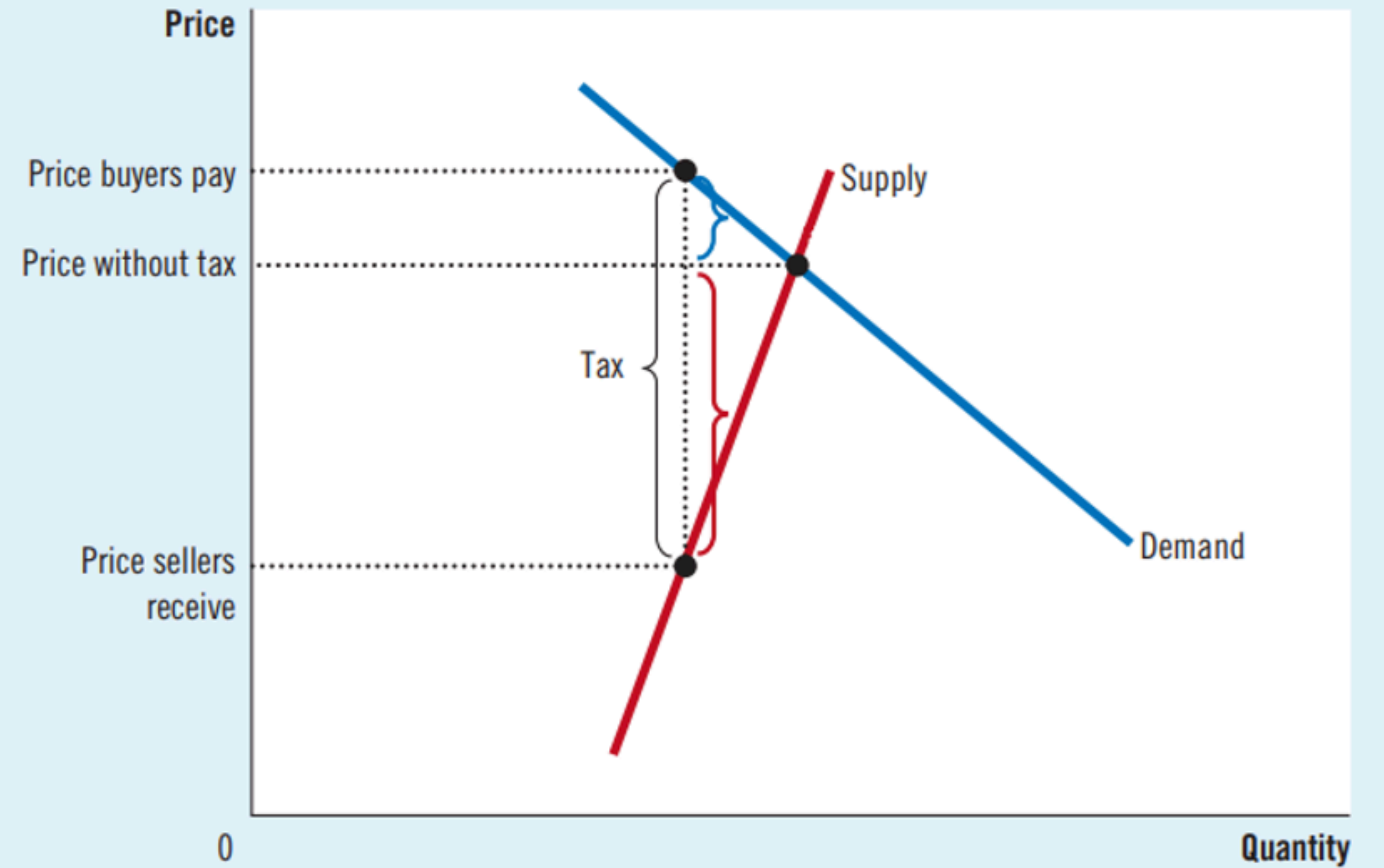
# The Tax Burden & Elasticity

- The more *inelastic* side of the market will pay a ***larger share of the tax burden.***
  - Consumers may be very dependent on a good & can't find good alternatives.
  - Producers may be very dependent on a resource & can't find good alternatives.
- The more *elastic* side of the market will pay a ***smaller share of the tax burden.***
  - Consumers can easily “escape” the tax and switch to substitute goods.
  - Producers can easily “escape” the tax and use other inputs for production.

