NOTTINGHAM TRENT UNIVERSITY

Efficiency and Equity

Lectures 1 and 2

Tresch (2008): Chapters 1, 4

Stiglitz (2000): Chapter 5

Connolly and Munro (1999): Chapter 3

Outline

- Equity, efficiency and their trade-off
- Social welfare function
- Measure of efficiency
- Measure of inequality
- Social Policy decision-making

Economic Functions of a Government

- Depends on chosen economic system

- **Centrally Planned Socialism**
- **Decentralised Capitalist Economy**

- Govt legitimacy in a market economy arises from market failures
- Two goals of economic well-being: efficiency and equity

Efficiency

- In the absence of market failures, a free market is Pareto efficient.
  - No-one is better off without making someone else worse-off
- Utility Possibility Frontier (UPF)
  - downward sloping
  - Point E: attainable, not efficient
  - Point J: unattainable

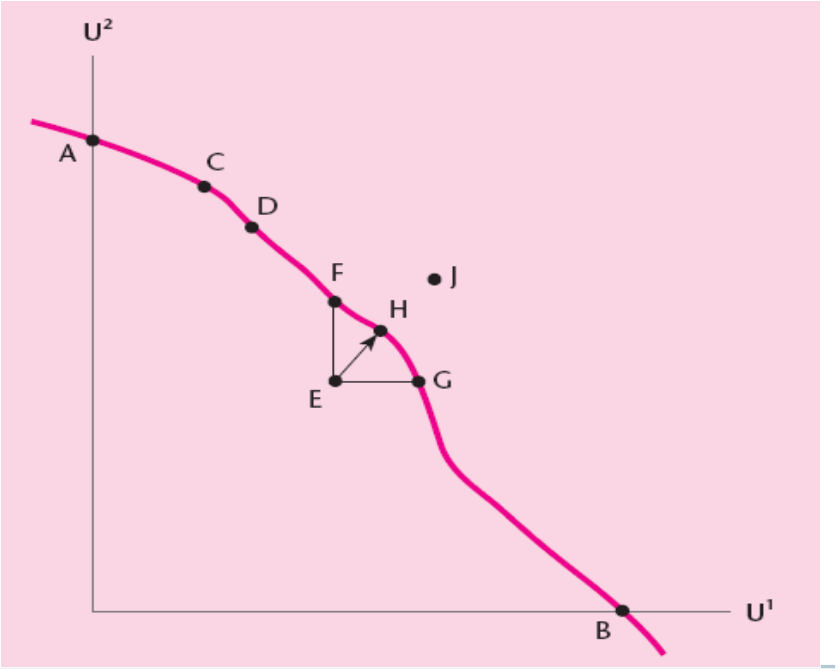

Figure 1.1

Equity I

- End-results equity
  - Is the outcome fair?
  - eg is it fair that 50%$^{+}$ income in US goes to 20% of households?
- Horizontal equity
  - equal treatment of equals
- Vertical equity
  - treat unequals unequally

Equity II

- Process equity
  - Are the rules that determine the process fair, regardless of outcome.
  - eg do children of wealthy families have an advantage due to their family's wealth?
- Equal opportunity or equal access
  - the right to do what people are willing and able to do
- Social Mobility
  - ability to move through income distributions

The Trade-off between Efficiency & Equity

- Without market failures, a free market is Pareto efficient
- But the distribution of income may still be undesirable
  - Role of govt activity
- Evaluation of public policy
  - Balance between economic efficiency and distribution of income: trade-off

Analysing Social Choices

- Consumer Theory
  - Budget constraint (BC): combinations of goods bought, given income and prices
  - Indifference curves (IC): combinations of goods between which an individual is indifferent; describes consumer preferences
- Social Choices
  - Utility possibilities curve (UPF): describes the highest level of utility (welfare) of an individual, given the level of utility of others. Along UPF, economy is Pareto efficient.
  - Social indifference curve (SIC): how society makes trade-offs between utility levels of individuals

Analysing Social Choices: Central Questions of Welfare Economics I

- What is the trade-off of transferring utility?
- Figure 1.2
  - move from point A to B on UPF
  - subject to diminishing marginal utility

Figure 1.3

- Efficiency of resource t/f

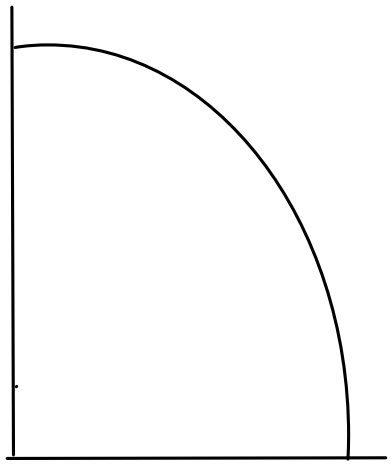

Figure 1.2

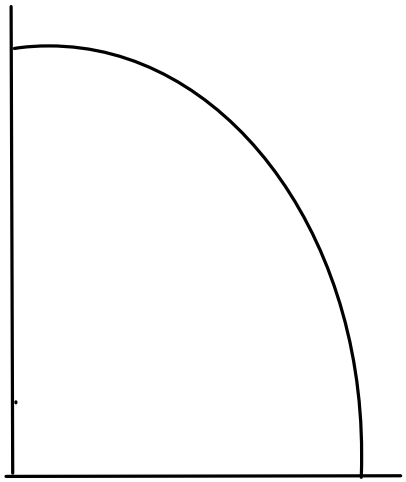

Figure 1.3

Analysing Social Choices: Central Questions of Welfare Economics II

- How does society evaluate the trade-off (social preferences)?

