

Public Economics

Lec 6: Taxation (I): equity

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AM's reminders

- [Link to group schedule](#)
- Retake micro exam on the 12th
- Live@Lund → discussion board to schedule groups

In this world nothing can be said to be certain, except death and taxes

B. Franklin, 1789

N. Martinello, 20th c

...

Tax: monetary or in-kind claim to private wealth

- Income tax, VAT, fat-tax, revenues from lotteries. . .
- Inheritance taxation
- Military draft

Government: monopoly on force

- **Right to confiscate**

Purpose of taxation

- **Financing government activities**
 - **Raise revenues:** how to do it in the best way? (efficient taxation)
- **Redistribution**
 - Tax the rich to give to the poor...
- **Influence incentives**
 - Alcohol, tobacco
 - Theory of second best
- **Stabilization policies**
 - Taxes to deflate bubbles (**housing**)
 - Politically expensive \implies expansions

Taxes in Sweden, 2010

| | Billions SEK | % of total taxes | % of GDP |
|----------------------|-----------------|---------------------|--------------|
| Taxes on labor | 877 | 58% | 26.3% |
| Taxes on capital | 191 | 13% | 5.7% |
| Taxes on consumption | 451 | 30% | 13.5% |
| Total | 1520 | 100% | 45.6% |
| of which | | | |
| EU taxes | 7 | 0.5% | |
| Local income tax | 523 | 34.4% | |
| Taxes for pensions | 183 | 12.1% | |
| State taxes | 807 | 53.1%% | |

Desiderable features of a tax system

- **Efficiency**

- Taxing while doing the least amount of damage

- **Equity**

- Contribute equally?
- Contribute according to each own's ability?

- **Simplicity**

- Transparency = easier administration \implies \searrow costs for state
- Complications \implies taxpayer's insufferance & tax avoidance

Equity: characterizing a tax

T = total tax paid; Y = taxable amount

① **Average** tax rate

- $\frac{T}{Y}$

② **Marginal** tax rate

- $\frac{\partial T}{\partial Y}$: amount taxed for the next unit of Y I earn/consume/save

Equity: characterizing a tax

T = total tax paid; Y = taxable amount

① **Average** tax rate

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- $\frac{\partial T}{\partial Y}$: amount taxed for the next unit of Y I earn/consume/save

