

QS101: Introduction to Quantitative Methods in Social Science

Week 9: Conceptualisation, Operationalisation and
Measurement: Inequality

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Conceptualising Inequality

Lorenz Curves

Comparing Lorenz Curves

Measuring Inequality

Inequality Examples

Next Week

Conceptualising Inequality





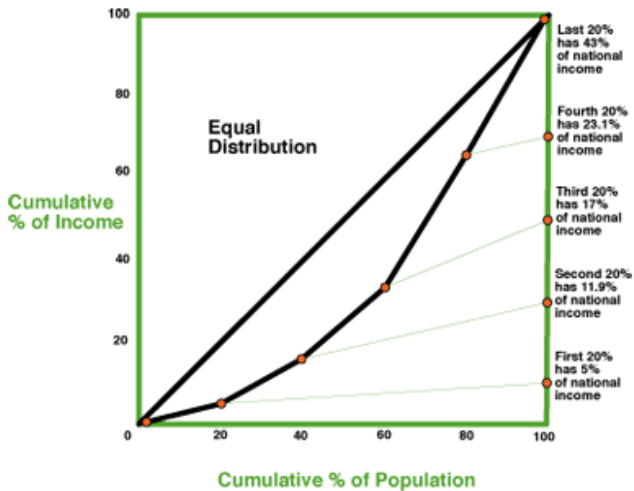
Group Work

- ▶ 4 groups, each dealing with one axiom
 - ▶ Anonymity
 - ▶ Income Homogeneity
 - ▶ Population Homogeneity
 - ▶ Transfer Principle

Preparation: 10 minutes.

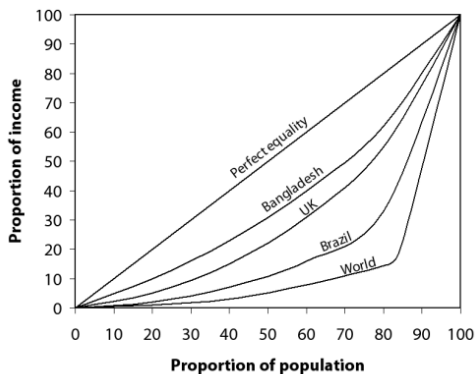
Lorenz Curves

The Principle



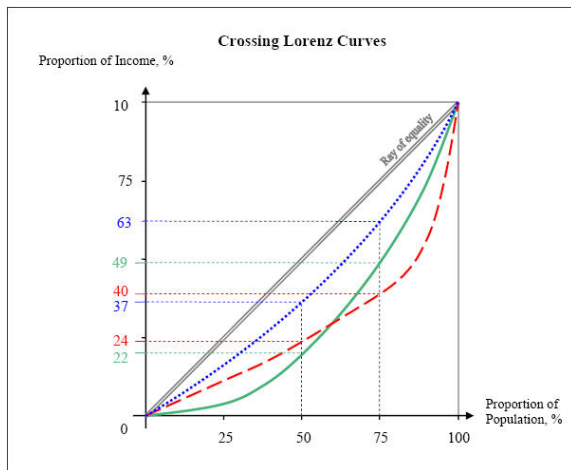
An Example

Lorenz curves for the World, the UK, Bangladesh and Brazil



Comparing Lorenz Curves

Comparing Lorenz Curves



Measuring Inequality

The Lorenz Criterion

- ▶ An inequality measure is consistent with the Lorenz criteria if and only if the 4 criteria are simultaneously satisfied.
- ▶ If Lorenz Curves are crossing, the Transfer Principle does not apply.

The Range

- ▶ The difference in incomes of the richest (the m^{th} person) and the poorest (1^{st}) individuals, divided by the mean

$$R = \frac{1}{\mu}(y_m - y_1)$$

- ▶ Ignores all income between the richest and the poorest
- ▶ Can be insensitive to the Transfer Principle

Source: http://www.uio.no/studier/emner/sv/oekonomi/ECON1910/v11/undervisningsmateriale/Inequality%20week%208_handout.pdf

The Gini Coefficient

- ▶ Widely used in empirical work
- ▶ Takes the difference between all pairs of incomes and simply totals the (absolute) difference
- ▶ It is, as if inequality is the sum of all pairwise comparisons of “two-person inequalities”
- ▶ The Gini coefficient is normalised by dividing by population squared (because all pairs are added and there are n^2 such pairs, as well as the mean income

$$G = \frac{1}{2n^2\mu} \sum_{j=1}^m \sum_{k=1}^m n_j n_k |y_j - y_k|$$

- ▶ It satisfies all four axioms and is therefore Lorenz consistent

Source: http://www.uio.no/studier/emner/sv/oekonomi/ECON1910/v11/undervisningsmateriale/Inequality%20week%208_handout.pdf



Other Inequality Measures

- ▶ Income shares of the richest $R\%$
- ▶ Income share of the poorest $P\%$
- ▶ 90-10 ratio
- ▶ $R\% - P\%$ ratio
- ▶ Mean Absolute Deviation
- ▶ Theil's First Measure
- ▶ Atkinson Index
- ▶ Generalised Entropy
- ▶ ...

Inequality Examples

Inequality Examples

- ▶ Give a short presentation of your inequality examples you have collected.

Next Week

Homework

- ▶ Read the required literature
- ▶ Find one newspaper article which manipulates numbers to its advantages, and prepare to give a short presentation.