Chapter 7

Consumers, Producers & the Efficiency of Markets

Revisiting the Market Equilibrium

- Do the equilibrium price and quantity maximize the total welfare of buyers and sellers?
- Market equilibrium reflects the way markets allocate scarce resources.
- Whether the market allocation is desirable can be addressed by welfare economics.

Welfare Economics

- Welfare economics: the study of how the allocation of resources affects economic well-being.
- Buyers and sellers receive benefits from participating in the market.
- Equilibrium in the market results in maximum benefits, and therefore maximum total welfare for both the consumers and the producers of the product.

Consumer Surplus

- Every buyer in an economy is only willing to pay up to a certain amount for a good or service. We define:
- Willingness-to-pay: the maximum amount that a buyer will pay for a good.

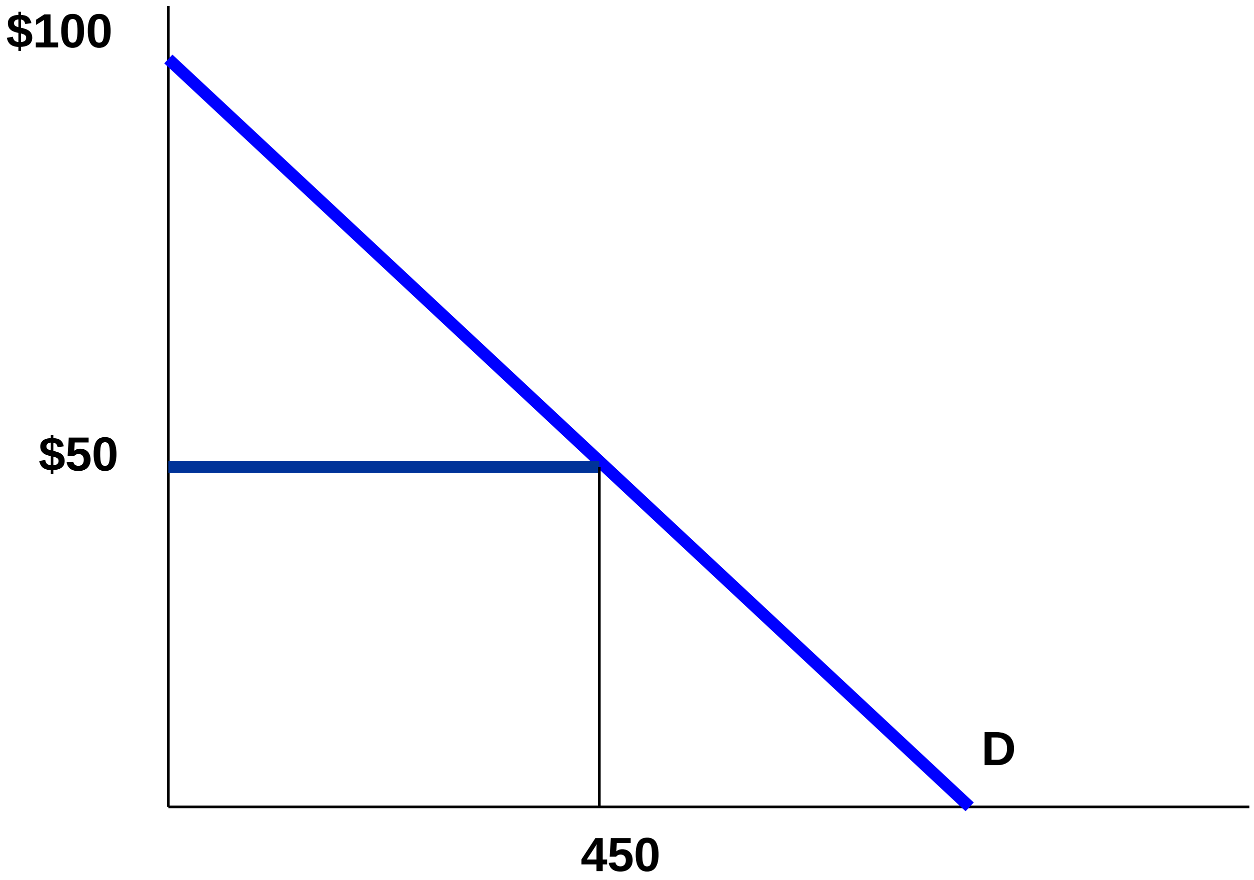
  \- measures the value the buyer places on the good

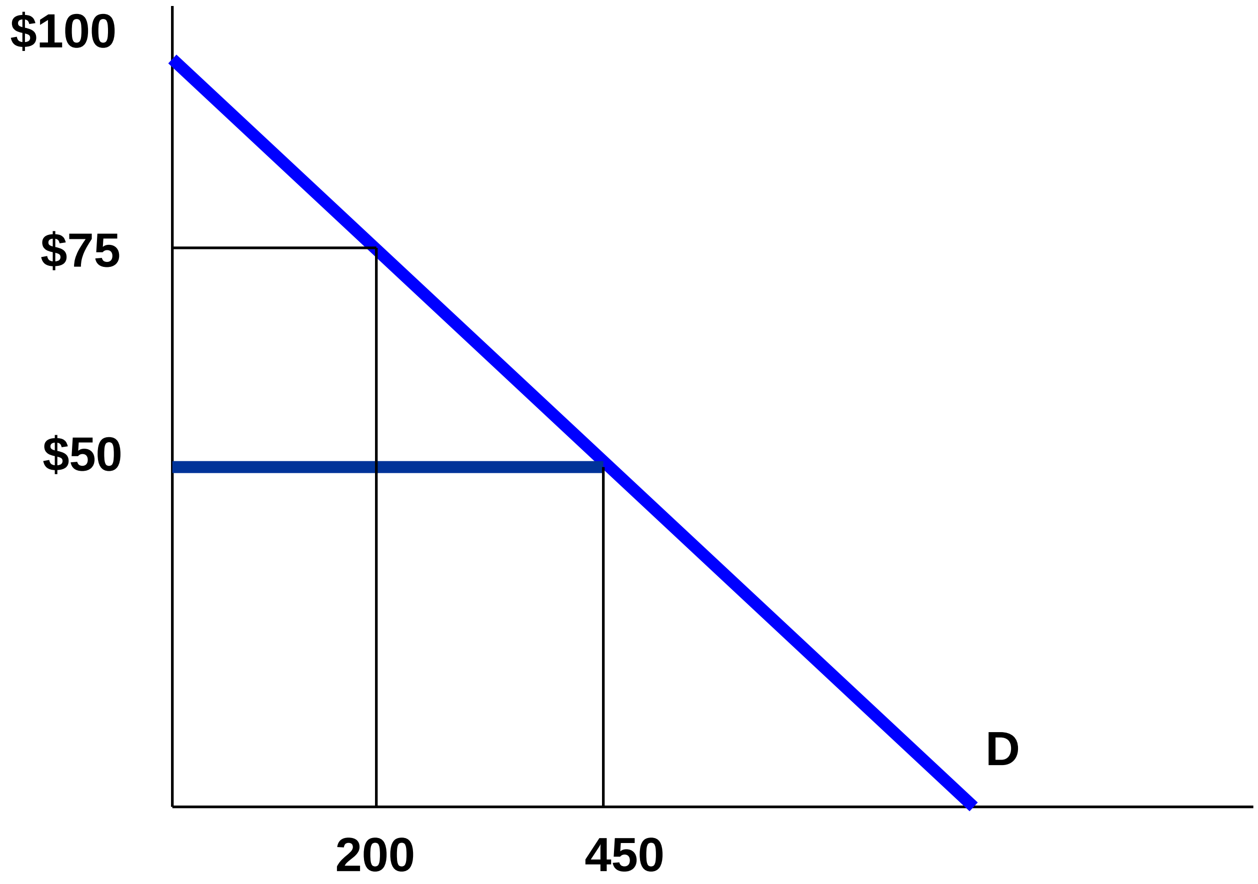
  \- also called reservation price
- When a buyer actually pays less than he/she is willing to pay, they enjoy a benefit. We define:

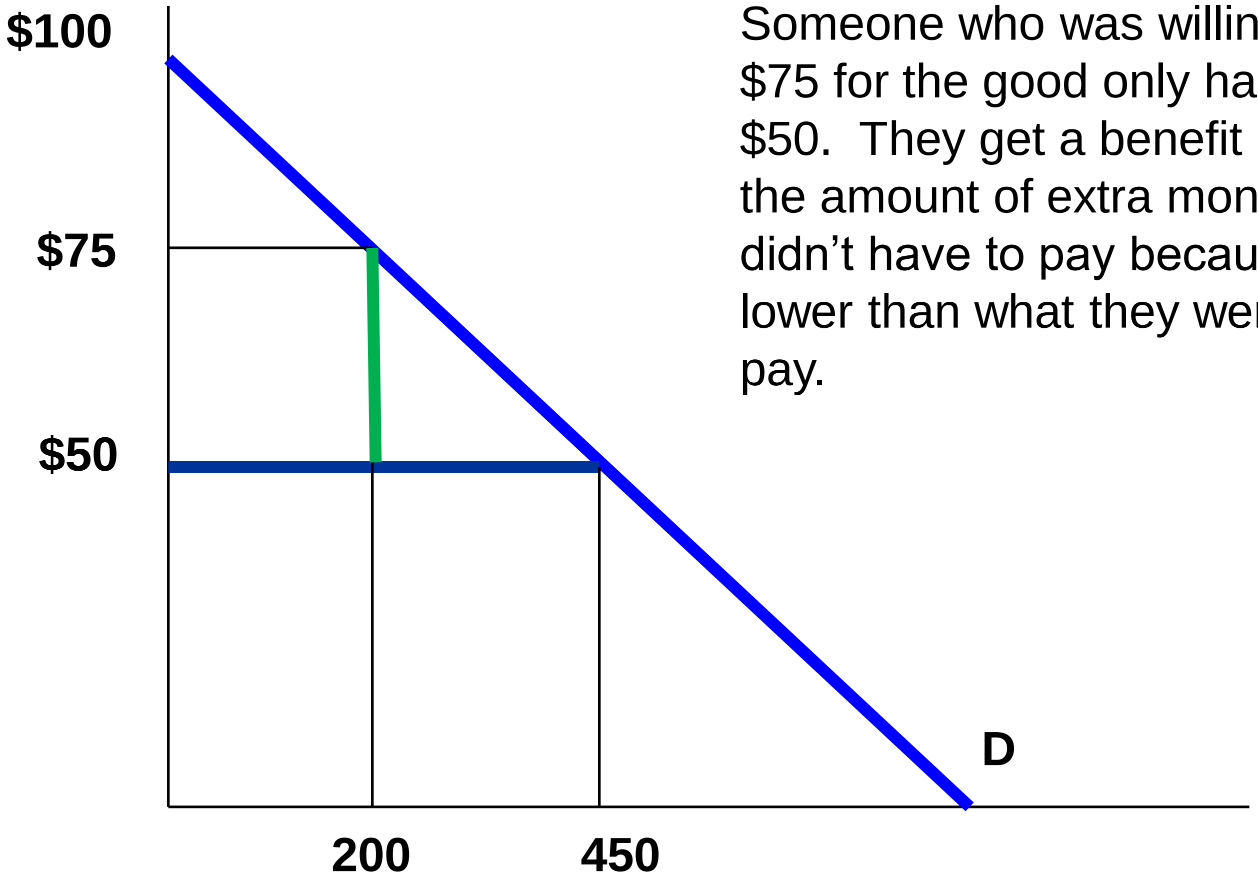
- Consumer surplus: the buyer's willingness to pay for a good minus the amount the buyer actually pays for it.

- The market demand curve depicts the various quantities that buyers would be willing and able to purchase at different prices.
  - it depicts consumers' willingness-to-pay.

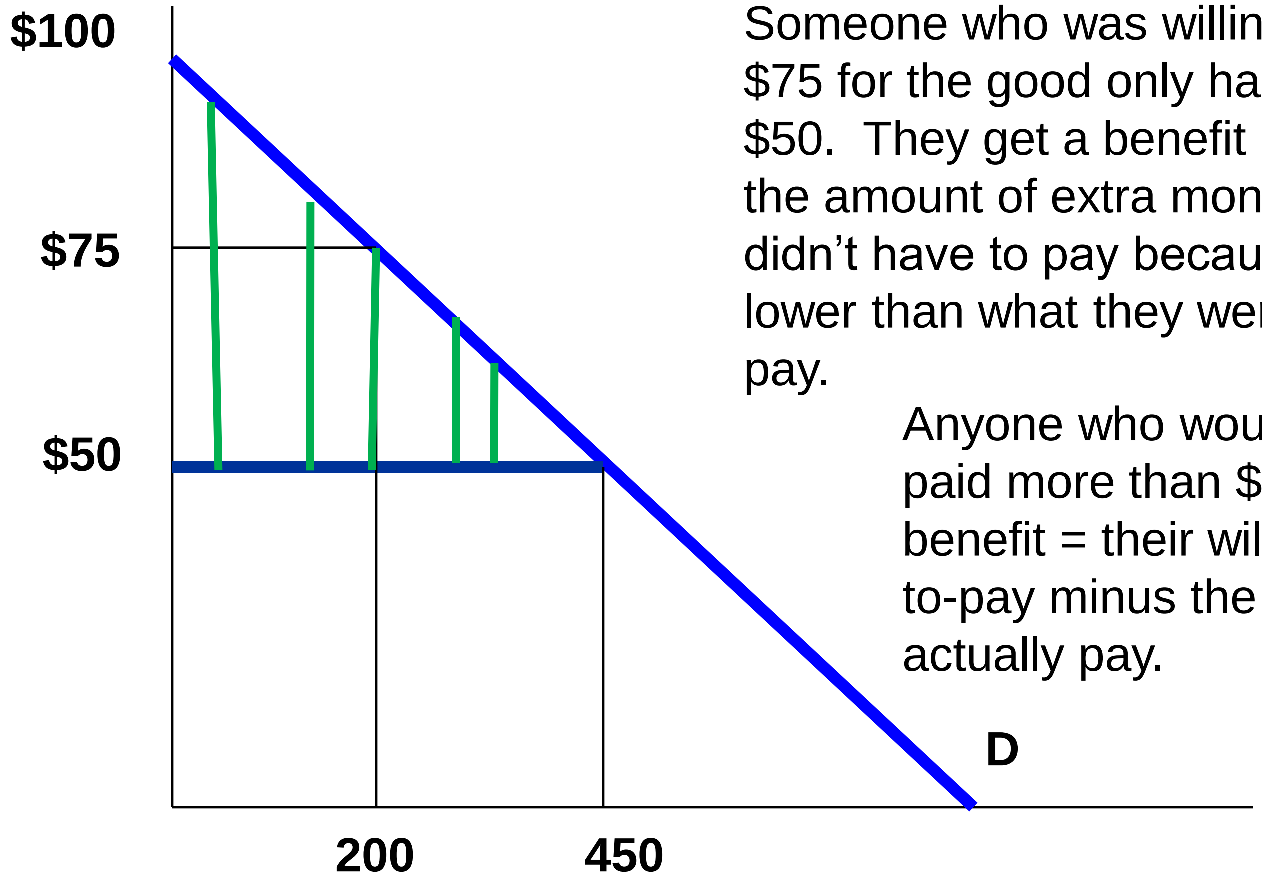
- Suppose the market price of a good is $50.




