How do taxes affect the economic well-being of market participants?

It does not matter whether a tax on a good is levied on buyers or sellers of the good...the price paid by buyers rises, and the price received by sellers falls.
The Effects of a Tax

- A tax places a wedge between the price buyers pay and the price sellers receive.
- Because of this tax wedge, the quantity sold falls below the level that would be sold without a tax.
- The size of the market for that good shrinks.

Tax Revenue

\[ T = \text{the size of the tax} \]
\[ Q = \text{the quantity of the good sold} \]
\[ T \times Q = \text{the government’s tax revenue} \]
### Changes in Welfare from a Tax

<table>
<thead>
<tr>
<th></th>
<th>Without Tax</th>
<th>With Tax</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer Surplus</td>
<td>A + B + C</td>
<td>A</td>
<td>-(B + C)</td>
</tr>
<tr>
<td>Producer Surplus</td>
<td>D + E + F</td>
<td>F</td>
<td>-(D + E)</td>
</tr>
<tr>
<td>Tax Revenue</td>
<td>none</td>
<td>B + D</td>
<td>+(B + D)</td>
</tr>
<tr>
<td>Total Surplus</td>
<td>A + B + C + D + E + F</td>
<td>A + B + D + F</td>
<td>-(C + E)</td>
</tr>
</tbody>
</table>

The area C+E shows the fall in total surplus and is the **deadweight loss** of the tax.

### How a Tax Affects Welfare

The change in total welfare includes:
- The change in consumer surplus,
- The change in producer surplus,
- The change in tax revenue.
- The losses to buyers and sellers exceed the revenue raised by the government.
- This fall in total surplus is called the **deadweight loss**.

### Deadweight Losses and the Gains from Trade

Taxes cause deadweight losses because they prevent buyers and sellers from realizing some of the gains from trade.

### The Deadweight Loss...

![Diagram](https://via.placeholder.com/150)

- Price = $P_1$ without tax
- Price = $P_2$ with tax
- Lost gains from trade
- Cost to sellers
- Value to buyers
- Reduction in quantity due to the tax
Determinants of Deadweight Loss

What determines whether the deadweight loss from a tax is large or small?

- The magnitude of the deadweight loss depends on how much the quantity supplied and quantity demanded respond to changes in the price.
- That, in turn, depends on the price elasticities of supply and demand.

Tax Distortions and Elasticities:

(a) Inelastic Supply

When supply is relatively inelastic, the deadweight loss of a tax is small.

(b) Elastic Supply

When supply is relatively elastic, the deadweight loss of a tax is large.

(c) Inelastic Demand

When demand is relatively inelastic, the deadweight loss of a tax is small.
The Deadweight Loss Debate

Some economists argue that labor taxes are highly distorting and believe that labor supply is more elastic.

The Deadweight Loss Debate

Some examples of workers who may respond more to incentives:

- Workers who can adjust the number of hours they work
- Families with second earners
- Elderly who can choose when to retire
- Workers in the underground economy (i.e. those engaging in illegal activity)

Determinants of Deadweight Loss

The greater the elasticities of demand and supply:

- the larger will be the decline in equilibrium quantity and,
- the greater the deadweight loss of a tax.

Tax Distortions and Elasticities...

When demand is relatively elastic, the deadweight loss of a tax is large.
Deadweight Loss and Tax Revenue as Taxes Vary

With each increase in the tax rate, the deadweight loss of the tax rises even more rapidly than the size of the tax.
For the small tax, tax revenue is small.
As the size of the tax rises, tax revenue grows.
But as the size of the tax continues to rise, tax revenue falls because the higher tax reduces the size of the market.

As the size of a tax increases, its deadweight loss quickly gets larger.
By contrast, tax revenue first rises with the size of a tax; But then, as the tax gets larger, the market shrinks so much that tax revenue starts to fall.
The Laffer Curve and Supply-Side Economics

The Laffer curve depicts the relationship between tax rates and tax revenue. Supply-side economics refers to the views of Reagan and Laffer who proposed that a tax cut would induce more people to work and thereby have the potential to increase tax revenues.