- Social welfare function (SWF)
  - level of welfare associated with the level of utility received by members of society

- Social indifference curve (SIC)
  - combinations of utility that yield equal levels of welfare to society; ranking of allocation of resources

Analysing Social Choices:
Central Questions of Welfare Economics II (contd)

- Pareto principle
  - choose allocations in which at least some individuals are better off and no-one is worse off.
  - Figure 1.4: NE of point A

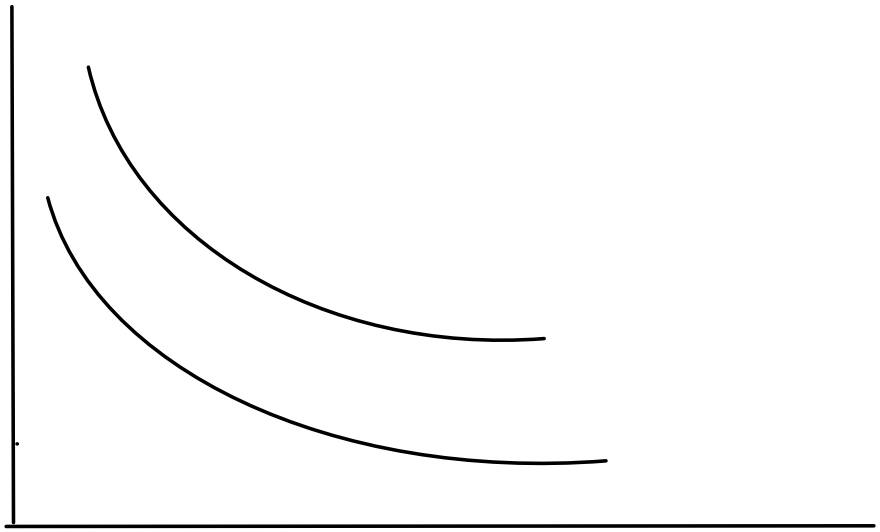

Figure 1.4

…but more often
there is a trade-off
- Figure 1.4: point B

The Social Welfare Function

- SWF: a summary of society's attitudes toward different distributions of income and welfare
- Primary concern of society
  - Efficiency or Inequality?
- Shape of SIC
  - Utilitarianism
  - Rawlsianism

Utilitarian Social Welfare Function

- max aggregate social welfare (the sum of individual utilities)

$$W_U = U_1 + U_2 + \ldots + U_H$$

- 45° line indifference curves

- Impersonality: same weights are given to all people regardless of personal characteristics

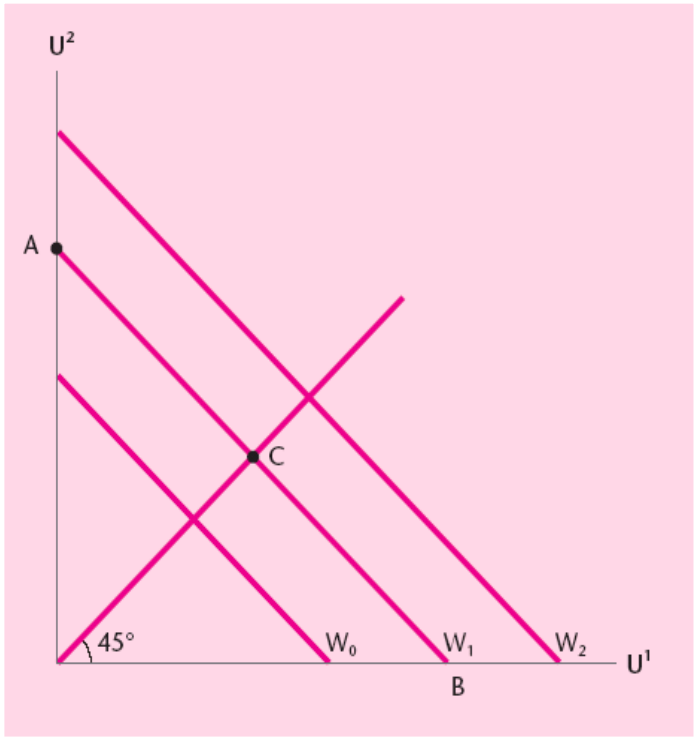

Figure 4.4

Figure 1.5

Rawlsian Social Welfare Function

- Social welfare should be highly egalitarian
- Distributive justice is biased by our position in life
  - rich: will never favour re-distribution policies
  - poor: you will always do so
- Overcome bias to reach socially desirable outcome
  - make decisions through a "veil of ignorance"
  - as if people do not know their true position in the income distribution and how that might affect future outcomes
  - Risk-averse: social welfare = utility of worst-off

$$W_R = \min(U_1, U_2, ..., U_H)$$

Rawlsian Social Welfare Function (contd)