$100
$75
$50
D
200
450

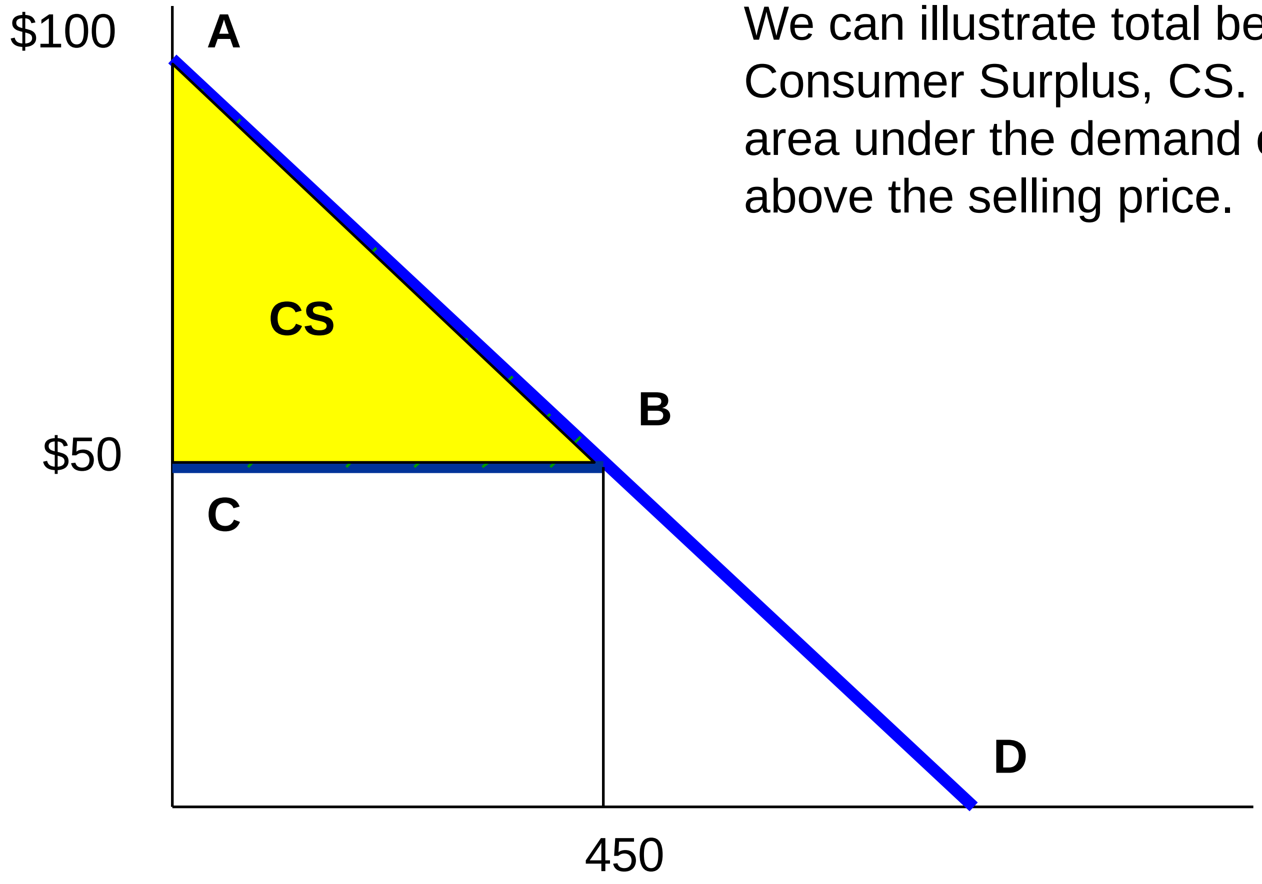


Someone who was willing to pay $75 for the good only has to pay $50. They get a benefit of $25 = the amount of extra money they didn't have to pay because P is lower than what they were willing to pay.

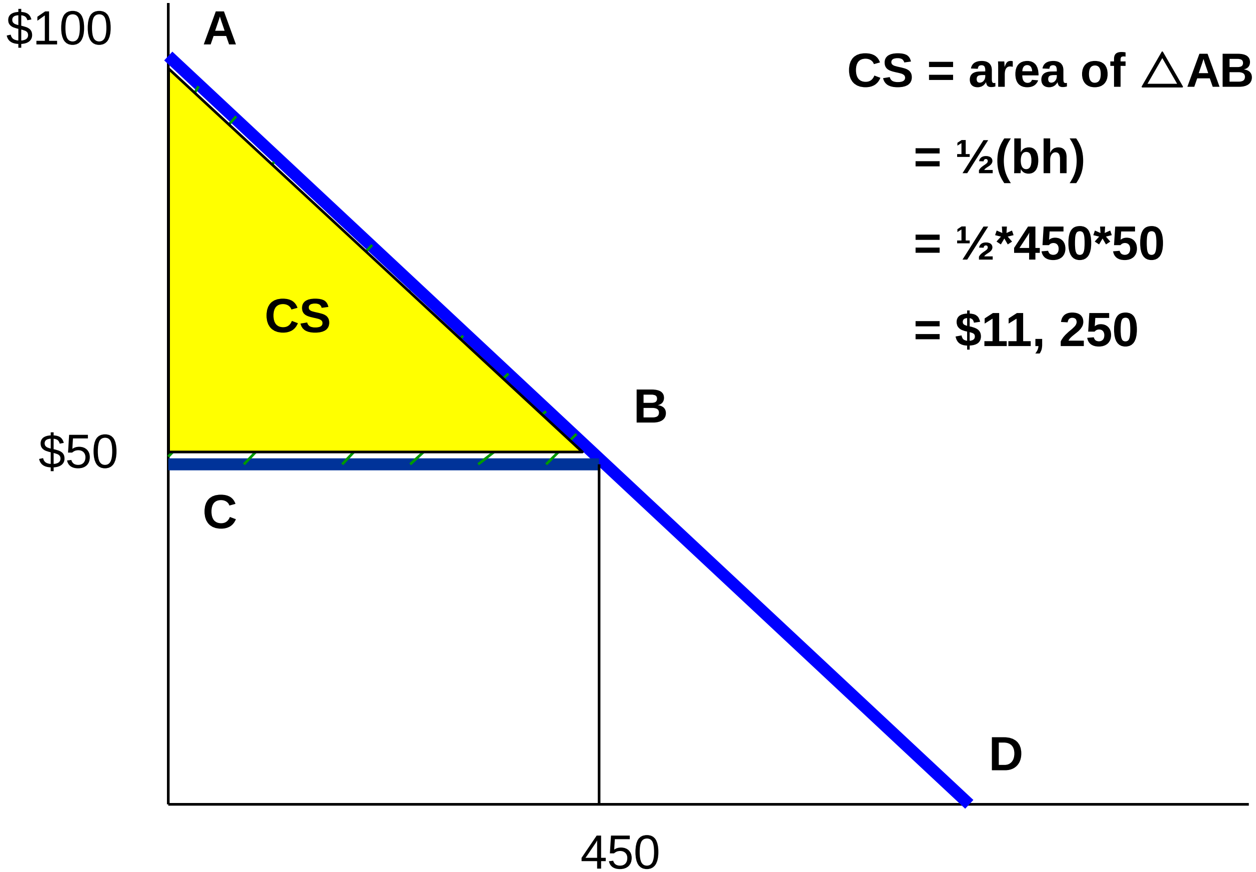


Someone who was willing to pay $75 for the good only has to pay $50. They get a benefit of $25 = the amount of extra money they didn't have to pay because P is lower than what they were willing to pay.

Anyone who would have paid more than $50 gets a benefit = their willingness-to-pay minus the $50 they actually pay.



We can illustrate total benefits: Consumer Surplus, CS. It is the area under the demand curve above the selling price.