(a) Elastic Supply, Inelastic Demand



(b) Inelastic Supply, Elastic Demand



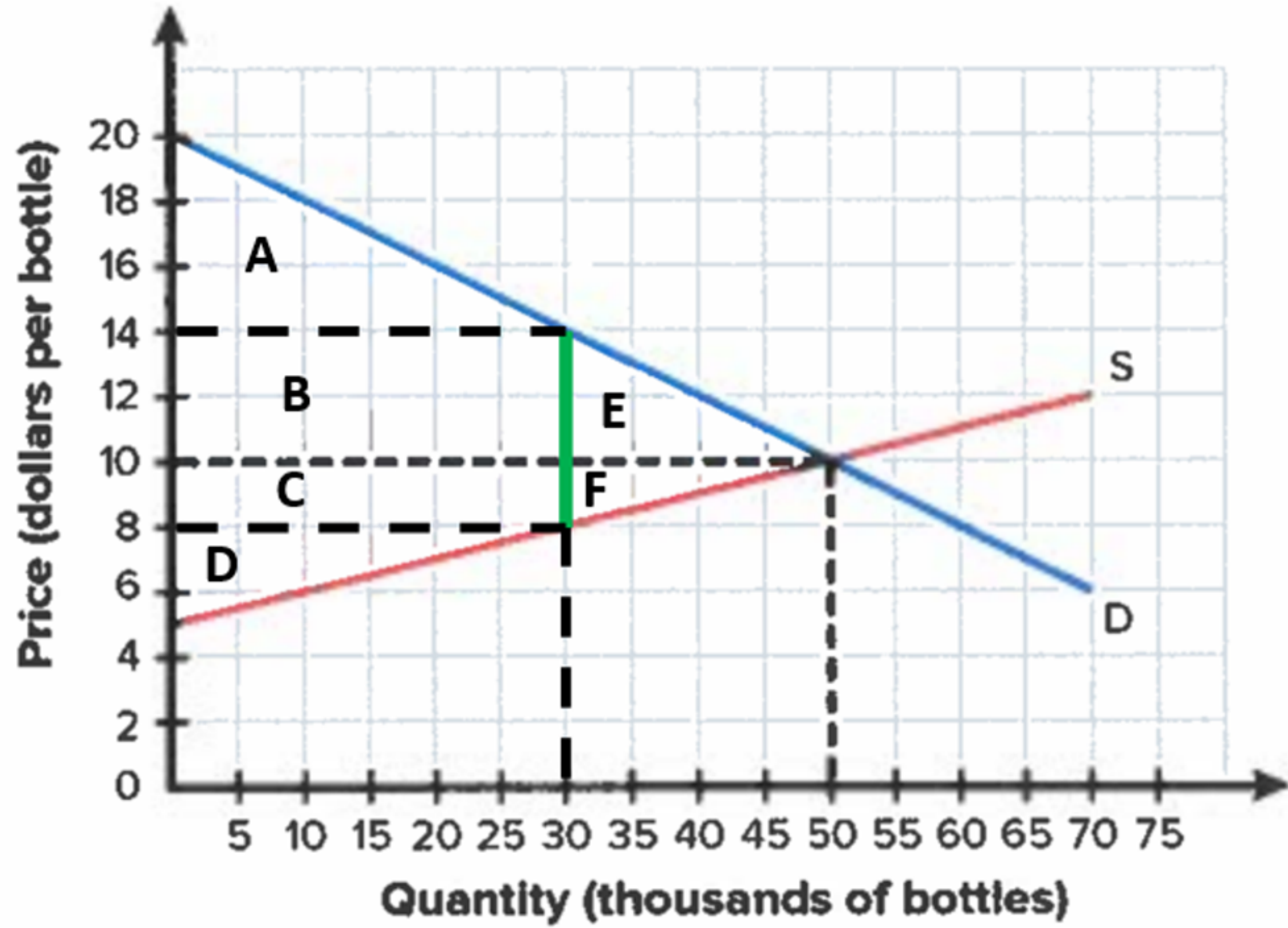
# Taxes & Welfare



# Taxes, Welfare, & Deadweight Loss

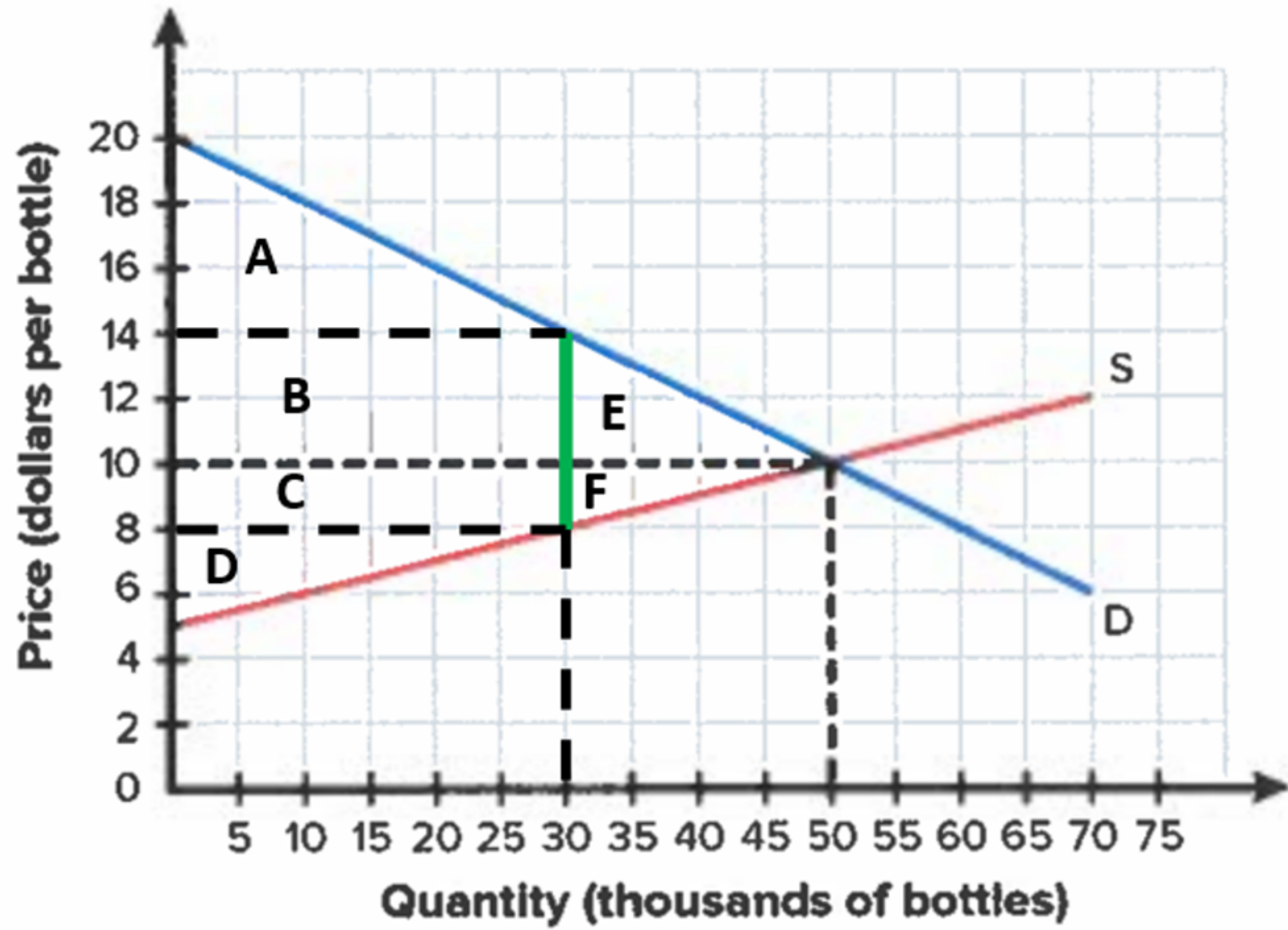
- Taxes have many implications for welfare economics (market efficiency).
- Taxes create tax revenue for governments.
  - But it comes at a cost! Tradeoffs are everywhere!
  - Why?

