6. Tax Incidence – Theory

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  - Introduce a Working Tax Credit (WTC) for low income earners

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  - However, prices usually respond to tax changes
  - Taxes create a **wedge** between the consumer price (P^c) and the producer price (P^p)

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Tax Incidence: Graphical Analysis
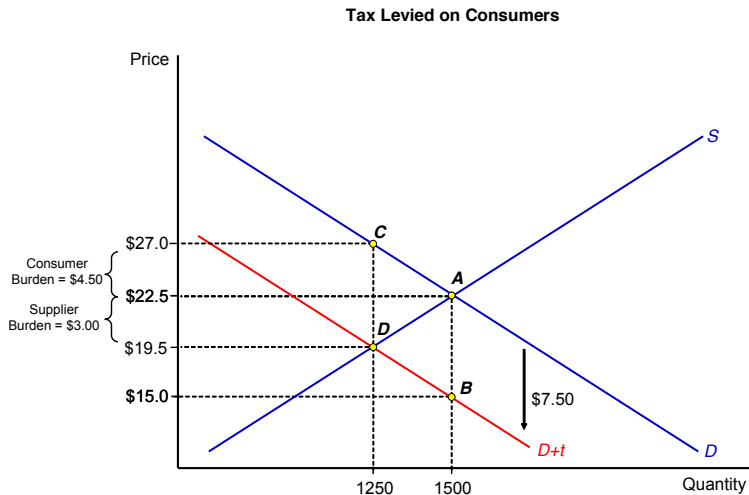
Tax Levied on Consumers

Source: Chetty and Bruich (2012)

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Tax Levied on Producers

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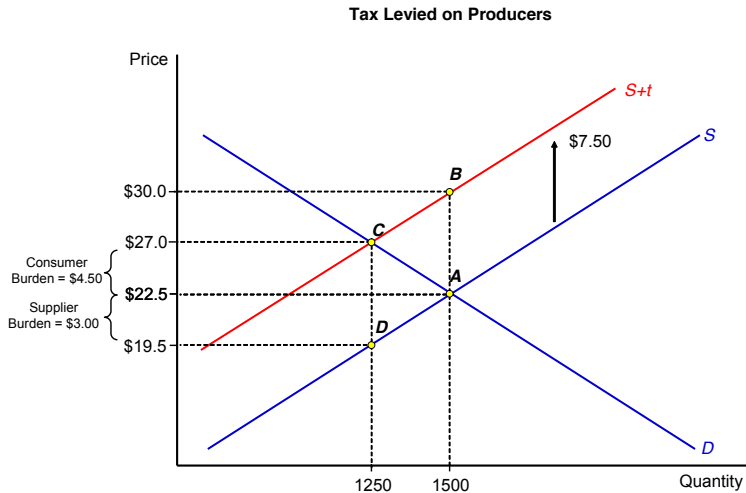
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  - Now, we have to distinguish between the price faced by consumers (P^c) and by producers (P^p)
  - In this example, we now have $Q_D(P^c + t)$ and $Q_S(P^p)$

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- In the following examples we will consider excise taxes, but the same intuition applies to *ad valorem* taxes.

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$$\frac{dP^p}{dt} = \frac{-\varepsilon_D}{\varepsilon_S + \varepsilon_D} \in \left(-1, 0\right)$$

