

MobLab
A playground for decisions

Taxes

Taxes on Sellers and Buyers

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Principles of Microeconomics 21F

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Taxes

Principles of Microeconomics 21F

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Market Forces

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Game Instructions

Market Forces

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Groups of 5 sellers and 5 buyers.
Trade to maximize your profits!

Orange producer, selling oranges

Hungry consumer, buying oranges

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SELLERS

SELLER
Order Book >

Cost \$0.65
Oranges 3/3
Earnings \$0.00

\$1.24 Profit \$0.59

ASK

or

Sell at Highest Bid

BIDS	ASKS
\$1.03	\$1.62
\$0.51	\$2.10
\$0.30	--

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Submit an ASK using the slider, or Sell at Highest Bid

SELLER
Order Book >

Cost \$0.65
Oranges 3/3
Earnings \$0.00

\$1.24 Profit \$0.59

ASK

or

Sell at Highest Bid

BIDS	ASKS
\$1.03	\$1.62
\$0.51	\$2.10
\$0.30	--

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Seller's Profit = Sale Price - Cost

SELLER
Order Book >

Cost \$0.65
Oranges 3/3
Earnings \$0.00

\$1.24 Profit \$0.59

ASK

or

Sell at Highest Bid

BIDS	ASKS
\$1.03	\$1.62
\$0.51	\$2.10
\$0.30	--

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BUYERS

BUYER
Order Book >

Value \$1.38
Oranges 0/3
Earnings \$0.00

\$1.04 Profit \$0.34

BID

or

Buy at Lowest Ask

BIDS	ASKS
\$0.34	\$0.87
\$0.23	\$0.90
--	\$1.03

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Submit a BID using the slider, or Buy at Lowest Ask

BUYER
Order Book >

Value \$1.38
Oranges 0/3
Earnings \$0.00

\$1.04 Profit \$0.34

BID

or

Buy at Lowest Ask

BIDS	ASKS
\$0.34	\$0.87
\$0.23	\$0.90
--	\$1.03

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Buyer's Profit = Value - Purchase Price

BUYER
Order Book >

Value \$1.38
Oranges 0/3
Earnings \$0.00

\$1.04 Profit \$0.34

BID

or

Buy at Lowest Ask

BIDS	ASKS
\$0.34	\$0.87
\$0.23	\$0.90
--	\$1.03

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Bids are offers to buy, **Asks** are offers to sell

Past sales / purchases for entire market

Current BIDS and ASKS

BIDS	ASKS
\$1.03	\$1.62
\$0.51	\$2.10
\$0.30	--

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When does a transaction occur?

- Someone uses **Buy at Lowest Ask** or **Sell at Highest Bid**
- A Buyer places a **BID** higher than the lowest outstanding Ask (Purchase Price at Lowest Ask)
- A Seller places an **ASK** lower than the highest outstanding Bid (Sale Price at Highest Bid)

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What happens when a transaction occurs?

- Buyers
 - The value for the next orange is lower than the previous orange
- Sellers
 - The cost to supply the next orange is greater than the previous orange

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Pre-Game Survey

Market Forces

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As a **seller**, what is your profit if someone accepts your ask of **\$1.24**?

Sale Price – Cost = $\$1.24 - \$0.65 = \$0.59$

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As a **buyer**, what is your profit if you “Buy at Lowest Ask”?

Value – Purchase Price = $\$1.38 - \$0.87 = \$0.51$

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What will Price and Quantity be?

Let's find out:

- You've been told to maximize your own profits.
- The Law of Supply and Demand predicts your group's behavior.
- Will the prediction be accurate?

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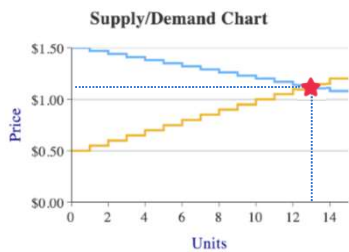
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Game Time!
 Market Forces

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What was the Equilibrium Price and Quantity of your market?



Equilibrium P: \$1.12

Equilibrium Q: 13

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What will happen to Price and Quantity?

Let's find out:

- Suppose that the government puts a \$0.32 tax on the **sellers** of oranges.



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Game Time!
 Taxes

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Post-Game Survey

Taxes

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What happened to Price and Quantity?