Market for Wine



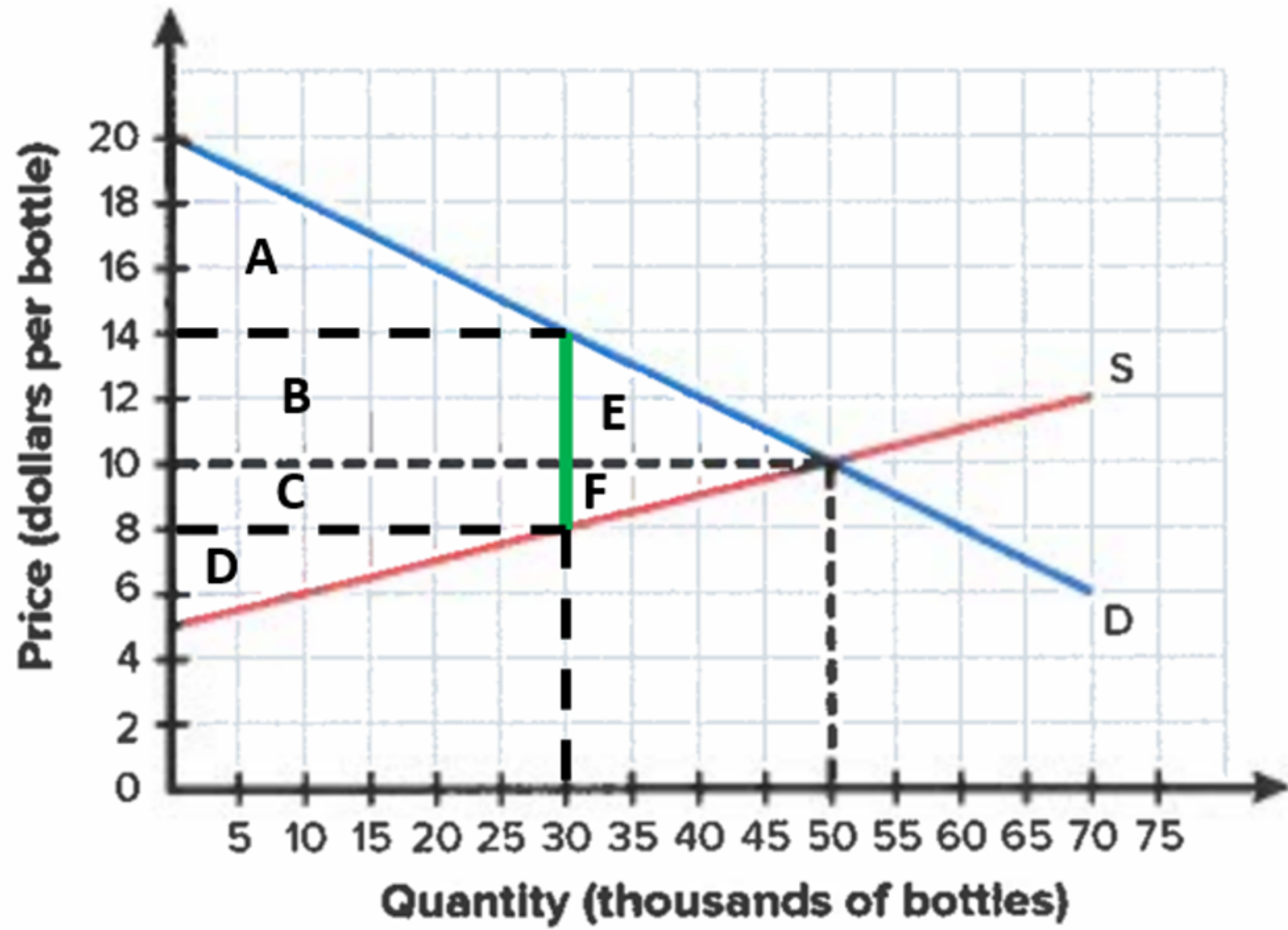
	Before Tax	After Tax
Consumer Surplus		
Producer Surplus		
Tax Revenue		
Deadweight Loss		
Total Welfare		

Market for Wine



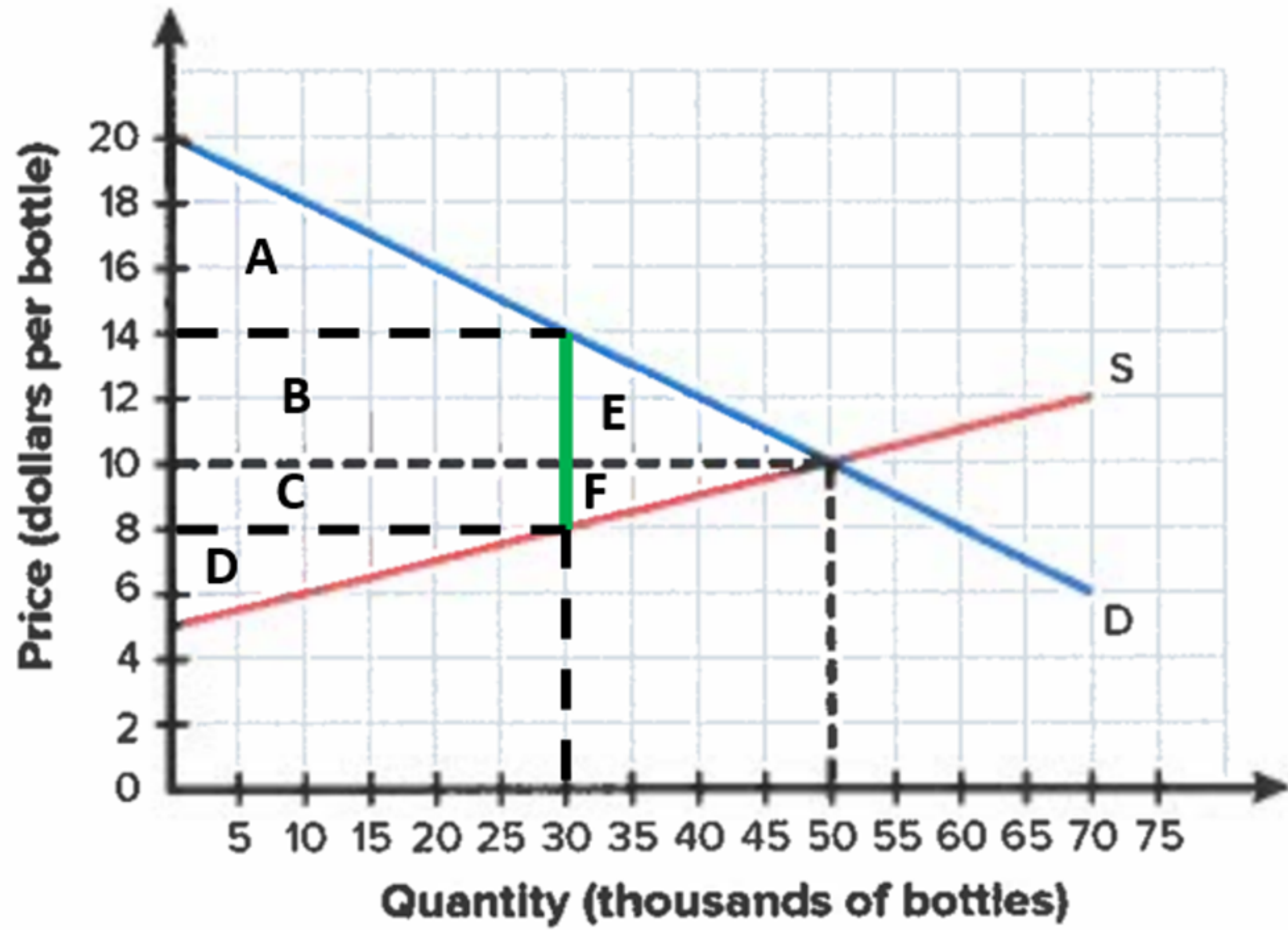
	Before Tax	After Tax
Consumer Surplus	A, B, E	
Producer Surplus		
Tax Revenue		
Deadweight Loss		
Total Welfare		