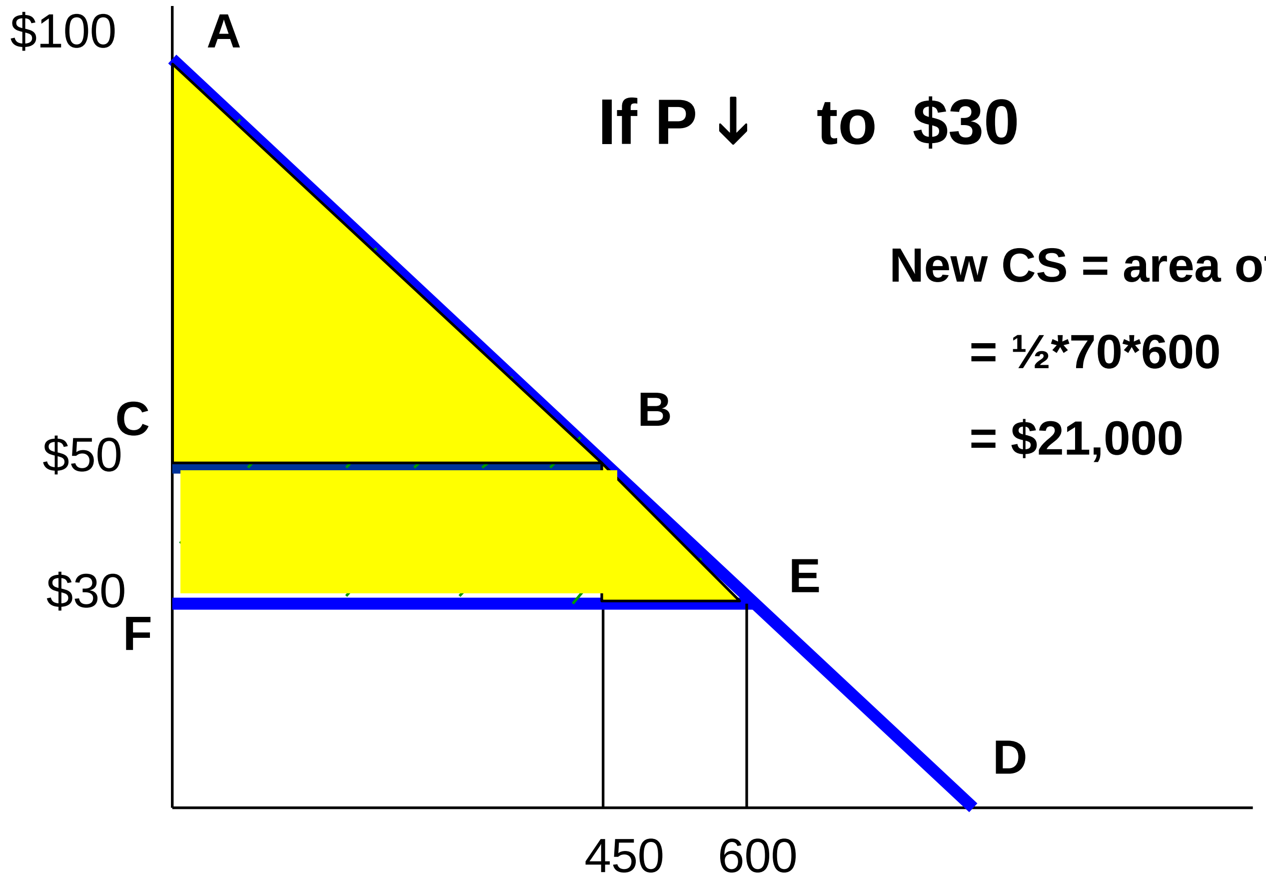
CS = area of △ABC

= ½(bh)

= ½*450*50

= $11, 250

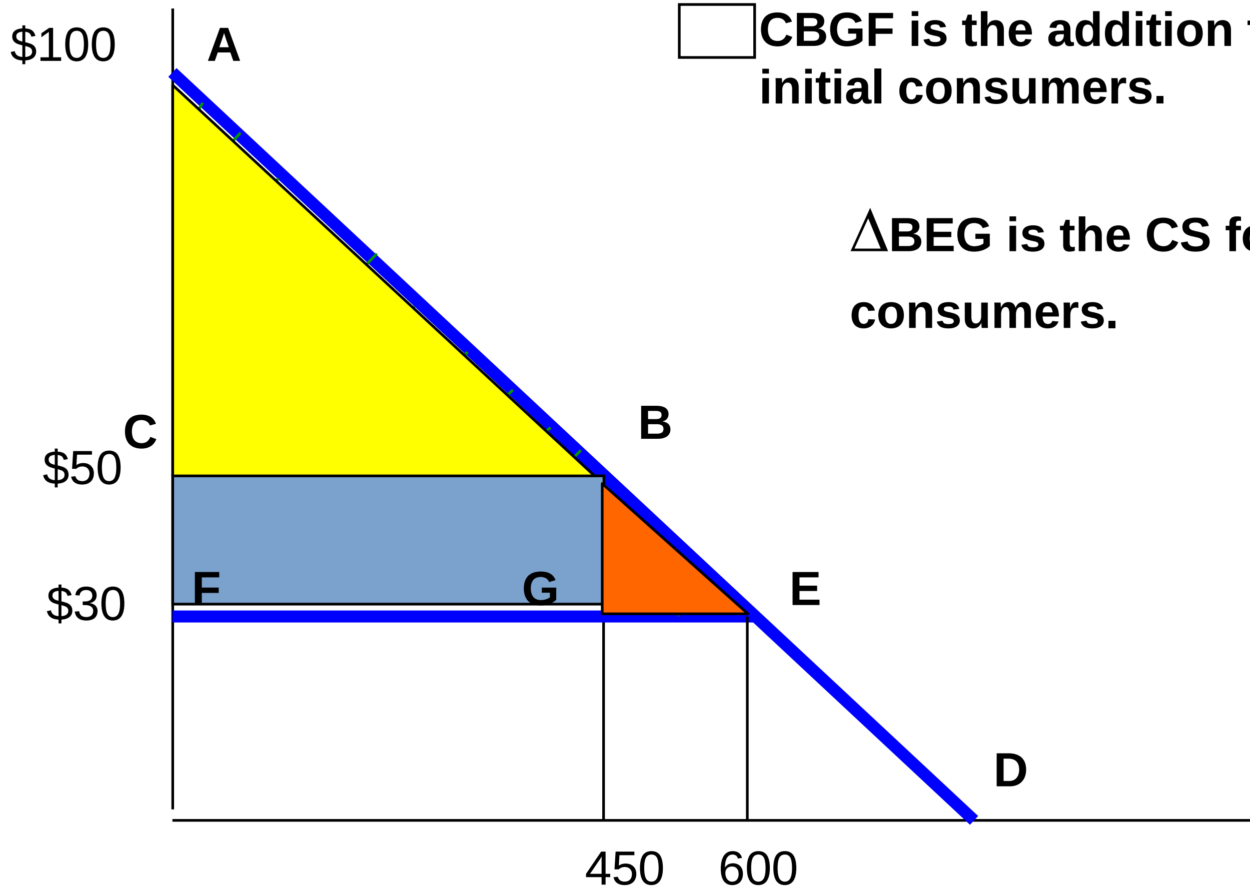
How a Price Change Affects Consumer Surplus



New CS = area of △AEF

= ½*70*600

= $21,000



▭CBGF is the addition to CS for initial consumers.

ΔBEG is the CS for new consumers.

Producer Surplus

- Producer surplus = the amount a seller is paid for a good minus the seller's cost.
- It measures the benefit to sellers participating in a market.

- Cost is a measure of the seller’s willingness-to-sell = the lowest price a supplier will take to produce a good and offer it for sale.

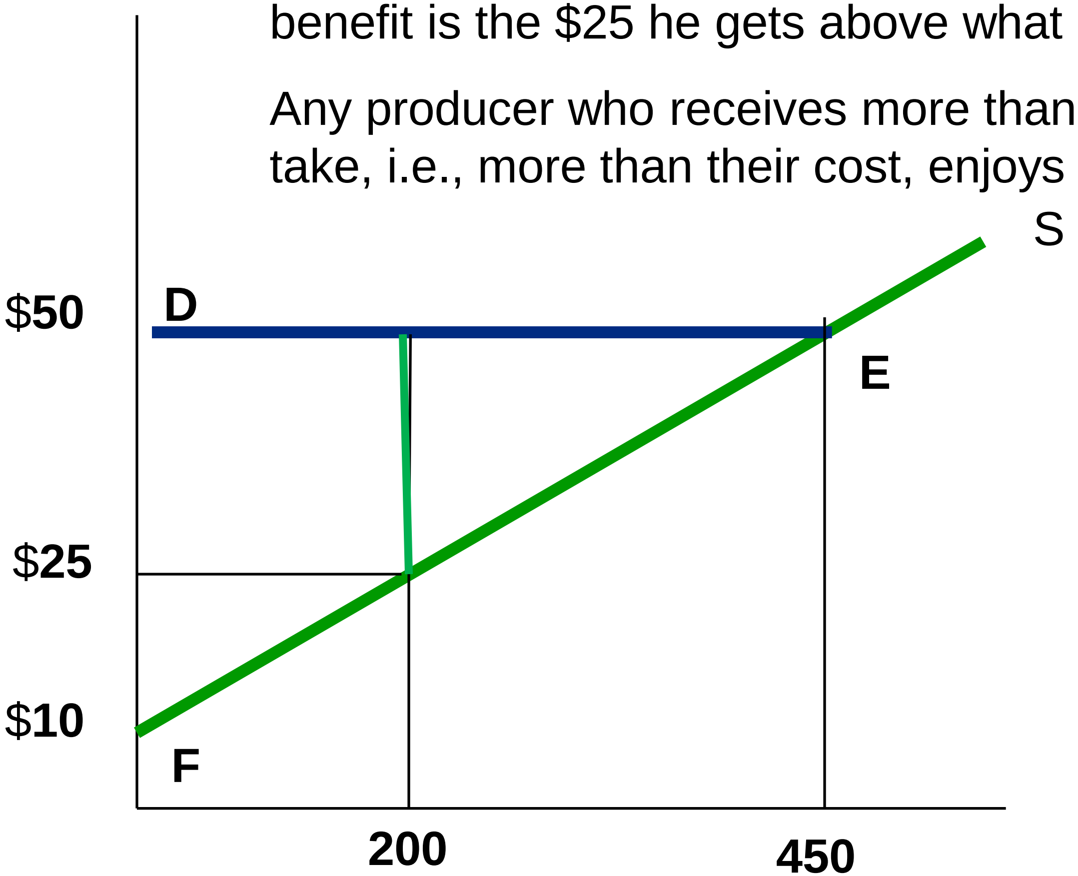
-when a producer receives more than they are willing to take to produce a good, they enjoy a benefit.