- **Proportional tax**

- **Average** tax rate is constant over Y

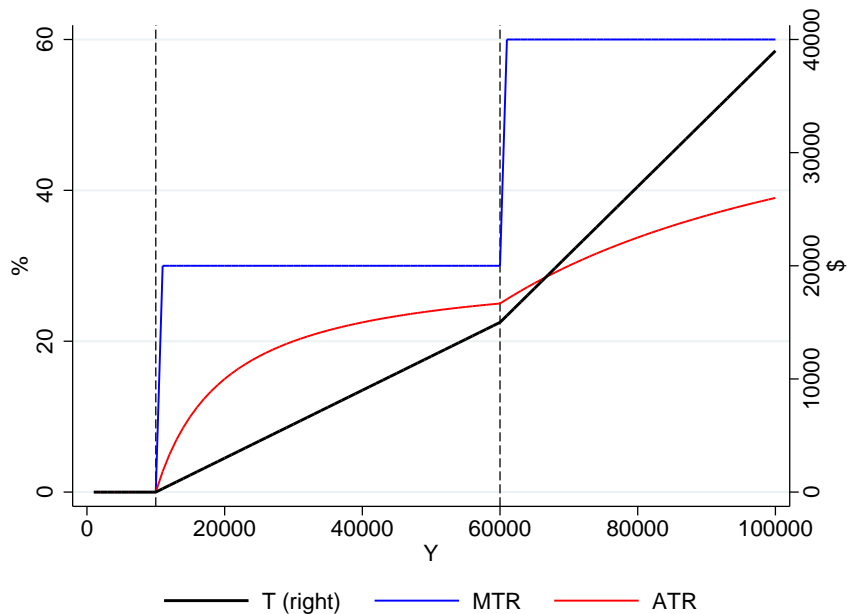
- **Progressive tax**

- **Average** tax rate is increasing over Y

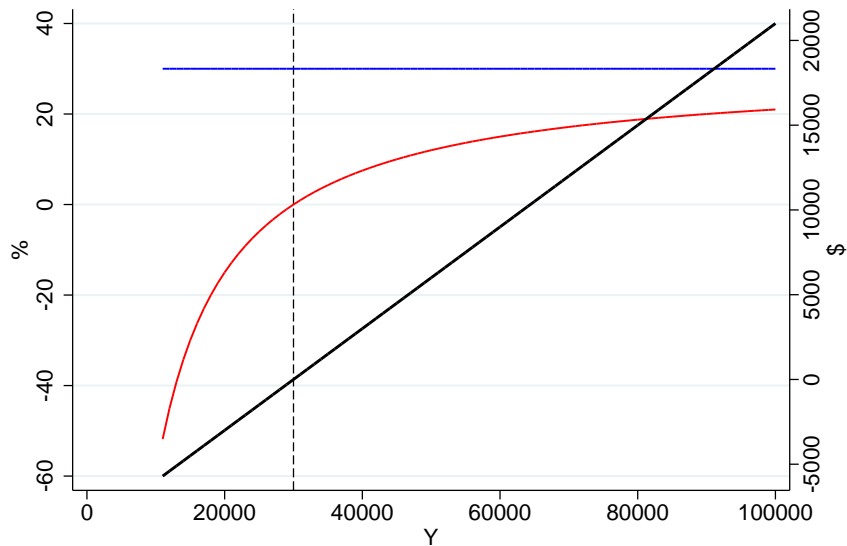
- **Regressive tax**

- **Average** tax rate is decreasing over Y

Tax systems

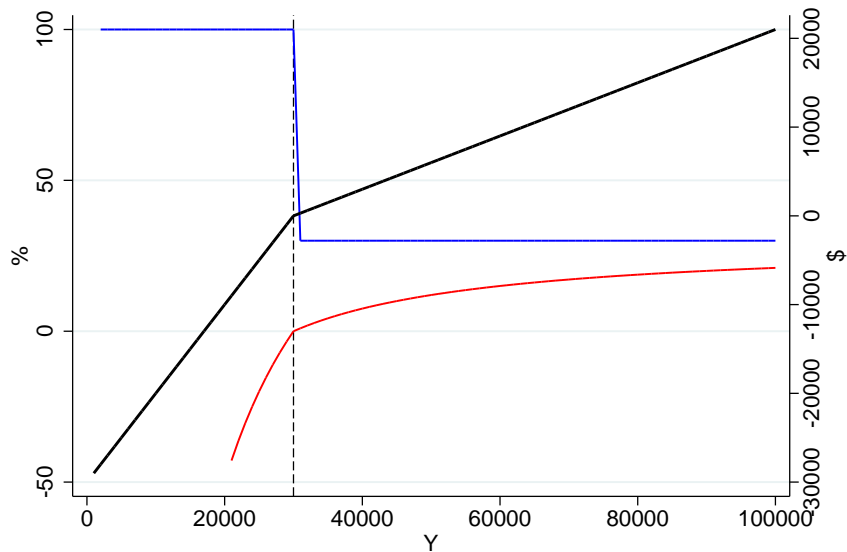


Tax systems