Homework: derive tax incidence formula for consumers

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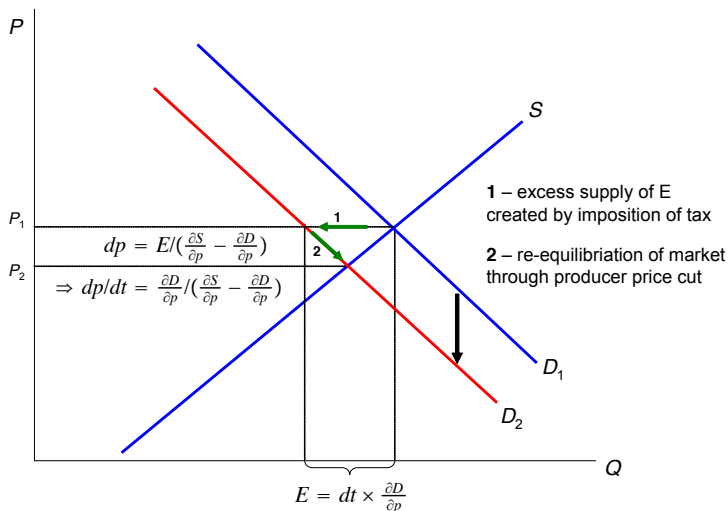
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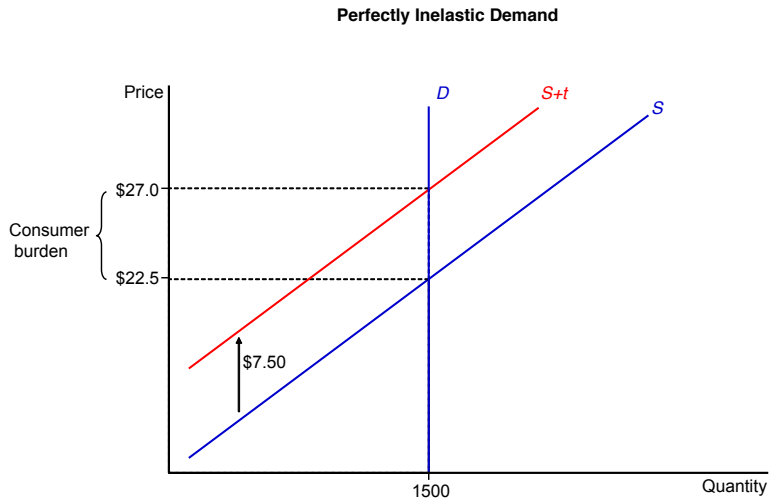
   ▶ Statutory incidence does not matter for economic incidence!
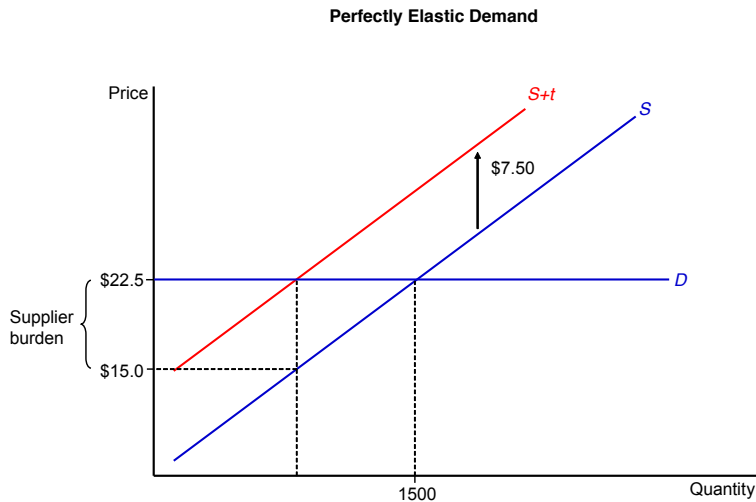
Tax Incidence: Graphical Analysis

Formula for Tax Incidence

$$dp = E/(\frac{\partial S}{\partial p} - \frac{\partial D}{\partial p})$$

$$\Rightarrow dp/dt = \frac{\partial D}{\partial p}/(\frac{\partial S}{\partial p} - \frac{\partial D}{\partial p})$$

1 – excess supply of E created by imposition of tax

2 – re-equilibriation of market through producer price cut

$$E = dt \times \frac{\partial D}{\partial p}$$

Source: Chetty and Bruich (2012)

Perfectly inelastic demand $(\varepsilon_D = 0)$

Perfectly Inelastic Demand

Perfectly elastic demand ($\varepsilon_D \to \infty$)

Perfectly Elastic Demand

Homework: elastic and inelastic supply

- Do the graphical analysis for the cases of perfectly elastic and inelastic supply
- Who bears the burden of the tax in each case?

Tax Incidence with Monopoly power

- So far, we have assumed that markets are competitive

- In the case of a **monopoly**, the producer will maximize profits by cutting down production until $MR = MC$

- When we introduce a tax, it is possible that $dP^c/dt > 1$, which was not possible under perfect competition

  - Under two assumptions: (1) ad valorem tax, and (2) $d\varepsilon_D/dP < 0$

  - See Salanie (chapter 1) for derivations of the monopoly case