Government Policies That Alter the Private Market Outcome

- Price controls
  - Price ceiling: a legal maximum
  - Price floor: a legal minimum
- **Taxes**
  - The govt can make buyers or sellers pay a specific amount on each one bought/sold.

1

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Taxes

- The govt levies taxes on many goods & services to raise revenue (national defense, public schools, etc.)
- The tax can be collected from buyers or sellers.
- The tax can be a percentage of the good's price, or a specific amount for each unit sold *(per-unit)*.

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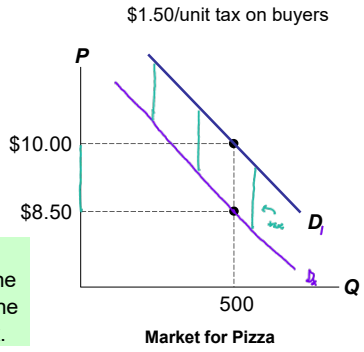
A Tax on Buyers



A tax on buyers essentially shifts the ***D*** curve down by the amount of the tax.

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A Tax on Buyers

New eq'm:

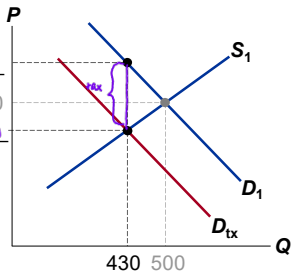
Q_e = 430

P_B =$ 11.65

P_S =$ 9.50

Difference between them

$1.50 = tax



The tax is a "wedge."

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Tax Incidence -- how the burden of a tax is shared

Initially,

P_e = $10.00

Q_e = 500

Now, with the tax, buyers pay $1.00 more, sellers get $0.50 less.

Graph from prev slide

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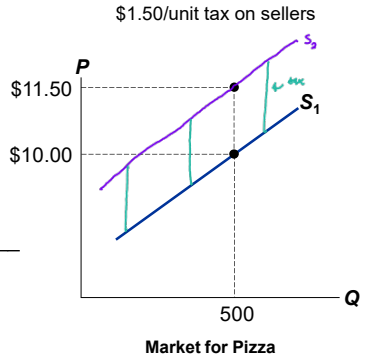
A Tax on Sellers



The tax effectively raises sellers' costs by $1.50 / pizza.

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A Tax on Sellers

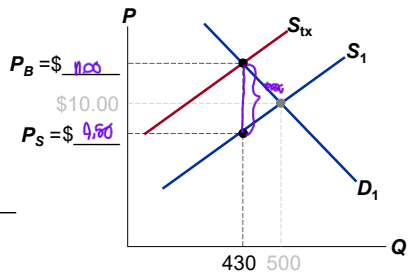
New eq'm:

Q = 430

Difference between them

$1.50 tax

Effects of a $1.50 per unit tax on sellers



Again, the tax is a "wedge."

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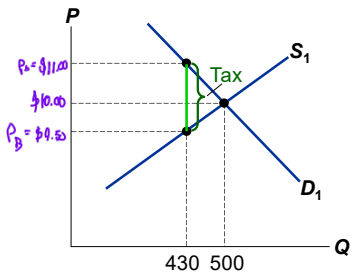
The Outcome Is the Same in Both Cases!

A tax drives a wedge between the price buyers pay and the price sellers receive.



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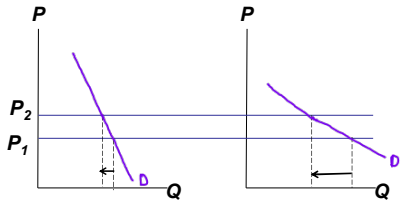
Who Will Bear the Burden of a Tax?

Well, it depends ...

How "responsive" are buyers and sellers to a price change?



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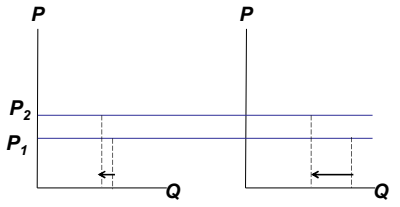
Who Will Bear the Burden of a Tax?

This "responsiveness" = "elasticity" for economists

Relatively Inelastic

Relatively Elastic



Demand elasticity

Supply elasticity

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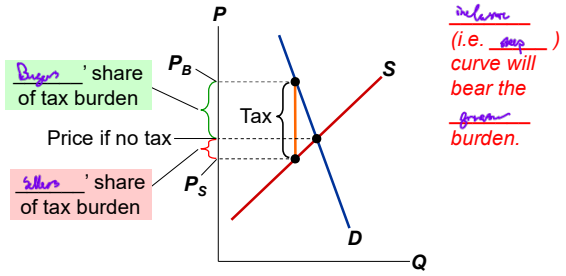
Who Will Bear the Burden of a Tax?