— T (right) — MTR — ATR

Tax systems

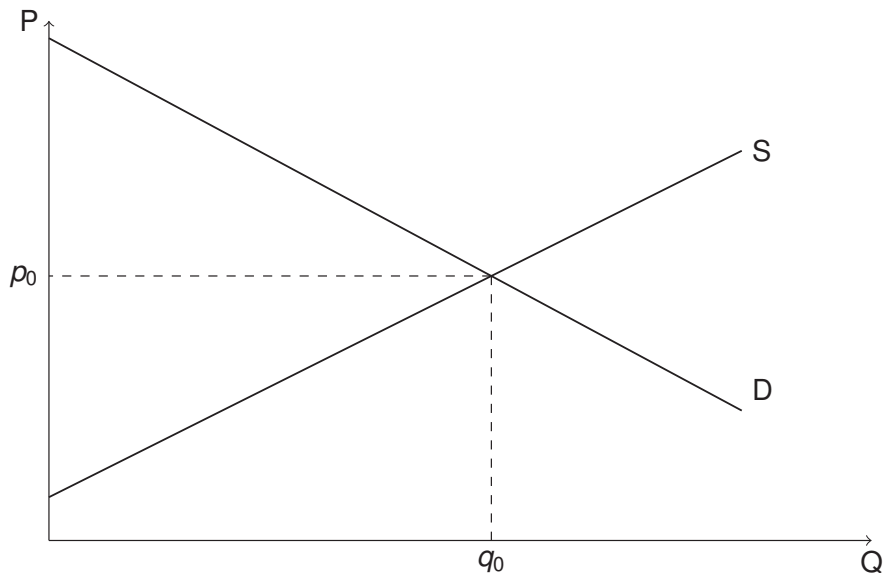


— T (right) — MTR — ATR

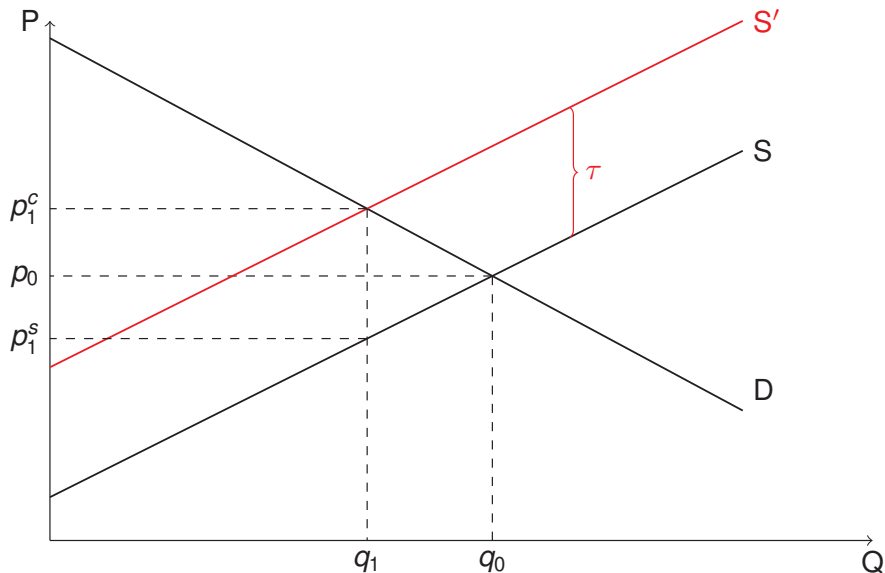
Tax incidence

- **Statutory** incidence \neq **economic** incidence
 - **Tax shifting**
- **Only people can bear taxes**

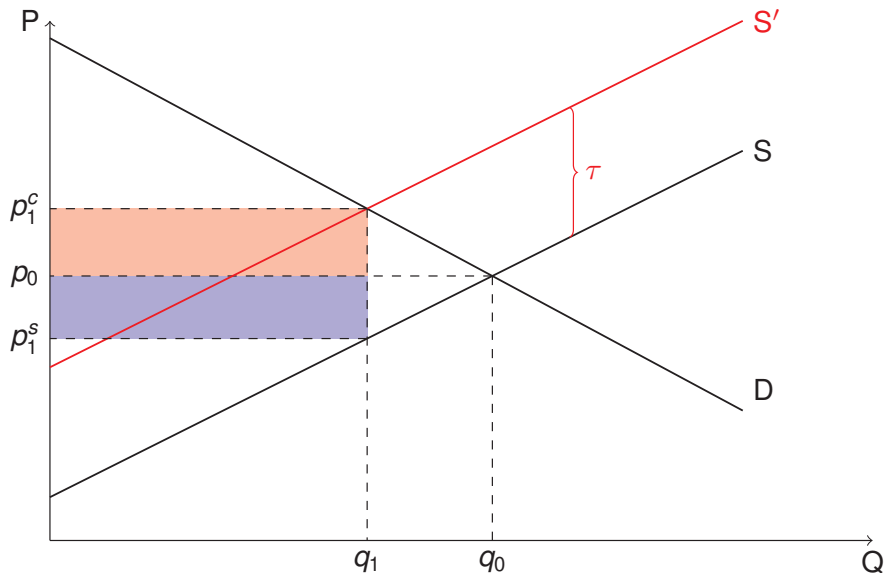
Economic inc. – unit tax imposed on supply