Before Tax

Supply/Demand Chart

P: \$1.12 Q: 13

After Tax

Supply/Demand Chart

P: \$1.24 Q: 9

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How much did sellers receive after the tax?

Supply/Demand Chart

Price

Units

$Sale\ Price - Tax = \$1.24 - \$0.32 = \$0.92$

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What will happen to Price and Quantity?

Let's find out:

- Suppose that the government puts **the same \$0.32 tax on the buyers of oranges.**

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Game Time!

Taxes

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What happened to Price and Quantity?

Before Tax

Supply/Demand Chart

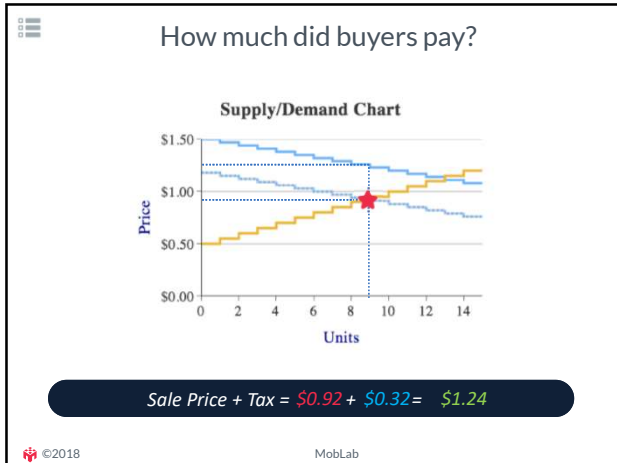
P: \$1.12 Q: 13

After Tax

Supply/Demand Chart

P: \$0.92 Q: 9

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Results Discussion

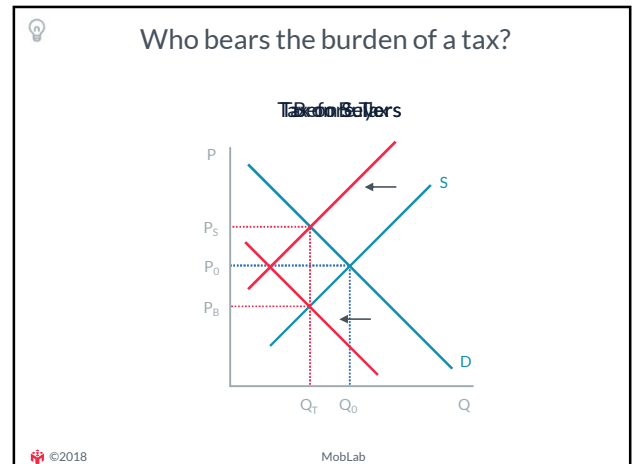
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Concept Review

Taxes

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Price paid or received is the same regardless of who the government places the tax on

	Sellers Receive	Buyers Pay
Tax on Sellers	$\$1.24 - \$0.32 = \$0.92$	\$1.24
Tax on Buyers	\$0.92	$\$0.92 + \$0.32 = \$1.24$

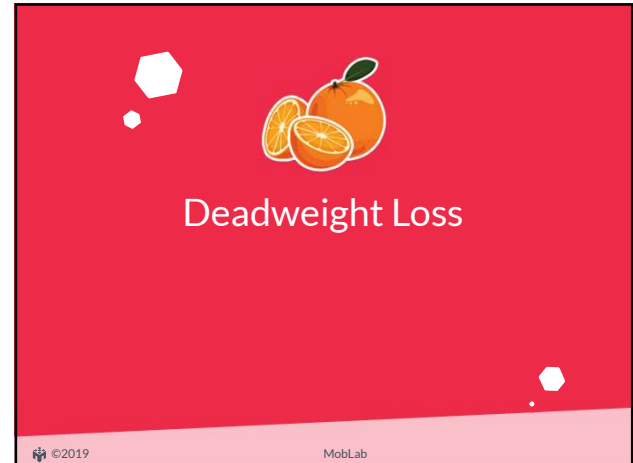
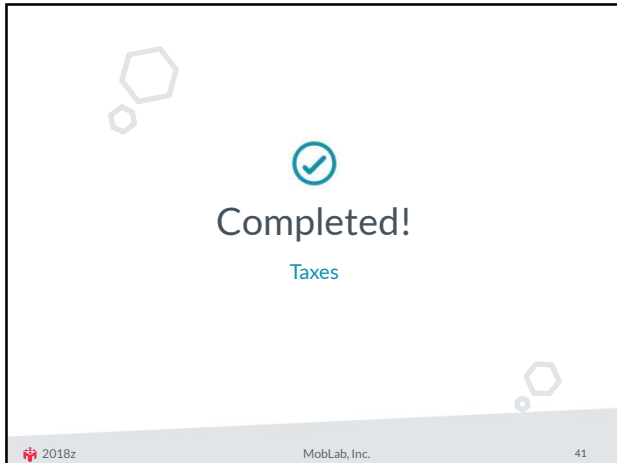
- Tax burden is shared regardless of who the government places the tax on.
 - Elasticity is the measure of how much each side of the market responds to a price change.
 - A tax changes the price buyers pay and producers receive.
 - Elasticity determines how the burden is shared.