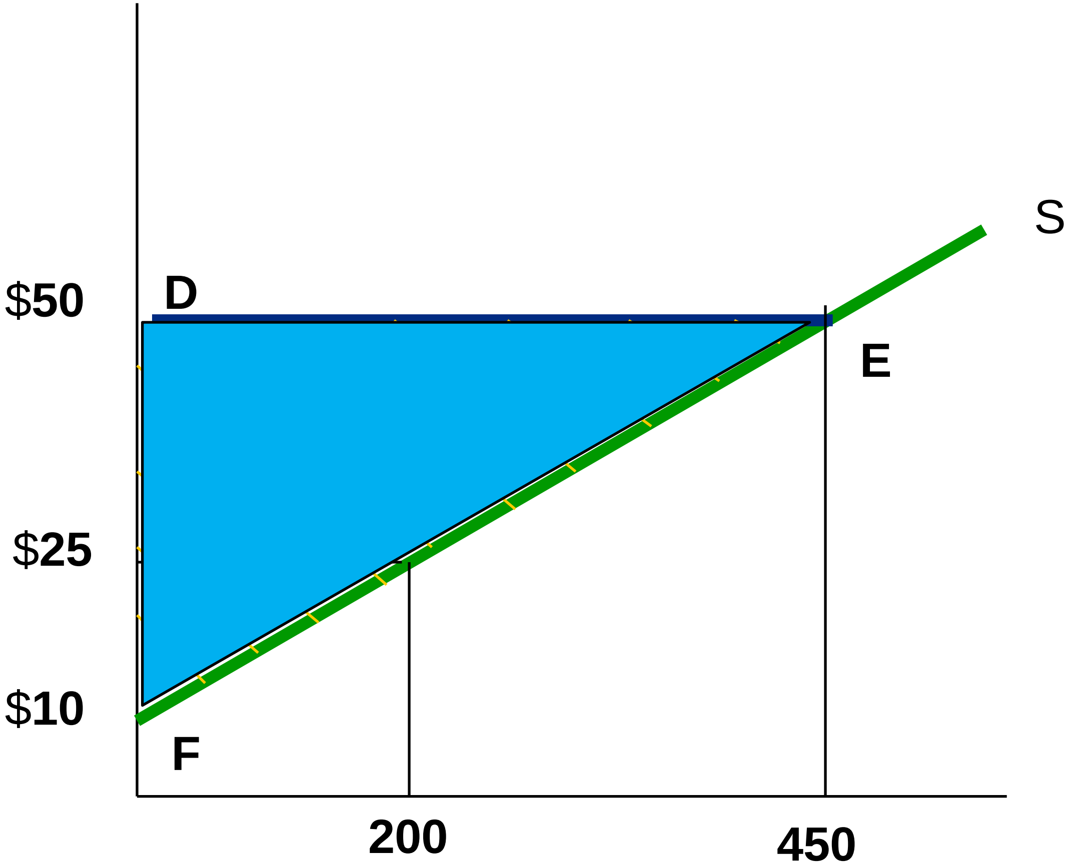
- Just as consumer surplus is related to the demand curve, producer surplus is closely related to the supply curve.
    - The supply curve reflects a producer's costs (more on costs in Chapter 13).
- The area below the selling price and above the supply curve measures the producer surplus in a market.

- Again, suppose selling price is $50.

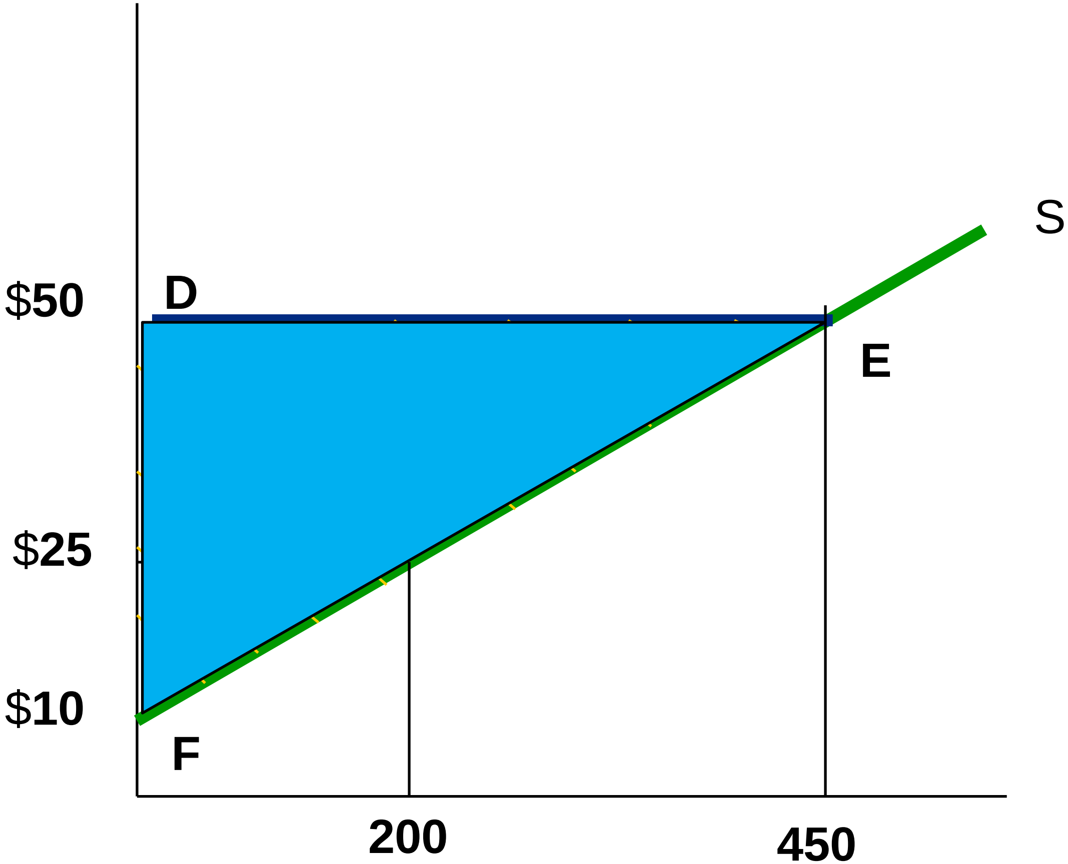
A producer who was willing to take $25 now receives $50. His benefit is the $25 he gets above what he was willing to take.

Any producer who receives more than what they were willing to take, i.e., more than their cost, enjoys a benefit





Total Producer Surplus, PS is the area under the selling price and above the supply curve.