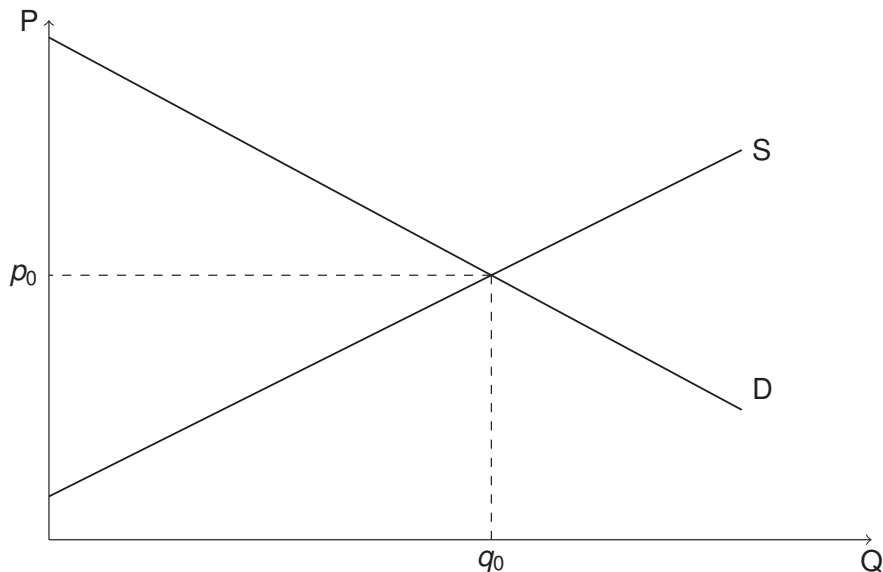
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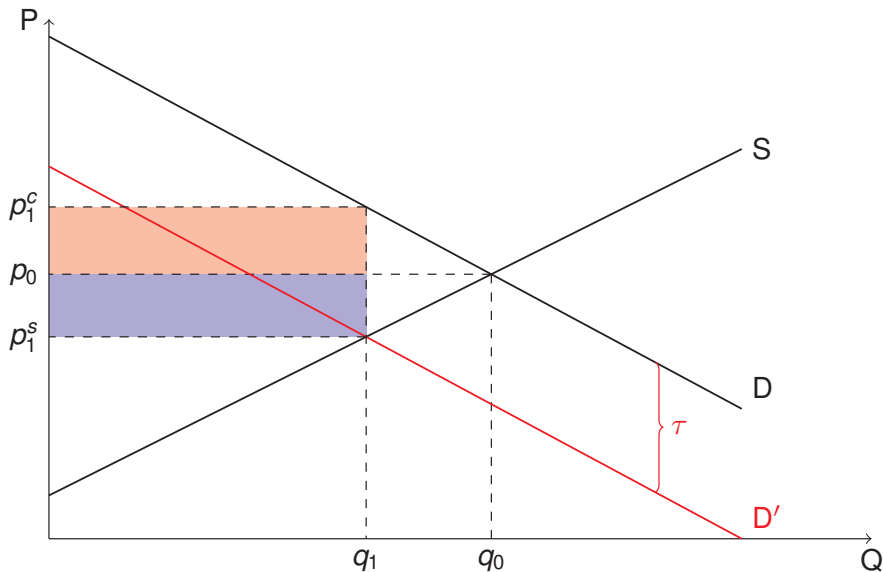
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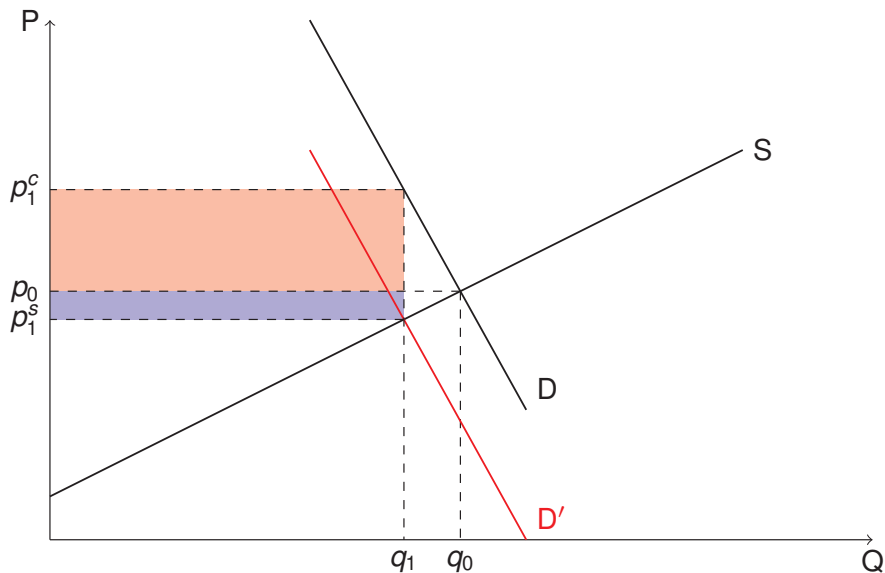
Economic inc. – unit tax imposed on demand