- L-shaped social indifference curves
- W_1: move from pt A (equal utility) to pt B makes #2 better off without affecting #1 ie social welfare is unaffected
- opposite extreme of utilitarianism

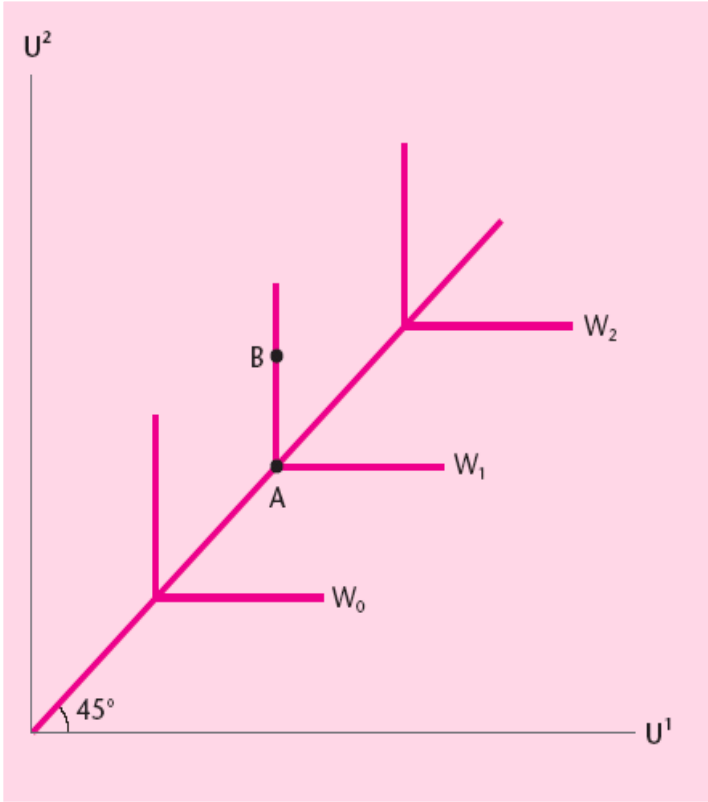

Figure 4.5

Figure 1.6

Social Choices in Practice

- Identify & measure net benefits received by groups
- Is the project a Pareto improvement?
  - If yes, project goes ahead
  - If no, make overall judgement
- Measure of Efficiency
  - Sum of gains and losses of all individuals
- Measure of Inequality (distributional effects)
  - The poverty index
  - The poverty gap

Measuring Benefits of a Project

- Consumer Surplus
  - The difference between the price a consumer is willing to pay for a good and the price actually paid
  - a measure of consumer gain
  - Figure 1.7

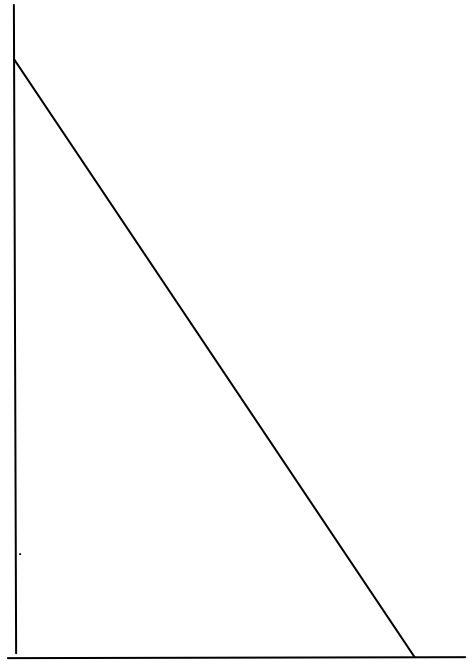

Figure 1.7

- Net efficiency effect of a govt project
  - Consumer surplus summed over all individuals
  - If total willingness to pay > total costs, project goes ahead

Social Choices if project is not a Pareto improvement

- The compensation principle
  - Aggregate willingness to pay > cost, but there are some losers
- Trade-offs across measures
  - Evaluate if ↑ efficiency is worth ↑ inequality, vice versa
- Weighted net benefits
  - Assign weights to the net gains of different groups

Summary

- Welfare economics: evaluate alternative policies
- Social welfare function to analyse the distributional effects of a policy
- Aggregate net benefits measured by consumer surplus
- Project evaluated by summarising effects on a measure of inequality and describing efficiency gains or losses
- A project may not constitute a Pareto improvement