Chapter 8: Taxes

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Discussion section 4

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Outline

Today we will talk about:

- Taxes
  - tax revenue
  - social welfare
  - tax incidence

Taxes

In the U.S. (Not necessarily in other countries!) direct price controls (ceilings/floors) are relatively rare.

Taxes are much more common: **What is a tax? Who is a tax levied on?**

When taxes are levied we are concerned with:

The **Incidence of the tax**: how the burden of the tax is shared among participants (buyers & sellers) in a market

How do we determine tax incidence?

Steps:

1. Determine whether the tax is on buyers or sellers
2. Decide which way the relevant curve shifts
3. Examine how the shifts affect equilibrium price and quantity
   1. Look at how buyers and sellers are affcected individually

Tax Revenue

How do we determine the tax revenue resulting from a tax?

$$\text{Tax Revenue } = (P^{Buyer}_{Tax} - P^{Seller}_{Tax}) \times Q^*_{Tax}$$
$$\text{Tax Revenue} = \text{Tax Wedge} \times Q^*_{Tax}$$

How can we determine incidence from this equation?

- Burden on buyers: $(P^{Buyer}_{Tax} - P^*) \times Q^*_{Tax}$
- Burden on sellers: $(P^* - P^{Seller}_{Tax}) \times Q^*_{Tax}$

Taxes

Let's return to the market for coffee...

Consider a \$0.5 tax on each cup of coffee *levied on the sellers:*

- Does this cause a shift in supply or demand?
- What will happen to P^* or Q^*?
- What is the tax revenue/where is it on a graph?
- What portion falls on buyers and what portion falls on sellers?

Taxes

In this example, buyers and sellers share the incidence of the tax.

Really, it does not matter who the tax is levied on:

tax on buyers = tax on sellers

Let's consider the same questions under the following extreme cases:

- Demand is perfectly inelastic
- Supply is perfectly inelastic

Taxes & Elasticity

- **Perfectly inelastic demand**: consumers buy the same amount of coffee no matter what $\implies$ consumers bear the entire incidence of the tax
- **Perfectly inelastic supply**: suppliers provide the same amount of coffee no matter what $\implies$ suppliers bear the entire incidence of the tax

Taxes & Elasticity

The relative elasticities determine the Tax Wedge:

This tells us which side of the market pays what portion of the tax.

In general:

- Demand is more elastic than supply $\rightarrow$ *suppliers* bear more of the burden
- Supply is more elastic than demand $\rightarrow$ *buyers* bear more of the burden

Really it is the **relative** elasticities which determine the wedge.

Taxes & Elasticity

And...

The dead weight loss resulting from a tax depends on elasticity of supply and demand:

- Demand or supply is elastic $\implies$ large dead weight loss
- Demand or supply is inelastic $\implies$ small deadweight loss

How do taxes and social welfare relate?

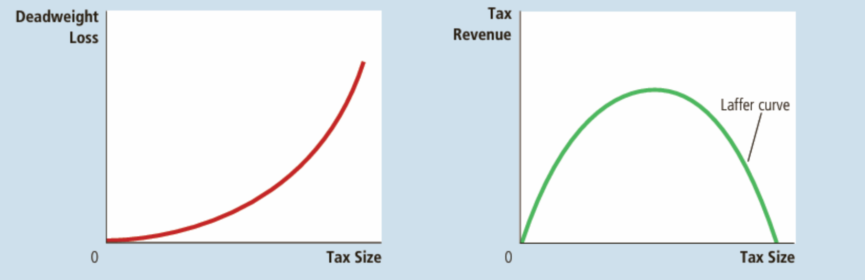

Figure 1: Dead weight loss and tax revenue