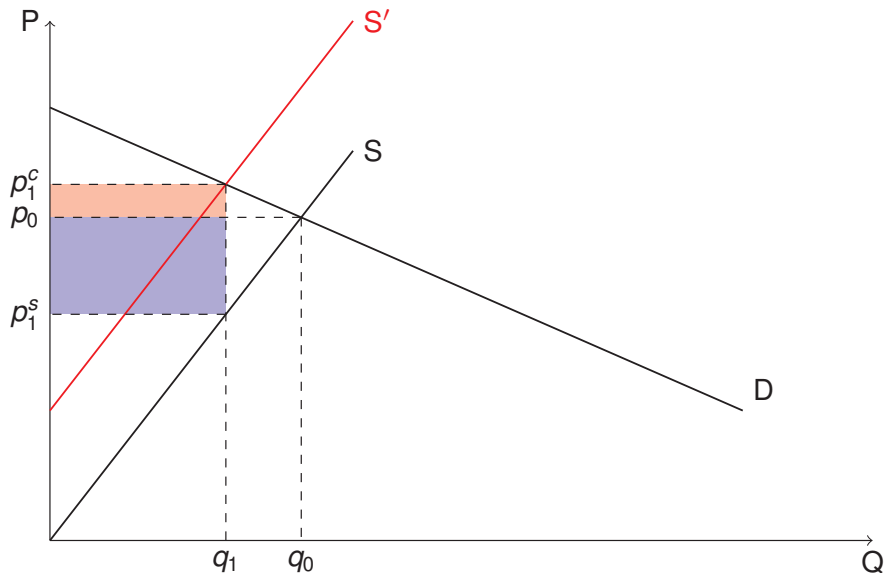
Economic inc. – unit tax imposed on demand