Market for Wine



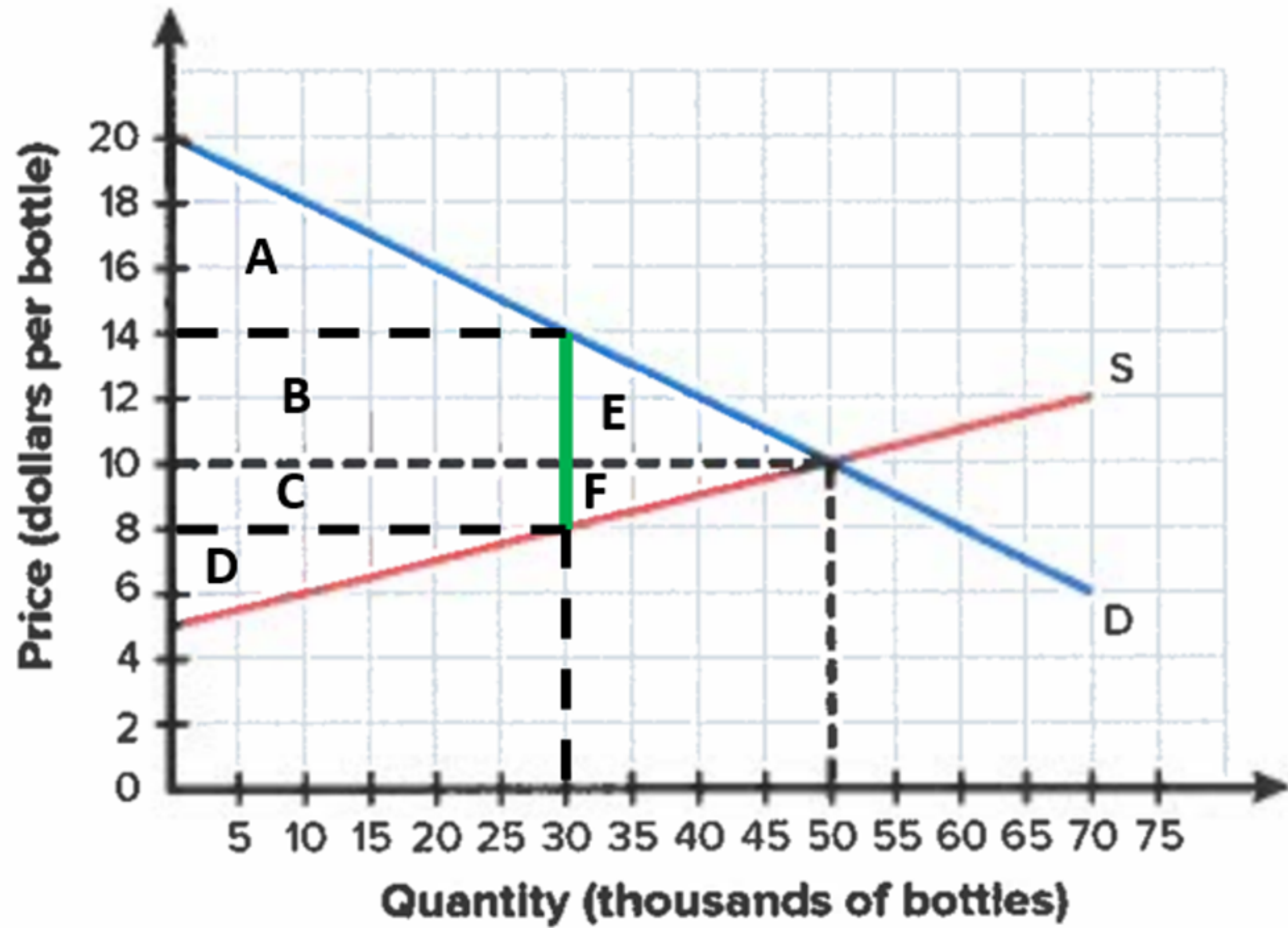
	Before Tax	After Tax
Consumer Surplus	A, B, E	
Producer Surplus	C, D, F	
Tax Revenue		
Deadweight Loss		
Total Welfare		