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Key Takeaways

- Tax Incidence is the way in which the burden of a tax is split among producers and consumers.
 - Tax incidence is not dictated by whom the tax is placed upon but by the *elasticities* of the supply and demand curves.

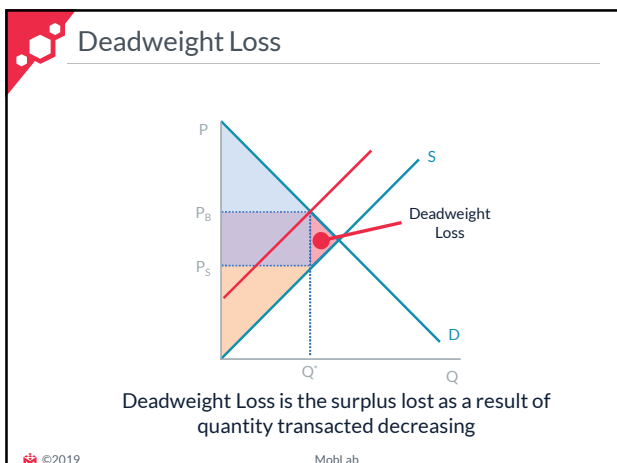
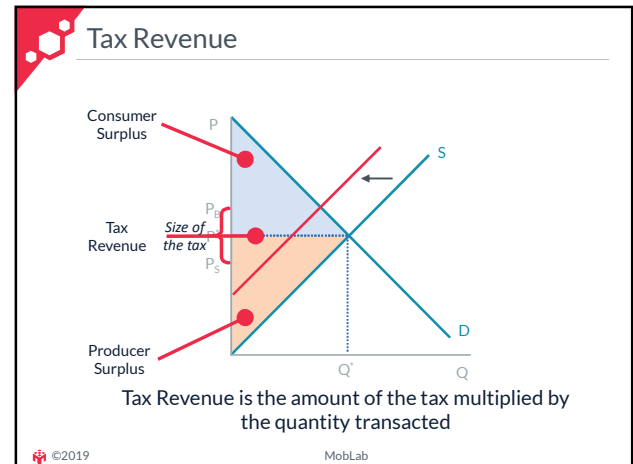
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What happens to overall surplus?

- When a tax is levied, buyers pay more and sellers receive less
- The difference in how much more buyers pay and how much less sellers receive is the amount of the tax
- It does not matter who the tax is levied on, the result is the same
- Since buyers pay more, they buy less
- Since sellers receive less, they produce less

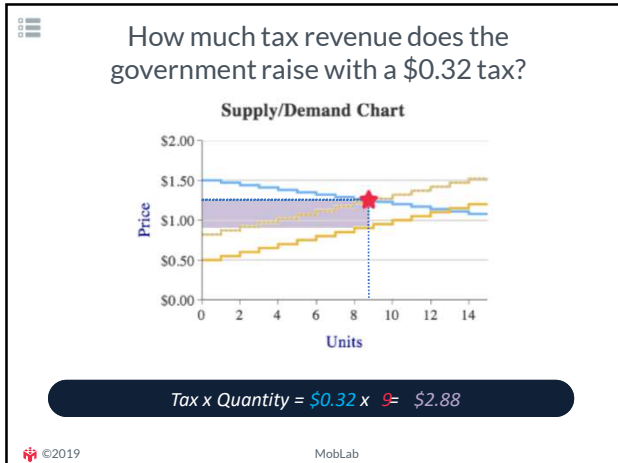
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What happens to overall surplus?