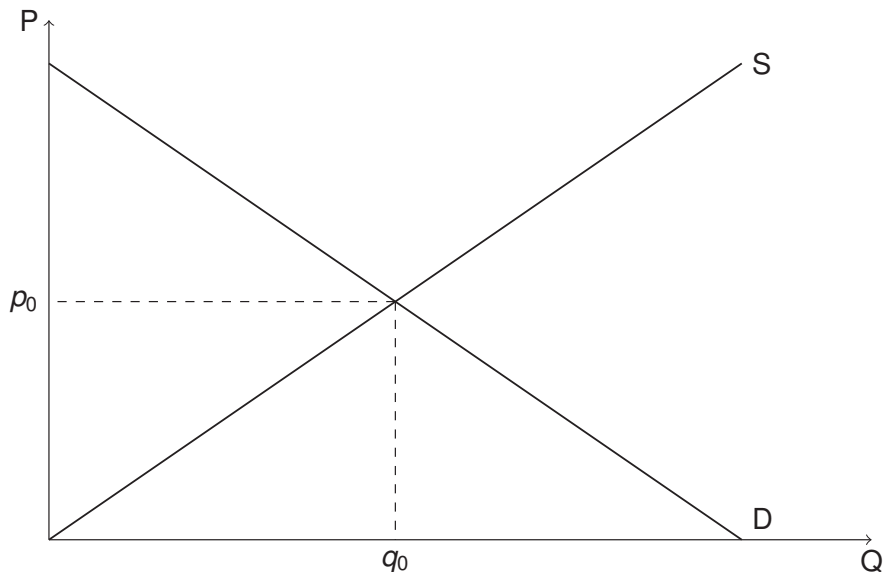
Economic inc. – unit tax, inelastic demand



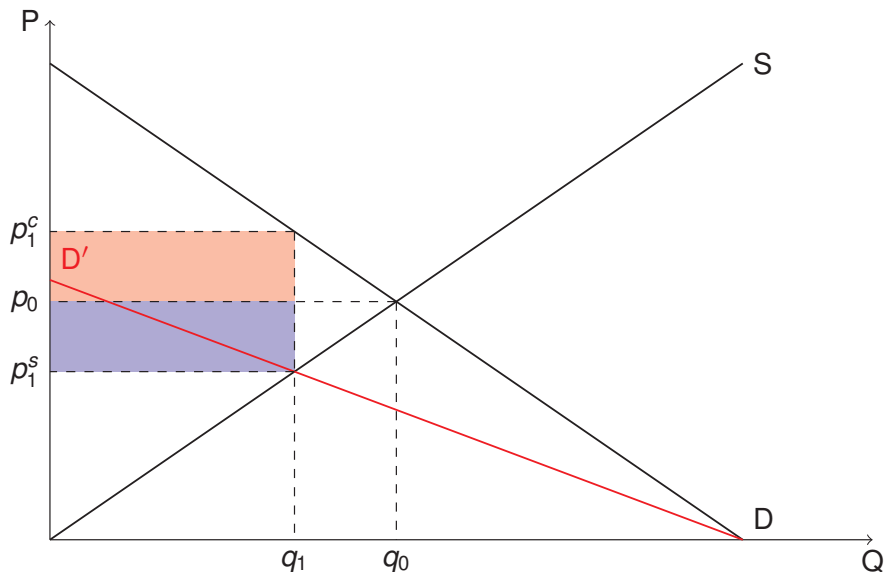
Economic inc. – unit tax, inelastic supply