Market for Wine



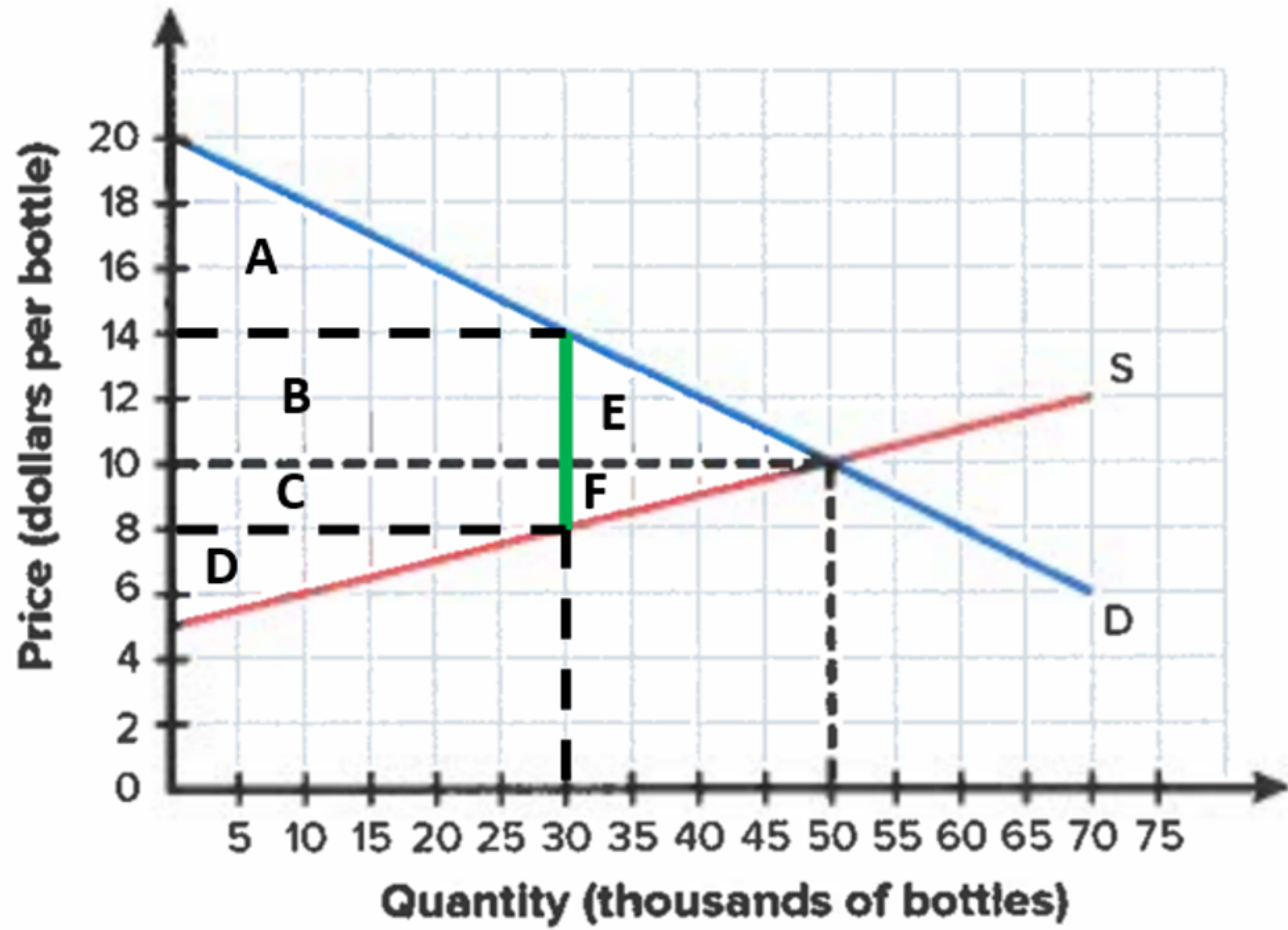
	Before Tax	After Tax
Consumer Surplus	A, B, E	
Producer Surplus	C, D, F	
Tax Revenue	—	
Deadweight Loss	—	
Total Welfare		

Market for Wine



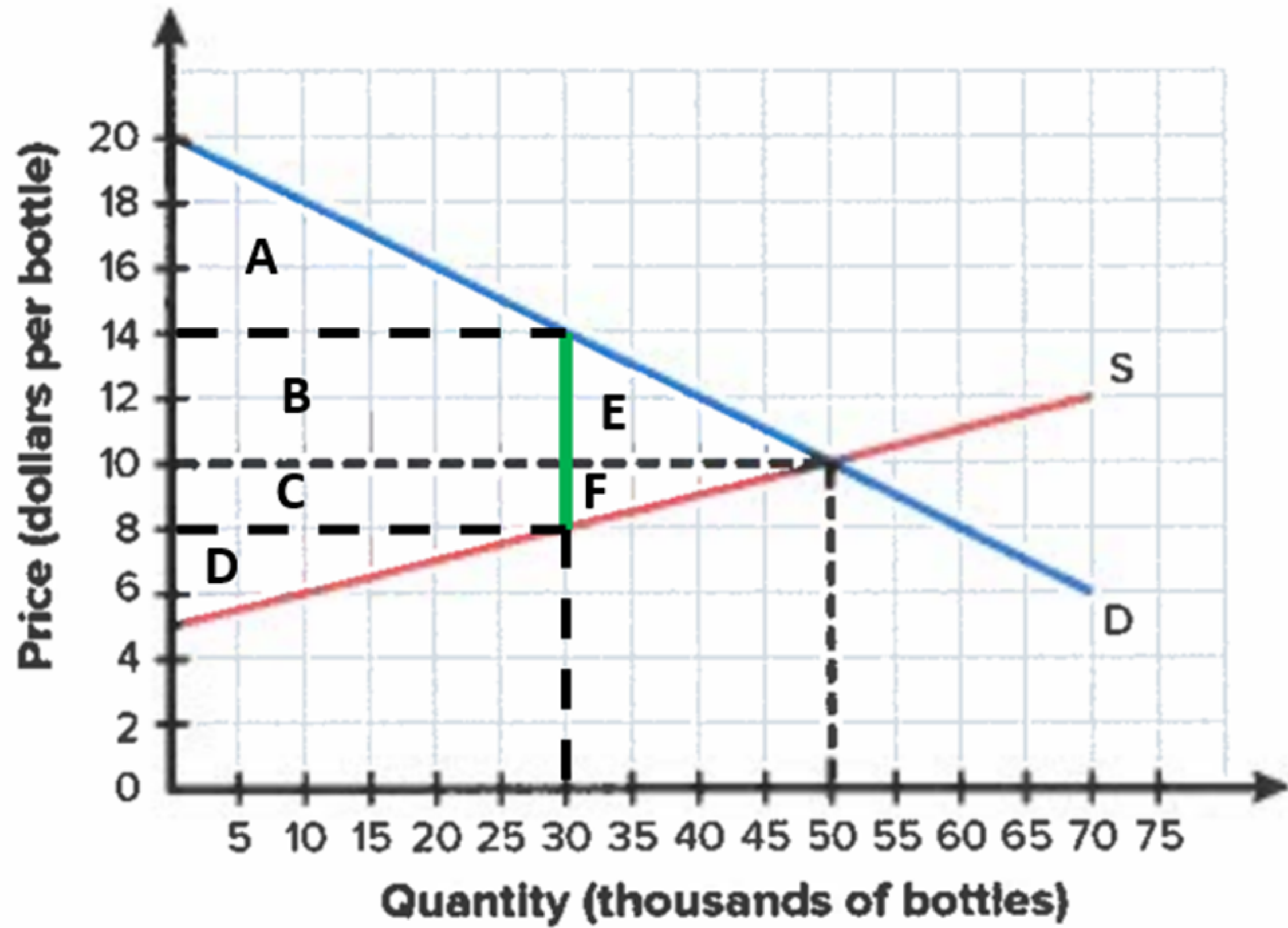
	Before Tax	After Tax
Consumer Surplus	A, B, E	
Producer Surplus	C, D, F	
Tax Revenue	—	
Deadweight Loss	—	
Total Welfare	A, B, C, D, E, F	