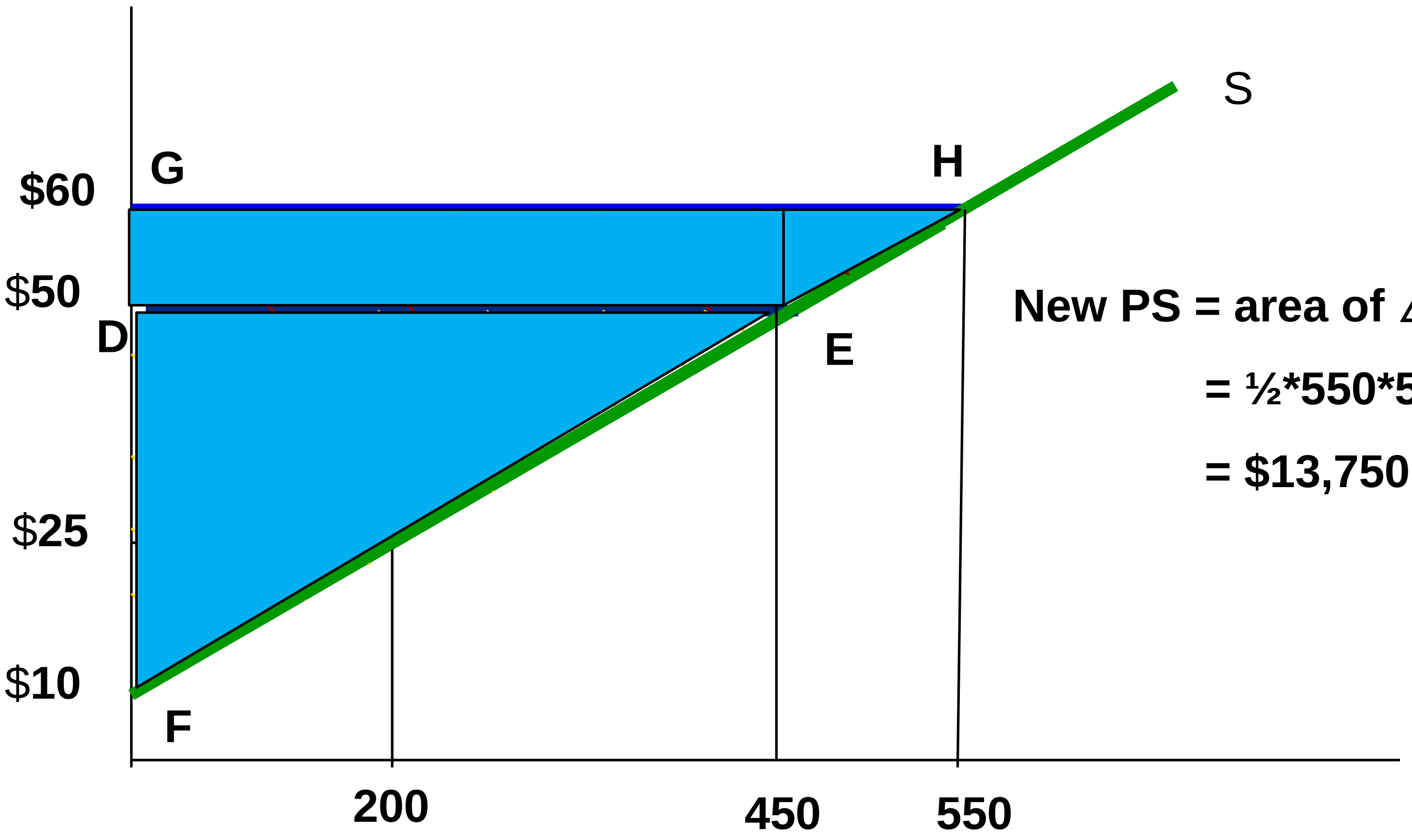


PS = area of △DEF

= ½(bh)

= ½*450*40 = $9000

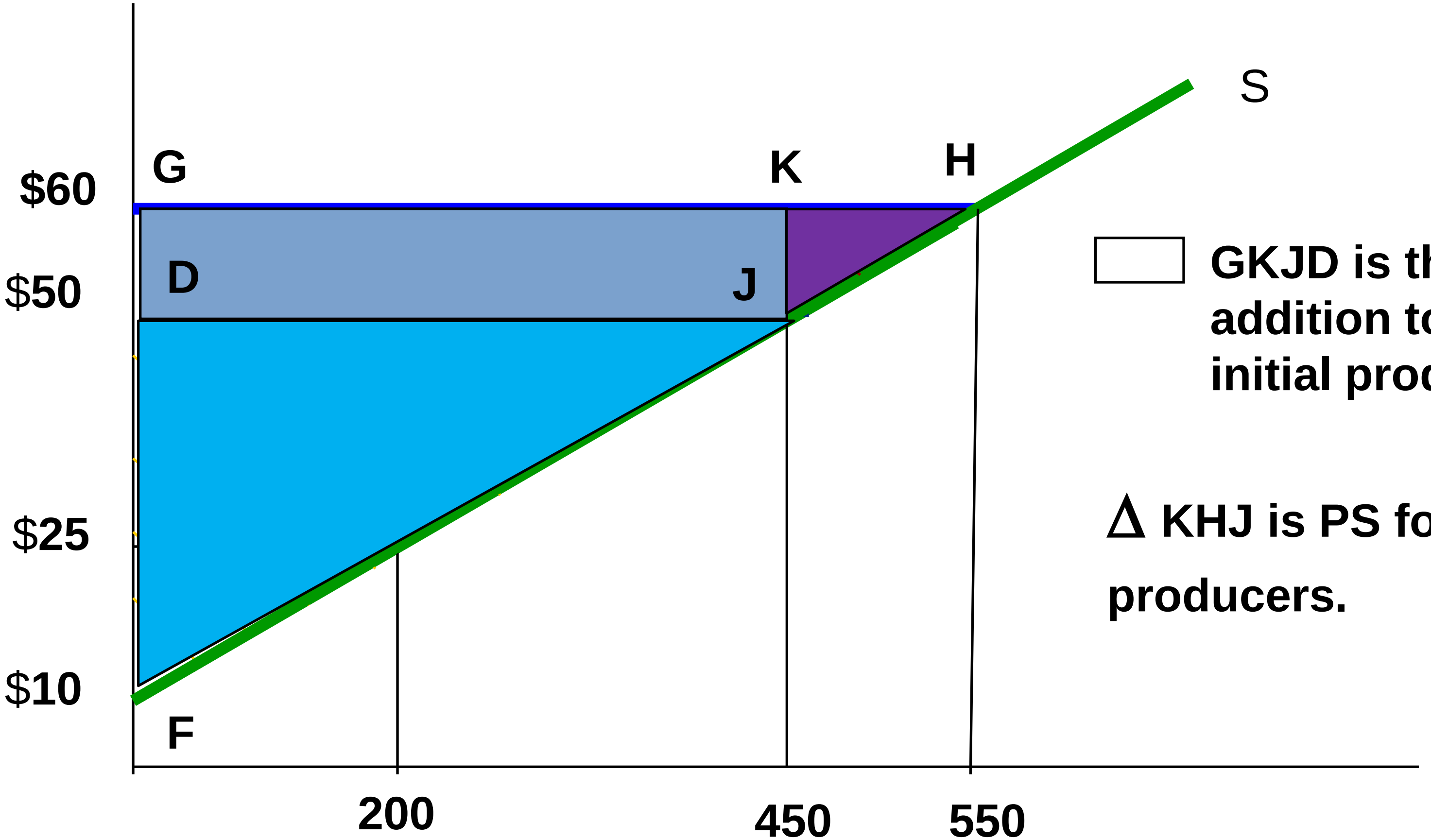
If P↑ to $60



New PS = area of △GHF

= ½*550*50

= $13,750



GKJD is the addition to PS for initial producers.

Δ KHJ is PS for new producers.

Market Efficiency

- Consumer surplus and producer surplus may be used to address the following question:

Is the allocation of resources determined by free markets in any way desirable?

