Economic Efficiency Examples

Recitation Assignment
News
Review
A Tax Levied on A Good Or Service Creates Economic Inefficiency
Who Bears the Burden of a Tax?
What Have We Learned

Recitation Assignment
Download and read “The Economic Organization of a P.O.W. Camp”
Download the discussion questions and arrive at your preliminary answers.
Bring the reading and the questions to recitation with you.
There will be a quiz to determine if you are prepared for discussion.

New York Times
July 25, 2005
To Reduce the Cost of Teenage Temptation, Why Not Just Raise the Price of Sin?
By DAVID LEONHARDT

WHEN you look back on all the attempts to curb teenage drinking, smoking and drug use over the last couple of decades, you start to ask yourself a question that countless parents have asked: Does anybody really know how to change a teenager’s behavior?

Much of this back and forth is unnecessary. There is in fact a surefire way to get teenagers to consume less beer, tobacco and drugs, according to one study after another: raise the cost, in terms of either dollars or potential punishment.

Teenagers, it turns out, are highly rational creatures in some ways. Budweisers and Marlboros are discretionary items, and their customers treat them as such. Gasoline consumption, by contrast, changes only marginally when the price of a gallon does.

What Economists Mean by Efficiency

An allocation is efficient if it is not possible to reallocate goods in a way that makes someone better off without making someone else worse off.

If it is possible to make someone better off without making anyone else worse off an allocation is inefficient.
Economic Efficiency


Markets are efficient when the value placed by buyers on the last unit of the good bought just equals the marginal cost of producing that good.

Use Your Clickers to Answer The Following Graded Question.

In Asheville, there are two sources of electric power.
1. A hydroelectric plant produces power at a cost of $0.04 per KWH.
2. A coal fired generator produces power at a cost of $0.07 per KWH.
What should Asheville citizens pay for electricity?

The electricity price paid by Ashville customers should...
A. Equal the average of the costs at the two production facilities.
B. Equal the lower, hydroelectric price provided the hydroelectric plant can meet total customer demand.
C. Equal the higher coal-fired plant price no matter how large customer demand.
D. Equal the marginal cost of electricity at the plant that supplies them.
The electricity price paid by Ashville customers should equal the lower price if the hydro plant can meet total demand.

If the hydro plant can meet total demand, then the marginal cost of electricity to Ashville is the hydro price.

It is generally not efficient to have different customers pay different prices.

Levying a Tax on A Good Or Service Sometimes Creates an Inefficient Allocation

A tax on a good creates an inefficiency because it usually causes the market price of the good to be different from the marginal cost of the good.

A tax on a good leads consumers to under-use the good.

The Effect of a Tax on the Equilibrium Quantity and Price of Avocados

<table>
<thead>
<tr>
<th>Quantity (millions of pounds/month)</th>
<th>Price ($/pound)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>2</td>
<td>2.0</td>
</tr>
<tr>
<td>3</td>
<td>3.0</td>
</tr>
<tr>
<td>4</td>
<td>4.0</td>
</tr>
<tr>
<td>5</td>
<td>5.0</td>
</tr>
</tbody>
</table>

D

S + tax

Tax = $1.00 per pound
Price rises from $3.00 to $3.50
After the tax, MC=$2.50

A Tax Levied on a Good Causes an Economic Inefficiency Because...

It causes price to rise above the marginal cost of producing the good.

It causes some consumers who are willing to pay the true marginal cost of the good to not consume it.

It causes a greater loss in surplus than is collected by the government as tax revenue.
### Who bears the burden of a tax?

Taxing a good will generally change the market price of the good. Whether demanders or suppliers bear the burden of the tax depends on the shapes of the demand and supply schedules. The fact that the tax is collected from suppliers does not mean that suppliers bear the burden of the tax.