Market for Wine



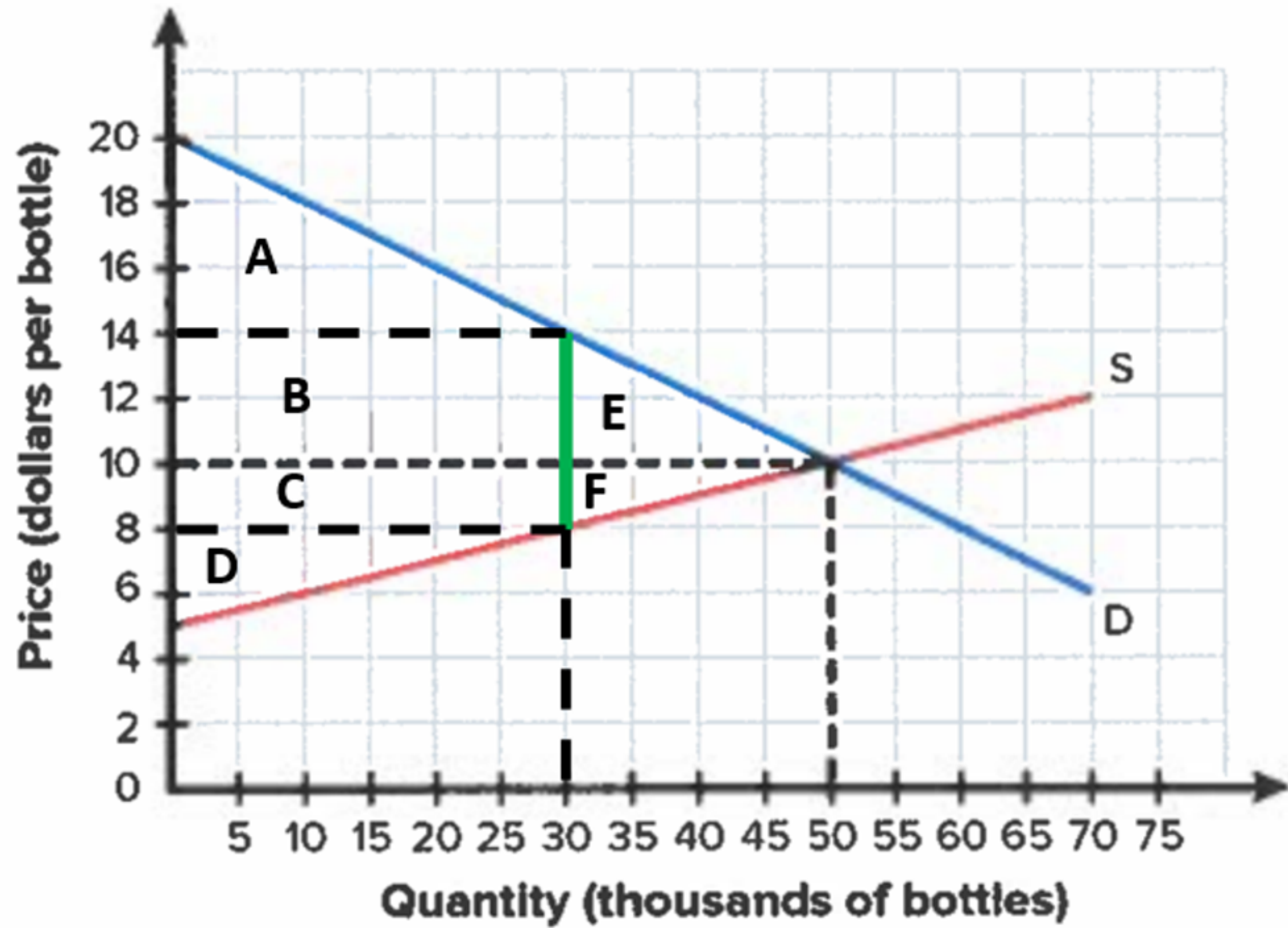
	Before Tax	After Tax
Consumer Surplus	A, B, E	A
Producer Surplus	C, D, F	
Tax Revenue	—	
Deadweight Loss	—	
Total Welfare	A, B, C, D, E, F	