Consumer Surplus = Value to buyers – Amount buyer pays

and

Producer Surplus = Amount sellers receive – Cost to sellers

Since amount buyer pays = amount sellers receive

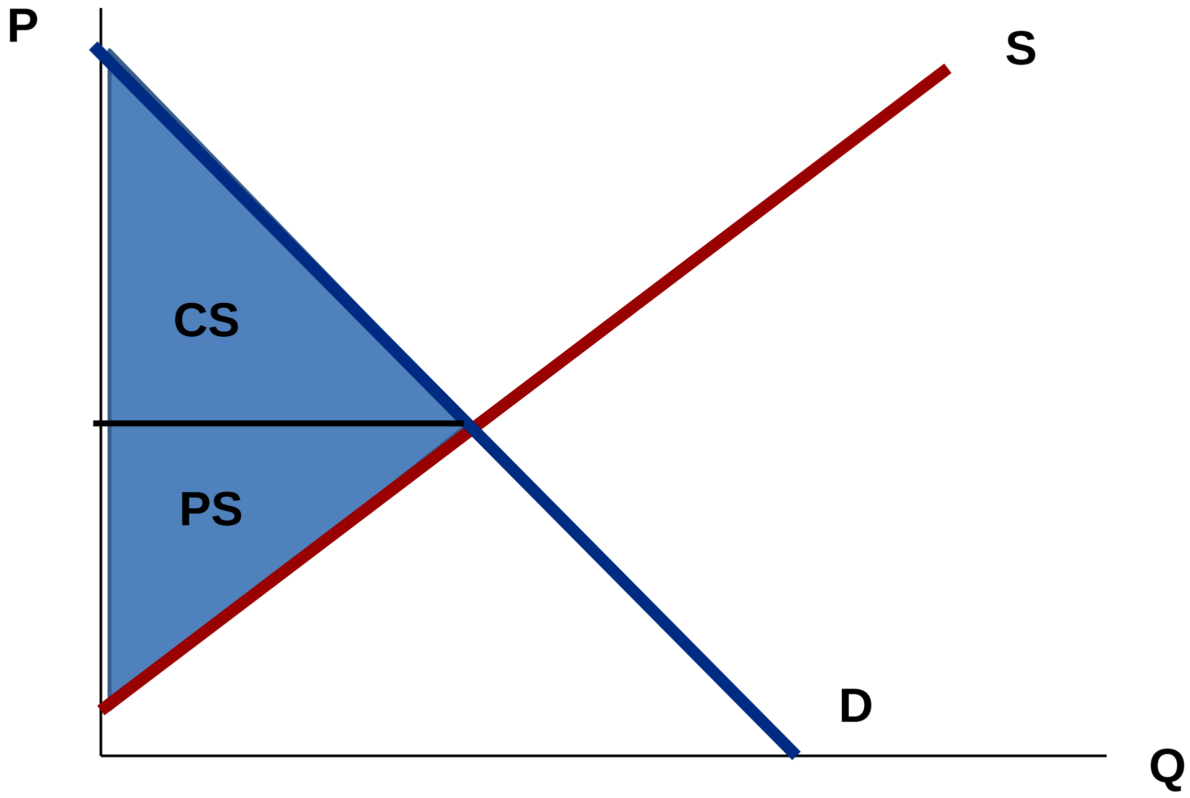
Total Surplus = Consumer Surplus + Producer Surplus

or

Total Surplus = Value to buyers – Cost to sellers

- If an allocation of resources maximizes total surplus, we say that allocation is <u>efficient</u>.
- If an allocation of resources leads to well-being that's fairly distributed among society's members, that's <u>equity</u>.
- We can illustrate total surplus for a market equilibrium:

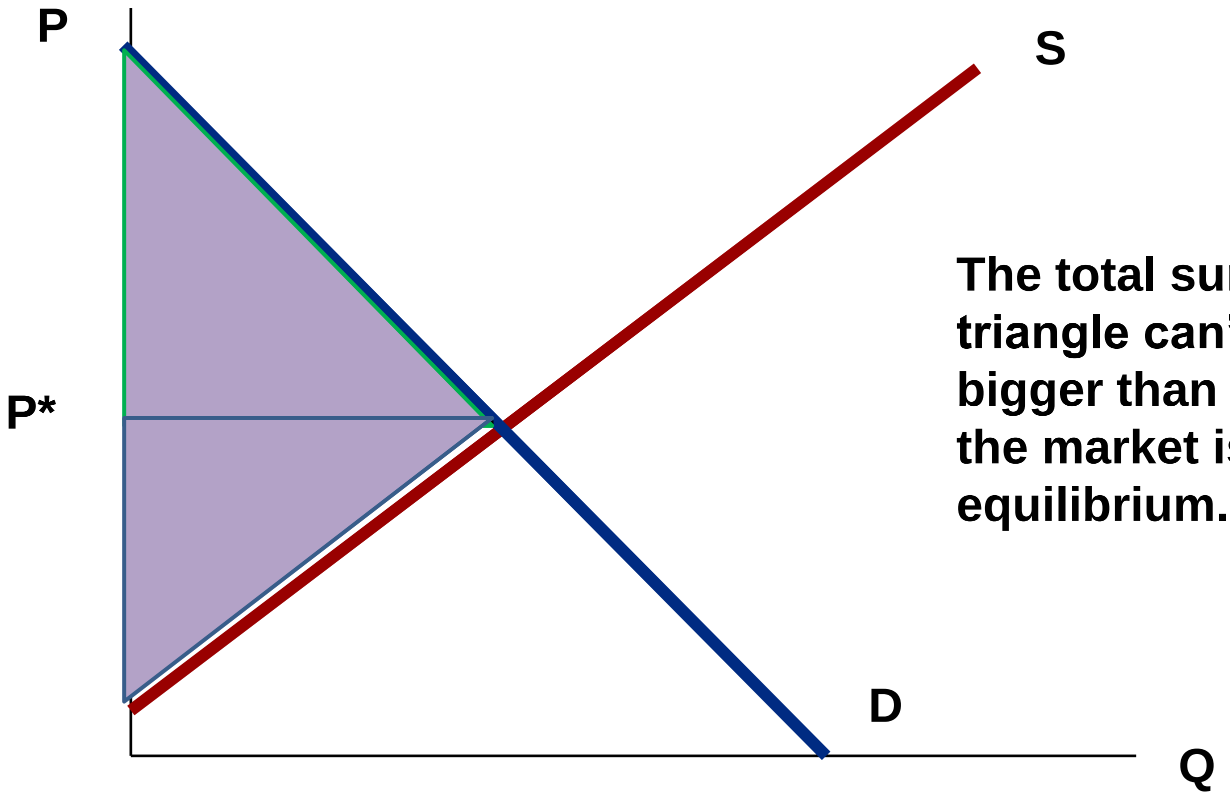
- Total Surplus = CS + PS



Free markets do 3 things:

- They allocate the supply of goods to the buyers who value them most highly (have the highest willingness to pay).
- They allocate the demand for goods to the producers who can produce them at least cost.
- They produce the quantity of goods that maximizes the sum of consumer and producer surplus.

Total Surplus is maximized at equilibrium.

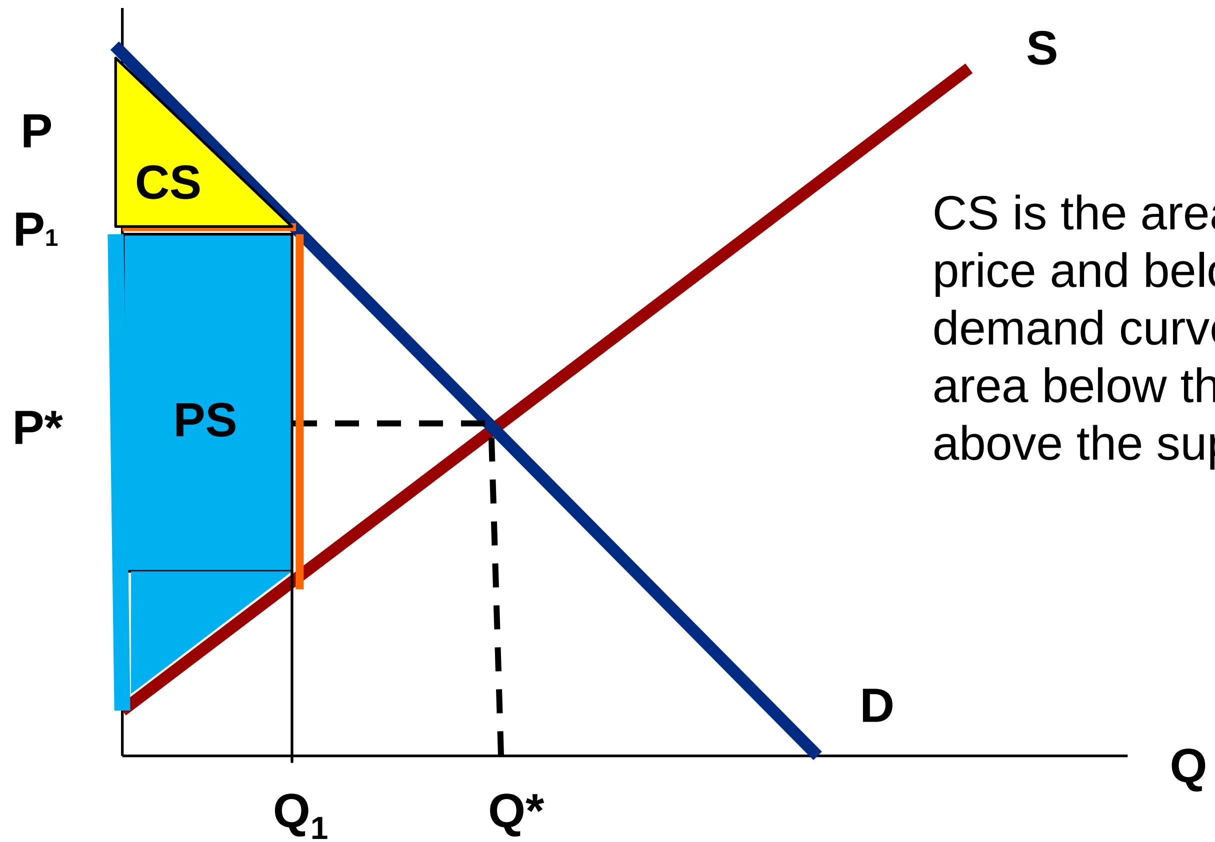


The total surplus triangle can't be any bigger than it is when the market is equilibrium.