The more inelastic (i.e. steep) curve will bear the greater burden.

Supply is "flatter" than demand (more "elastic")

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Government Policies ... and the Allocation of Resources

- Policies affect the allocation of society's resources.
- Implications…

Image of a triangle between sup.

Future policymakers: please apply these policies very carefully!

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Welfare Economics

Welfare economics:
the study of how the allocation of resources affects well-being.

Consumer Surplus

Producer Surplus

Total Surplus

Market efficiency….

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Demand...WTP

Willingness to pay - maximum amount the buyer will pay for a given ***Q***

Thus, WTP measures buyer's "value."
(satisfaction, utility)

How does that compare with what the buyer must actually pay?

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Consumer Surplus (CS)

Consumer surplus: amount a buyer is willing to pay minus what the buyer actually pays, or

CS = WTP - P

Suppose ***WTP*** = $90

Suppose ***P*** = $80

CS = $ 90 - $80 = $10

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Consumer Surplus

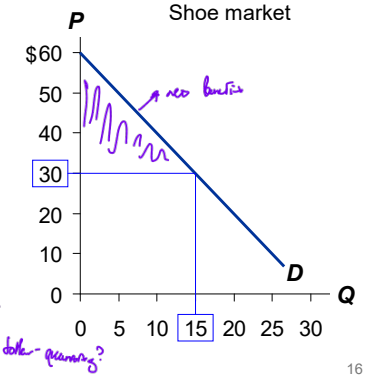
CS: Area below the demand curve and above the price

(A = ½ x base x height)

Height: $30

So,
CS = $\frac{1}{2} \cdot 15 \cdot 30 = \$225$

Shoe market



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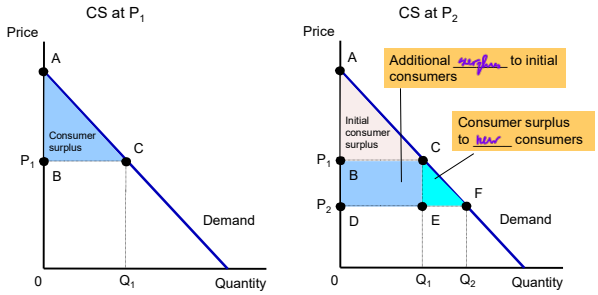
Price Changes Affect CS:



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Supply...WTS

- **Cost**: value of everything a seller must give up to produce a good (*i.e.*, opportunity cost)
  - A seller will only produce and sell the good if the P ≥ cost.
  - Thus, *cost is a measure of willingness to sell* (WTS).
  - What about WTS and ***P***?

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Producer Surplus (PS)

Producer surplus: amount a seller is paid for a good minus the seller's cost, or

PS = P - cost

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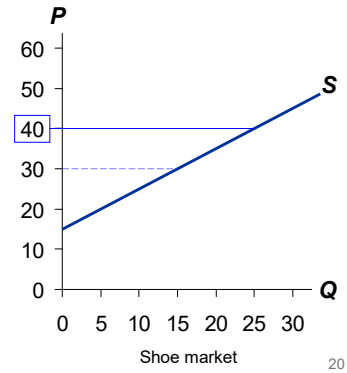
Producer Surplus

Suppose ***P*** = $40.

At ***Q*** = 15, the seller's cost is

$ 25,

PS = $ 10



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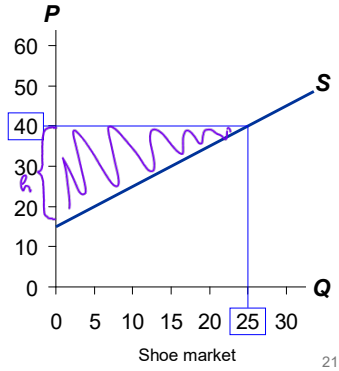
Producer Surplus

PS is the area b/w ***P*** and ***S*** .

PS = ½ x *b* x *h*
= ½(25)(25)
= $312.50



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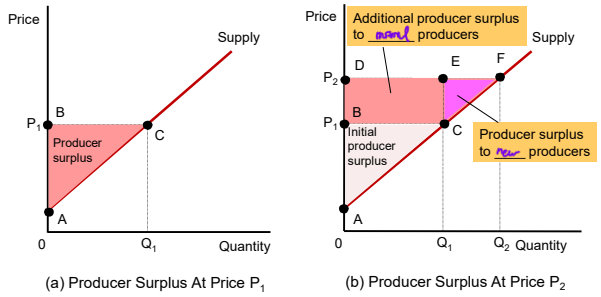
Price Changes Affect PS:



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What Do CS, PS, and Total Surplus Measure?