Market for Wine



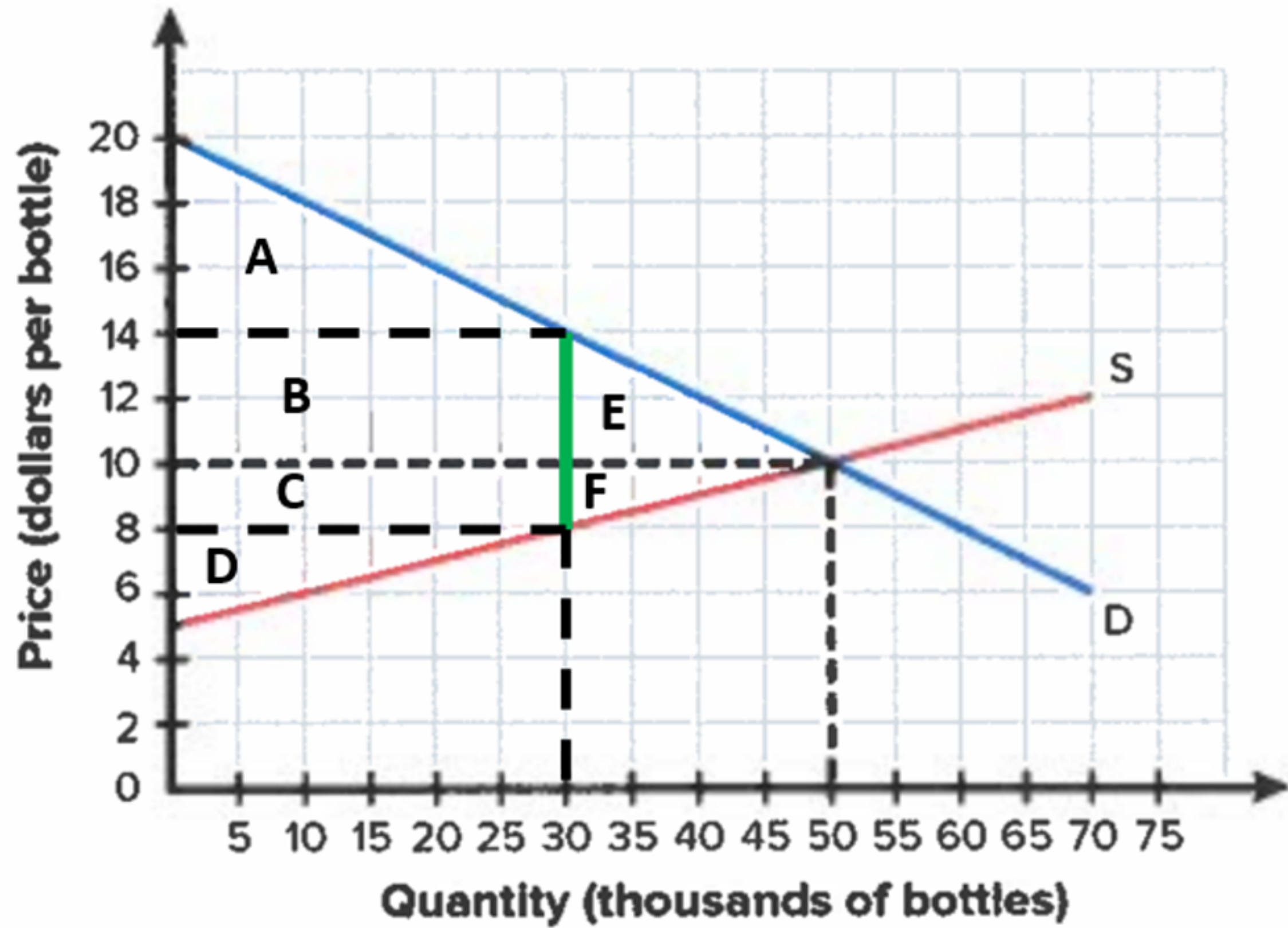
	Before Tax	After Tax
Consumer Surplus	A, B, E	A
Producer Surplus	C, D, F	D
Tax Revenue	—	
Deadweight Loss	—	
Total Welfare	A, B, C, D, E, F	

Market for Wine



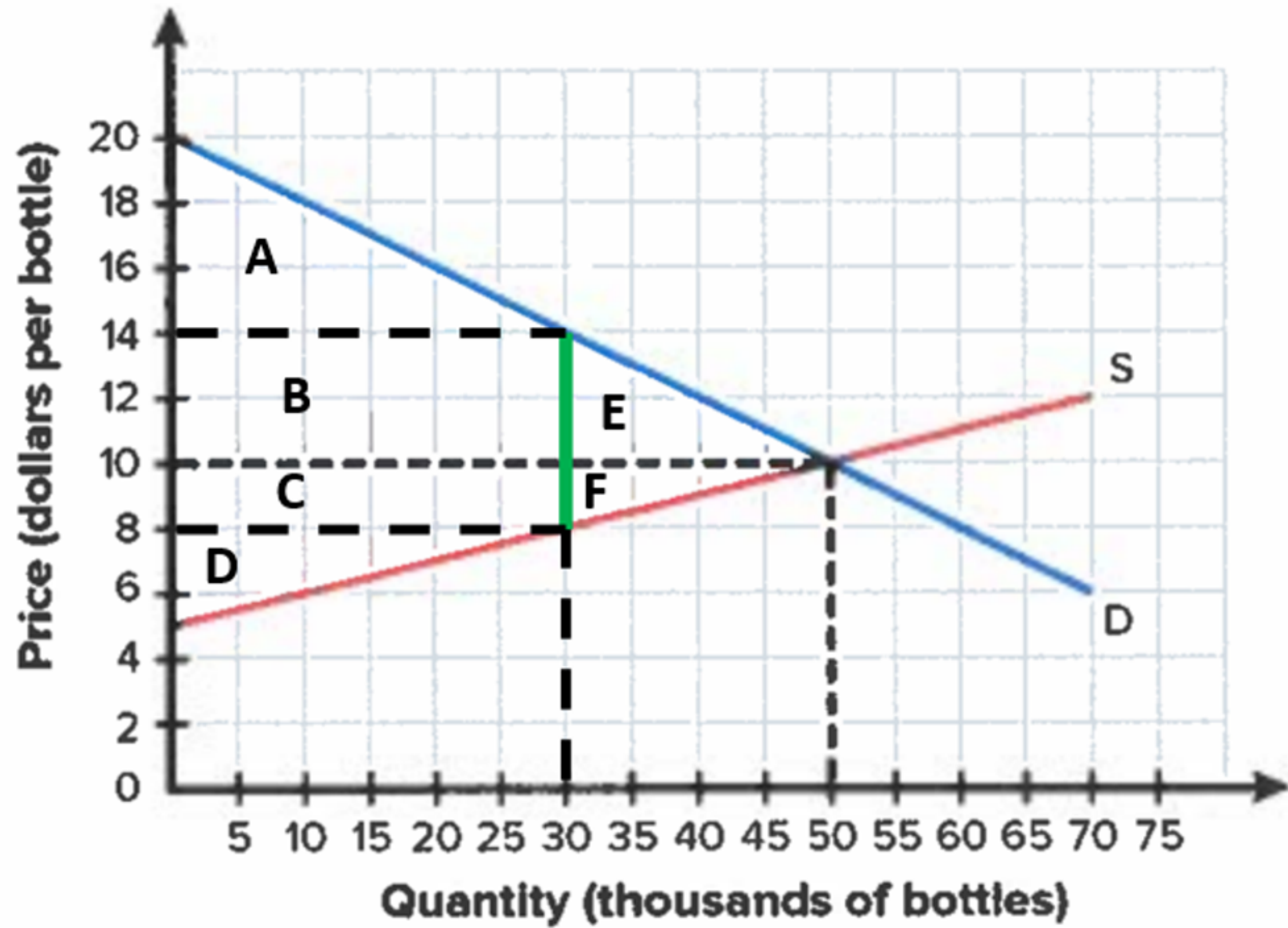
	Before Tax	After Tax
Consumer Surplus	A, B, E	A
Producer Surplus	C, D, F	D
Tax Revenue	—	B, C
Deadweight Loss	—	
Total Welfare	A, B, C, D, E, F	