### Motor Fuels Excise Taxes in Selected States (Jan 1, 2008)

<table>
<thead>
<tr>
<th>State</th>
<th>Excise Tax on Motor Fuel Per Gallon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaska</td>
<td>$0.08</td>
</tr>
<tr>
<td>California</td>
<td>$0.18</td>
</tr>
<tr>
<td>Maryland</td>
<td>$0.235</td>
</tr>
<tr>
<td>North Carolina</td>
<td>$0.302</td>
</tr>
<tr>
<td>South Carolina</td>
<td>$0.16</td>
</tr>
<tr>
<td>Virginia</td>
<td>$0.175</td>
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</tbody>
</table>

### Cigarette Taxes by State, 2008

<table>
<thead>
<tr>
<th>State</th>
<th>Cigarette Tax Rate (per pack)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaska</td>
<td>$0.08</td>
</tr>
<tr>
<td>California</td>
<td>$0.16</td>
</tr>
<tr>
<td>Maryland</td>
<td>$0.20</td>
</tr>
<tr>
<td>North Carolina</td>
<td>$0.25</td>
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<tr>
<td>South Carolina</td>
<td>$0.16</td>
</tr>
<tr>
<td>Virginia</td>
<td>$0.15</td>
</tr>
</tbody>
</table>

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![Graph showing consumer surplus, producer surplus, and dead weight loss](graph.png)

![Table showing motor fuel excise taxes in selected states](table.png)

![Table showing cigarette taxes by state](table2.png)
How To Answer the Burden Question?

Assume that the seller collects the tax. Represent imposition of the tax with a shift in the supply schedule where the amount of the tax is the vertical size of the shift. Answer the burden question by comparing the change in equilibrium price with the tax.

When demand is less elastic, buyers bear a larger burden of the tax.

When supply is less elastic, sellers bear a larger burden of the tax.

If supply is highly elastic, buyers bear the whole burden of a tax.
Use Your Clickers To Answer The Following Graded Question.

Buyers are likely to bear a higher burden from a tax on a good when...

A. The good is produced with highly mobile inputs.
B. Good substitutes for the good exist.
C. It takes a long time to change the quantity supplied of the good.
D. The demand for the good is highly elastic.

Buyers are likely to bear a higher burden from a tax on a good when the good is produced with highly mobile inputs.

If inputs are highly mobile, supply is more likely to be elastic.

So the situation looks more like the left panel in the diagram.

When supply is more elastic, sellers bear a smaller burden of the tax.
Use Your Clickers To Answer The Following Graded Question.

Sellers are more likely to bear the burden of a tax imposed on ____ because ____.
A. Tobacco products, because demand is highly inelastic.
B. Tobacco products, because farmers can easily switch to other crops.
C. Imported oranges, because domestic oranges are good substitutes.
D. Imported oranges, because citrus growers can easily switch to other crops.

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When demand is less elastic, buyers bear a larger burden of the tax.
A Third Puzzle: Will a Tax on Soft Drinks Have the Intended Effect?

September 17, 2009

Proposed Tax on Sugary Beverages Debated

By WILLIAM NEUMAN

The debate over a tax on sugary soft drinks — billed as a way to fight obesity and provide billions for health-care reform — is starting to heat up.

President Obama has said it is worth considering. The chief executive of Coca-Cola calls the idea outrageous, while a coalition of political and medical groups has urged a public referendum to make the tax.

But a team of prominent doctors, scientists and policy makers says it could be a powerful weapon in efforts to reduce obesity, in the same way that cigarette taxes have helped curb smoking.

The proponents of a tax on sugary beverages must believe that the young-person demand for sugary beverages is price _____ because then the tax will ______ of sugary beverages by a large amount.

A. Elastic, raise the price
B. Elastic, lower the quantity
C. Inelastic, raise the price
D. Inelastic, lower the quantity

Will A Tax on Sugary Beverages Have the Intended Effect?

The Intended Effect is a Large Decrease in Consumption of Sugary Beverages by the Young.

The Size of the Quantity Response to a Tax Depends on the Elasticity of Demand.

Proponents of the Tax Must Believe that the Demand Schedule of the Young for Sugary Beverages is Highly Elastic.
**Today We Learned That**

A tax levied on a good or service generally creates inefficiency. Whether buyers or sellers bear the burden of an excise tax depends on the elasticities of demand and supply.

**Questions for Next Class**

Is the UNC sports ticket distribution system efficient?

Is the UNC sports ticket distribution system fair?

Does the UNC sports ticket distribution system create incentives compatible with the UNC’s educational mission?