Deadweight Losses

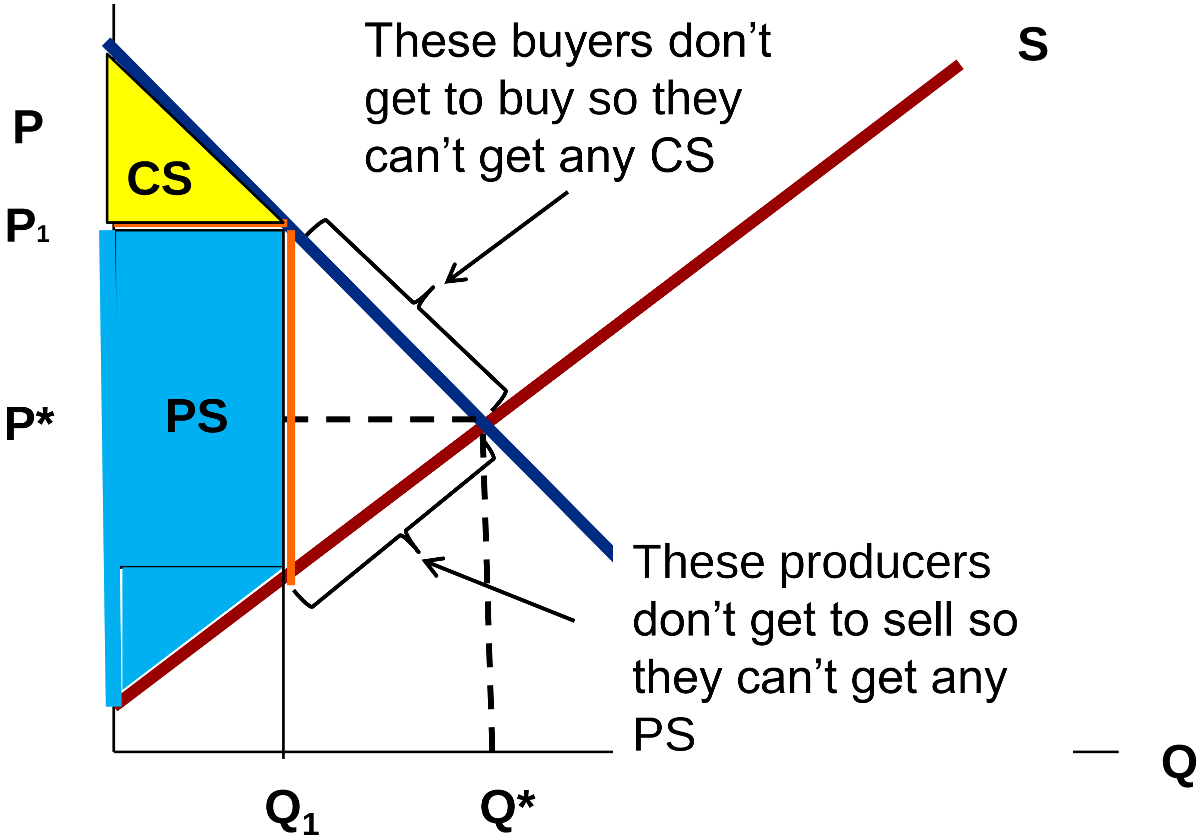
- Whenever the market outcome is one of equilibrium, total surplus (as we just saw) is maximized.
- This isn’t always the case.
- A loss in total surplus happens when the quantity traded is less than what would be traded when the market is in equilibrium.

- Consider a price of P_1.
- At P_1 only Q_1 is traded in the market.

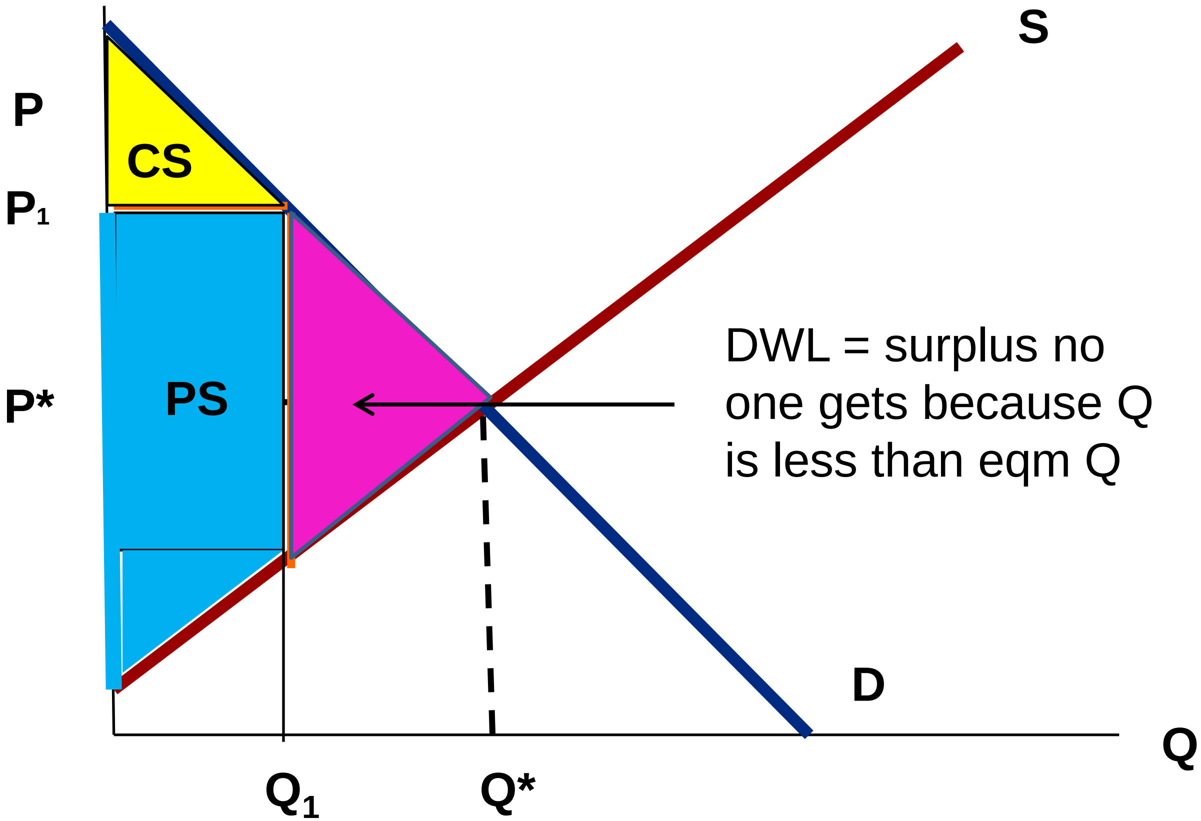


CS is the area above the price and below the demand curve; PS is the area below the price and above the supply curve.

- Since only Q_1 is produced and traded, all the buyers and sellers who got to buy and sell when Q* was available miss out.



- The pink triangle is surplus no one gets anymore because Q* is not being traded.
- The area of this triangle is the deadweight loss, DWL, in welfare.



- Because the equilibrium outcome is an efficient allocation of resources and maximizes total surplus (welfare), a social planner can leave the market outcome as he/she finds it.
- This policy of leaving well enough alone goes by the French expression laissez faire.
- We'll see in upcoming chapters how government intervention and different market structures can alter economic welfare, and not for the better.