Market for Wine



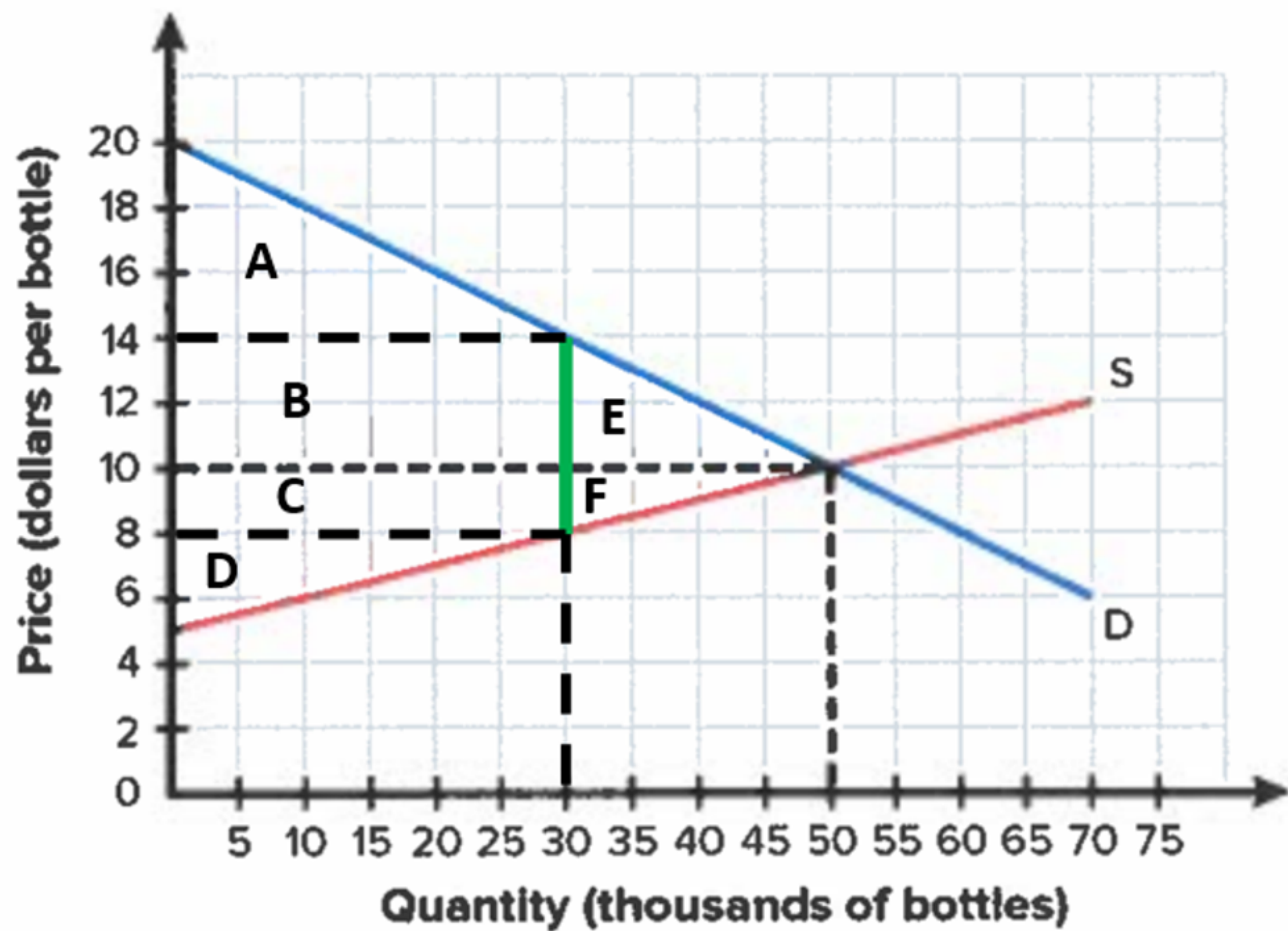
	Before Tax	After Tax
Consumer Surplus	A, B, E	A
Producer Surplus	C, D, F	D
Tax Revenue	—	B, C
Deadweight Loss	—	E, F
Total Welfare	A, B, C, D, E, F	

Market for Wine



	Before Tax	After Tax
Consumer Surplus	A, B, E	A
Producer Surplus	C, D, F	D
Tax Revenue	—	B, C
Deadweight Loss	—	E, F
Total Welfare	A, B, C, D, E, F	A, B, C, D

Market for Wine



Society is now worse off after the tax!

	Before Tax	After Tax
Consumer Surplus	A, B, E	A
Producer Surplus	C, D, F	D
Tax Revenue	—	B, C
Deadweight Loss	—	E, F
Total Welfare	A, B, C, D, E, F	A, B, C, D

# Taxes, Welfare, & Deadweight Loss

- Taxes creates tax revenue for governments.
  - But is comes at a cost!
  - Taxes lowers the quantity supplied in the market.
  - Deadweight loss emerges because there are unexploited gains from trade.
  - Nobody gets the deadweight loss.

So what?



# Unintended Consequences

- Government intervention is wrought with unintended consequences.
  - Mandates are no match for incentives.
- Legislating price does not legislate value (it's subjective!).
  - Scarcity still exists, so rationing still exists.
  - Ex: quality reduction, waste/search costs, misallocation, perverse incentives.

# Unintended Consequences

- Intervention often hurts those it was intended to help!
  - Under price controls the “worse off” get excluded.
  - Ex: Rent-control often excludes the people who need the housing the most!
  - Ex: Interest rate caps often crowd out high risk people (who usually need loans the most).
  - Ex: Minimum wage impacts those without the “human capital” signaled by education.
- Taxes are no different.

# Implications

- Taxes distort market prices!
  - They increase the relative price consumers pay & decrease the price producers receive.
  - When the price system is hindered, resources will move in the wrong direction.
  - The profit/loss system breaks down & information accumulation becomes difficult.
- Consumers & producers have every incentive to find and/or produce alternatives (maybe even prematurely), since the incentives to innovate & compete are diminished.

# Implications

- Taxes often hurt those they claim to help!
  - Redistributive welfare policies often keep people in poverty.
  - The government runs out of markets to tax when they tax them into oblivion.
  - When markets shrink, fewer, low-priced goods are available. The poor & underprivileged communities are hit the hardest!
- The government has proven very irresponsible with citizens' tax dollars.
  - They lack the profit/loss function that rations resources efficiently, & rewards good market decisions & punishes bad market decisions.

Thanks for your  
attention!  
End of class.