- For a trade that has a surplus greater than the tax:
 - Total surplus does not change
 - Consumer surplus and producer surplus decrease and is transferred to the government
- For a trade that has a surplus less than the tax:
 - The trade does not happen
 - Producer surplus and consumer surplus is 0
 - The government collects no revenue
 - This is the source of Deadweight loss

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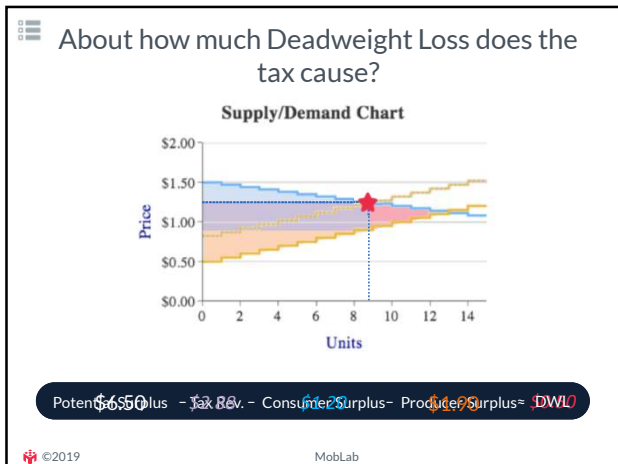


About how much Deadweight Loss does the tax cause?

	Before Tax	After Tax
Consumer Surplus	\$2.50	\$1.20
Producer Surplus	\$4.00	\$1.90
Tax Revenue	-	\$2.88
Total	\$6.50	≈ \$6.00

There is about \$0.50 of Deadweight Loss

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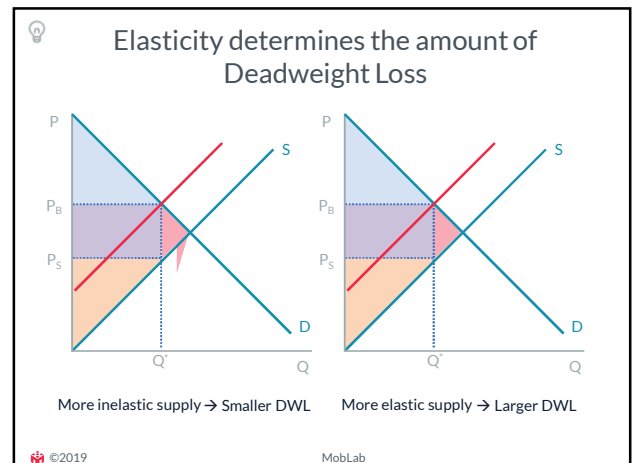


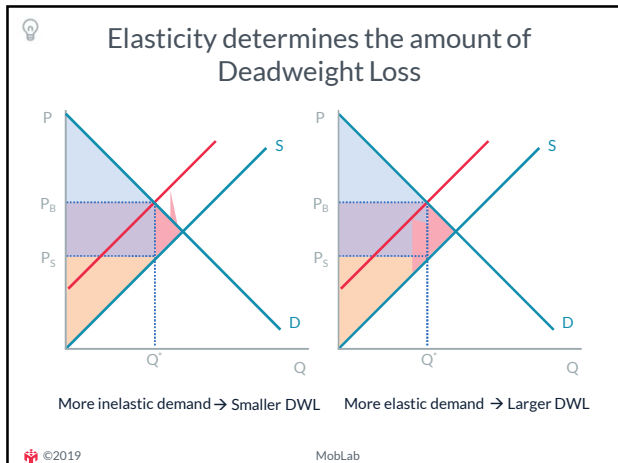
Concept Review

Deadweight Loss

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- Producers produce less and Buyers buy less
 - Reduction in the quantity transacted is the source of the Deadweight Loss
 - Deadweight Loss is the surplus lost that is not captured by the consumers, producers, or the government
 - Another way of looking at it is that Deadweight Loss is equal to the surplus from transactions that would have happened if there was no tax
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Key Takeaways

- *Deadweight Loss* is the decrease in total surplus and that results from foregone production (and subsequent consumption) due to a distortionary tax or other market distortion.
 - In other words, it is the overall cost to society of a tax or other market distortion
 - Elasticities and the size of a tax are the key components in determining the size of a Deadweight Loss

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Completed!

Deadweight Loss

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