The theory of taxation (ch. 17, 18, 19 Stiglitz; ch.19, 20 Gruber)

- Tax incidence in competitive and non-competitive markets
- Desirable characteristics of tax systems
- Taxation and economic efficiency
Introduction

- Public intervention is sometime needed to correct market failures and redistribute income.
- Public intervention is costly and it is largely financed through compulsory taxation.
- There are two main forms of taxation:
  - **Direct taxes** on individuals and firms (example: income tax, payroll tax, tax on firms, tax on property)
  - **Indirect taxes** on goods and services (example: value added tax, customs duties on imports, excise tax)
Tax structure in OECD countries

- All OECD countries tend to levy the biggest part of their revenue from taxes.
- In Nordic countries taxes on income-related levies hold more than half of tax revenues.
- In Eastern European countries taxes on consumption (VAT) are predominant.
- Taxes on property are relatively high in France, the USA, Canada, Spain and Switzerland.
Figure REV8. Tax revenue structure of general government in OECD countries in 2005 or closest year available


Note: Data not available for Japan, Portugal, Korea and Turkey.

Note: (*) 2004, (**) 2002, (***) 2000
Effects of taxation

- With the exception of lump sum taxes (2° fundamental theorem of welfare economics), all other taxes alter the relative prices of goods, services and production factors and introduce distortions in the economic behaviour of individuals and firms, affecting labour supply, consumption, savings and investment decisions and have impacts on financial and organisation structures.
Who really bears the burden of a tax?- Tax incidence/1 (Stiglitz ch.18, Gruber ch.19)

- The **tax burden** is the difference between the individual’s available resources before and after the tax has been imposed, taking full account of changes in relative prices (and wages).

- The **incidence of a tax** considers who actually pays the tax: i.e. who has his/her income lowered by the tax.

- Those who bear the burden of a tax **may differ** from those on whom a tax is imposed or levied (statutory incidence).
Tax incidence/2

- **It makes no difference** whether a commodity tax is levied on consumers or on producers or whether a payroll tax is paid half by the employers and half by workers or entirely paid by one or the other.

- What is relevant is the **demand and supply elasticities** and whether the market is **competitive or not** (the same reasoning applies to **subsidies**).

- The parties with **inelastic supply or demand bear taxes**, while parties with **elastic demand or supply avoid them**. Taxes and subsidies induce changes in relative prices and it is this market response that determines who pays the tax. Price changes depend on the shape of the supply and demand curves, which are measured by their **elasticities**
Tax incidence and tax revenues in competitive markets

- The **elasticity of demand** gives the percentage change in the quantity of good consumed due to a percentage change in its price. **The elasticity of supply** gives the change in the amount produced, given a percentage change in its price.

- In **competitive markets**, tax incidence depends on the elasticity of demand and supply: Inelastic factors bear taxes; elastic factors avoid taxes. More generally the **final incidence of a tax depends on the relative elasticities of demand and supply**.

- **The elasticities** of demand and supply also affect the amount of tax revenue raised: tax revenues are greater the lower are the elasticities. Vice versa, the greater are the elasticities, the lower the tax revenue, because of the greater reduction in the quantity traded.
The tax on producers may be thought as an increase in marginal production costs which requires a higher price for each production level: the supply curve shifts upward by the amount of the tax. The increase in prices lowers the quantity consumed and at the end the tax incidence is shared by consumers and producers.
Competitive markets: effect of commodity taxes levied on consumers

The tax on the consumers shifts the demand curve downward by the amount of the tax. This lowers the quantity consumed and increases the price paid by consumers (the same effect as a tax levied on producers), but reduces the price received by producers. Again the burden is shared by consumers and producers.
Tax incidence in competitive markets/2

- The *more elastic is the demand curve and the less elastic the supply curve*, the *more the tax will be borne by producers and vice versa*.
- The same reasoning applies to taxes on factors of productions.
Relative elasticity of supply and demand/commodity tax borne by consumers

With perfectly elastic supply the price rises by the full amount of the tax, the entire burden of the tax is on consumers.

With perfectly inelastic demand, the price rises by the full amount of the commodity tax and the entire burden is on consumers.
Relative elasticity of supply and demand: commodity tax borne by producers:

With perfectly inelastic supply curve, the price does not rise at all and the full burden of the tax is on producers.

With perfectly elastic demand, the price does not rise at all and the entire burden of the tax is on producers.
Tax on labour (payroll tax) levied on firms: tax incidence on the demand and supply for labour

A tax on labour levied on firms shifts the demand downward, reducing wages and employment. The incidence of the tax depends on the elasticity of demand and supply. If labour supply is relatively inelastic, most of the burden of the tax will fall on workers. If labour supply is perfectly elastic the tax burden is completely shifted on labour demand (employers).

\[ W_0 = W_1 \]
Tax incidence without perfect competition

Taxing a a monopoly with horizontal marginal costs: with a linear demand curve (panel Aa) the price paid by consumers rises by exactly half of the tax, producers and consumers share the burden of the tax. With constant elasticity demand curve (panel B) the price rises more than the tax.
Short-run and long-run elasticities usually differ: in the long run supply and demand elasticities are usually higher than in the short run.

In open economies demand and supply curves are usually more elastic than in closed economies.

The general equilibrium incidence may differ from the partial equilibrium.
Tax incidence in general equilibrium an example:

General equilibrium effects of a tax on wine consumption

Wine market
The tax increases prices and lowers wine consumption and production

Labour market: lower wine production reduces labour demand, since labour supply is perfectly elastic no effect on wages

Vineyards: lower production reduces demand for vineyards. Land supply is unelastic, no effects on quantity, but reduction in land prices. Land owners bear the producers' burden of the tax