CS = (value to buyers) – (amount paid by buyers)
i.e. benefit to buyers

PS = (amount received by sellers) – (cost to sellers)
i.e. benefit to sellers

Total surplus = CS + PS
= the total gains from trade in a market.
= (value to buyers) – (cost to sellers)

Is the market outcome efficient?

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Evaluating the Market Equilibrium

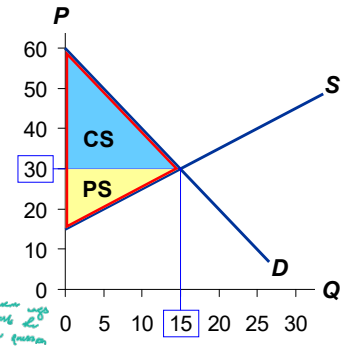
Market eq'm:
P = $30

Q = 15,000

Total surplus
= CS + PS
= $75,000

1) Is the market eq'm efficient? Yes

2) Is total surplus maximized? Yes



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The Free Market vs. Govt Intervention

- Can the govt raise total surplus in a competitive market? No.
- Laissez Faire (*fr* "allow them to do"): the notion that govt should not interfere with the market

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Welfare "Tools" Applied…

- What happens to efficiency when taxes are introduced in a market?
- What about CS and PS with price controls?

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The Effects of a Tax

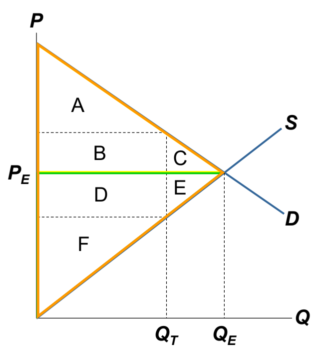
No tax:

CS = A+B+C

PS = D+E+F

Tax revenue = 0

Total surplus = CS + PS



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The Effects of a Tax

With the tax,

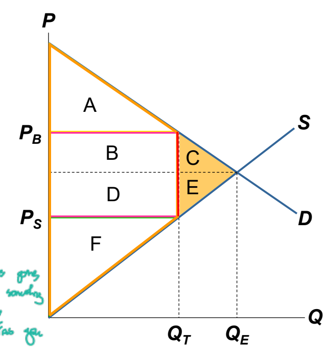
CS = A

PS = F

Tax revenue = B+D

Total surplus = (A+F)+(B+D)

Total surplus ⇩ by C+E = dead weight loss



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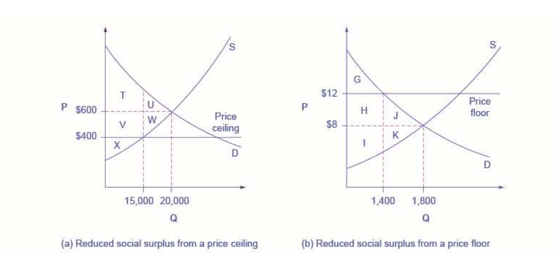
DWL & Price Controls



DWL: dead weight loss; efficiency loss "lost" surplus

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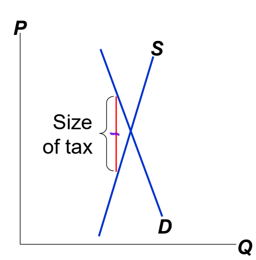
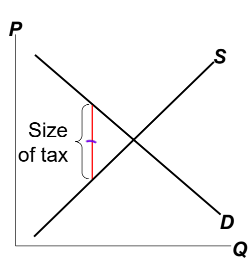
DWL & Elasticity

Relatively Inelastic

Relatively Elastic





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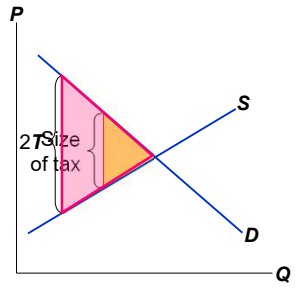
DWL & Elasticity

What about tax increases?

Double the tax, the DWL increases by ~~4~~ more!

And revenue begins to decrease!



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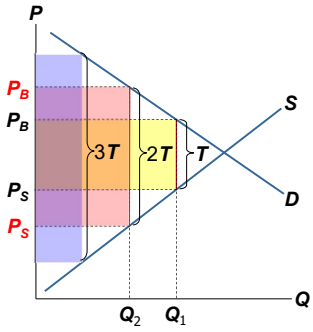
Revenue & Size of the Tax

Implications?

After a certain point, increasing taxes will not increase tax revenue.

Layered taxes?

The yellow being a cap on, not being the same on, and those being federal, for example. Only the higher levels of the layered tax benefits.



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