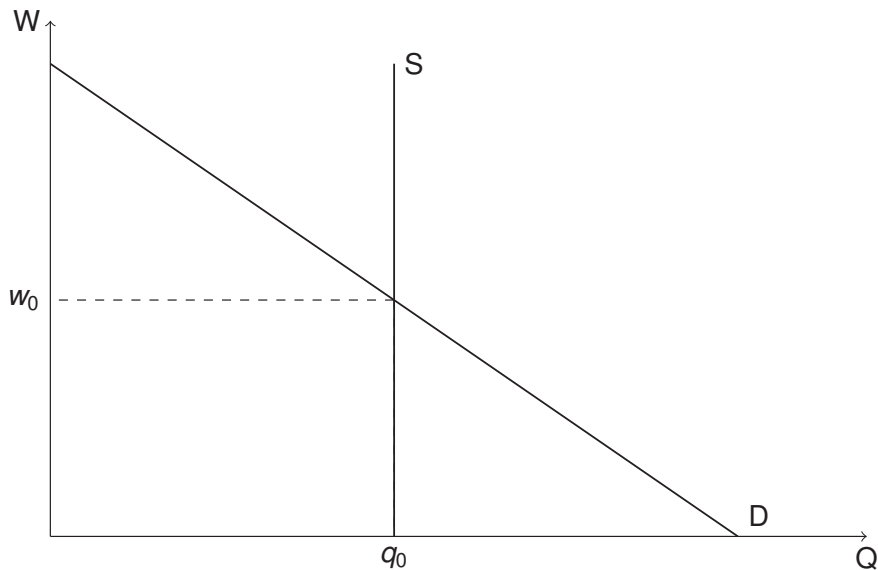
Economic inc. – ad-valorem tax on demand



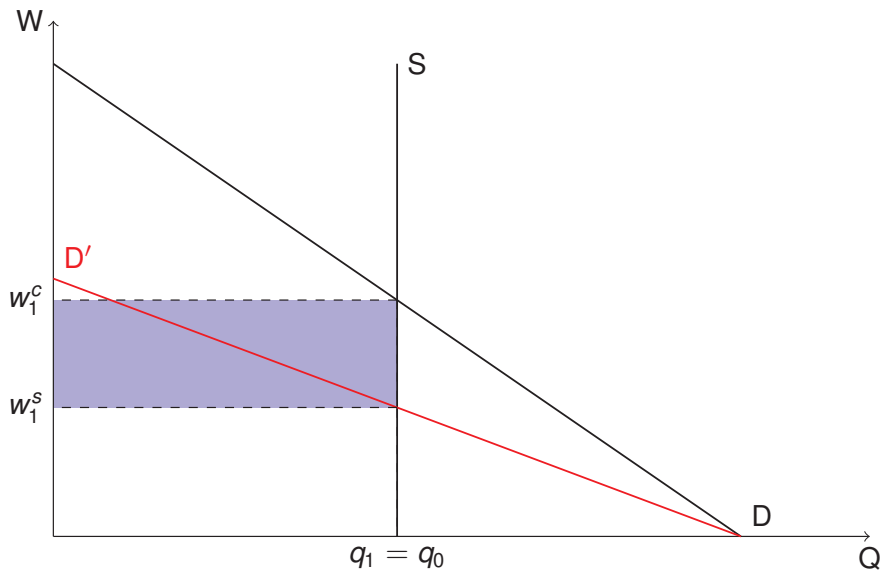
Economic inc. – ad-valorem tax on demand



Economic inc. – payroll tax (inel. labor supply)



Economic inc. – payroll tax (inel. labor supply)



General equilibrium models (Harberger)

2 sectors, 2 factors

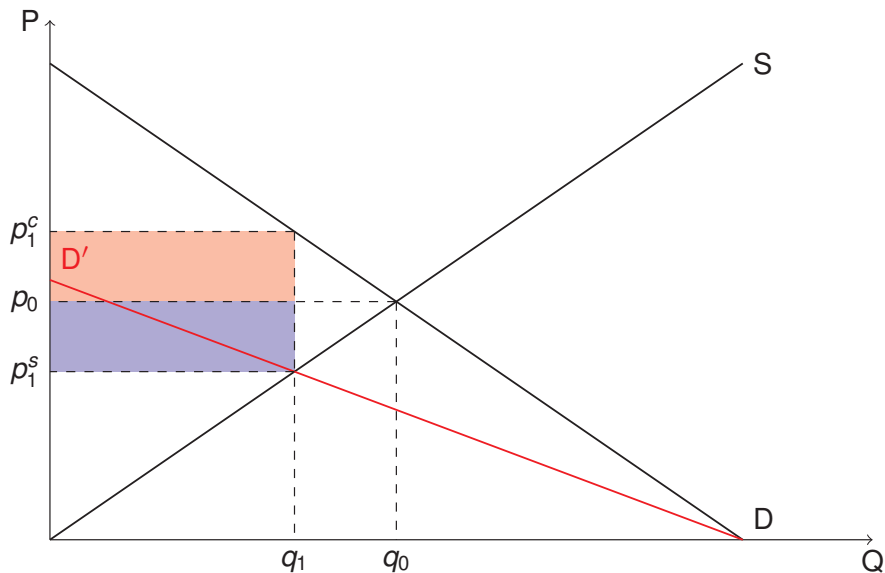
| | | | | |
|----------|---|----------|---|-------|
| t_{KF} | + | t_{LF} | = | t_F |
| + | | + | | + |
| t_{KM} | + | t_{LM} | = | t_M |
| = | | = | | = |
| t_K | + | t_L | = | t |

- ↗ t_F : ↘ $q_F \implies$ ↘ p_K , ↗ p_F
 - **Stolper-Samuelson theorem:** tax on labor intensive good \implies income transfer from labor owners to capital owners
- ↗ t : Production factor fixed \implies factors bear full tax
- ↗ t_L : All uses, no switching between sectors ...
- ↗ t_{KM} :
 - **Output effect:** ↗ $p_M \implies$ ↗ p_K
 - **Substitution effect:** ↘ p_K

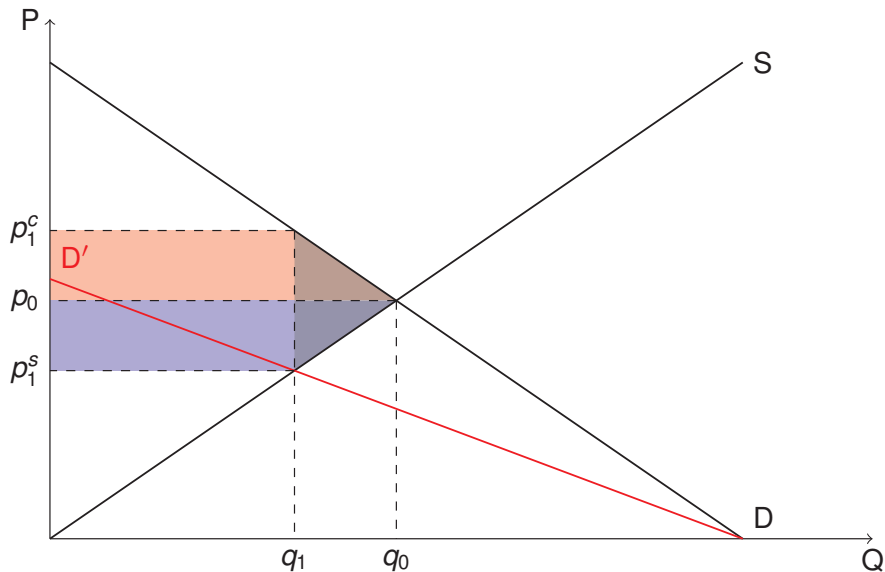
Costs of taxation (efficiency)

- Taxes distort economic decisions \implies **excess burden**
- **Key:** Taxes affect relative prices
 - Efficiency at $MRT = MRT_i \quad \forall i$
 - **Create tax wedge** \implies Optimality condition fails
- **Lump sum tax**
- **Tax distortive even if consumption unaffected**
- **Compensated demand:** Identify substitution effect
 - Individual compensated for change in prices
 - Interpreted as lump sum tax taking individual to same utility

Harberger's triangles



Harberger's triangles



Theory of second best

- **If there's already a distortion**, introducing a second distortion can reduce the overall distortion
 - **E.g.** taxing two substitute goods
⇒ closer to no-price distortion
- **Next time:** how to tax efficiently