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Growth and Inequality

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Two important questions on inequality

- The philosophical question is:
 - Is it fair?
 - The Intrinsic aspect of inequality
- The economical question is:
 - The functional aspect of inequality (income and wealth)
 - Is it good for growth?

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Inequality of what?

- Income;
- Wealth (assets);
- Lifetime income.
- Functional;
- personal;

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Functional aspect of inequality

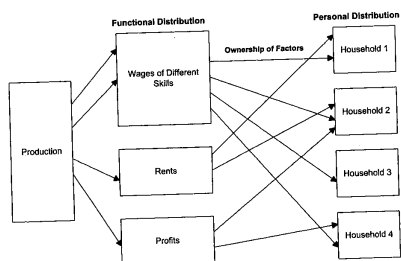


Figure 6.1. Functional and personal distribution of income.

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Four criterias

- Anonymity principle (from an ethical point of view);
- Population principle (size does not matter but proportions matter);
- Relative income principle (no matter about absolute values);
- Dalton principle (regressive transfer

$$(y_1, y_2, \dots, y_n) \quad y_1 \prec y_2$$

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Lorenz Curve

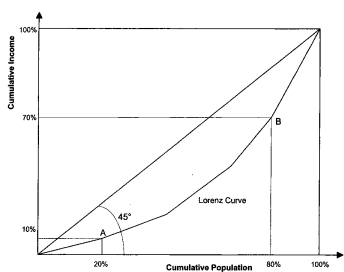
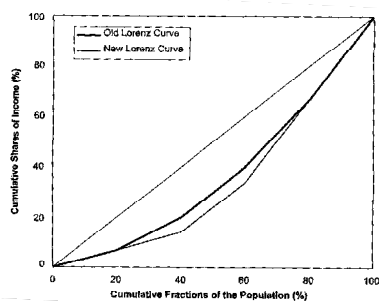


Figure 6.4. The Lorenz curve of an income distribution.

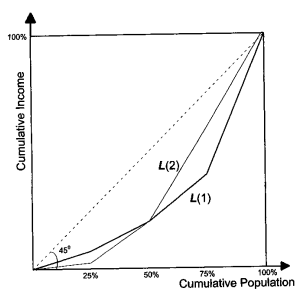
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Dalton criteria



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Dalton & Lorenz



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Different Lorenz Curve

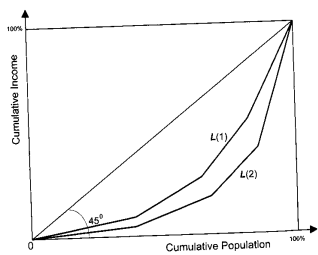
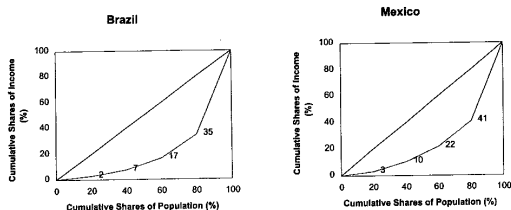


Figure 6.5. Using the Lorenz curve to make judgments.

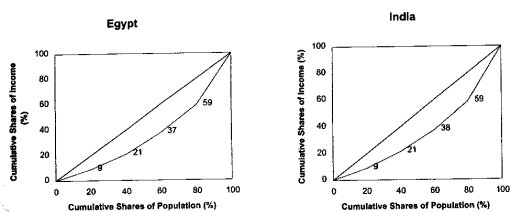
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Brazil and Mexico



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Egypt & India



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Kenya & Uganda

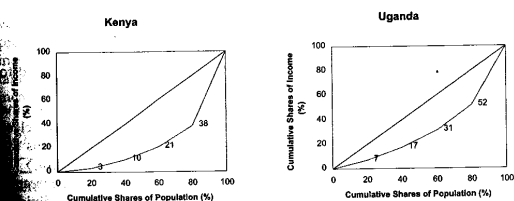
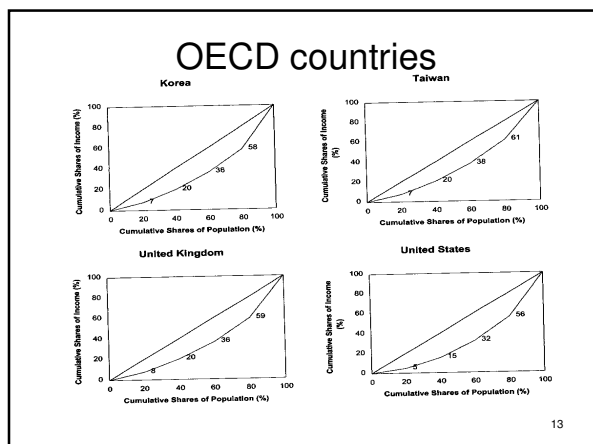


Fig. 6.8. Lorenz curves for different countries. Source: Deininger-Squire data base; see Deininger and Squire [1996a].

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How to measure inequality1?

- Consider m distinct incomes, and in each income class j , the number of individuals earning that income is denoted by n_j , thus the total number of people n is simply equal to

$$\sum_{j=1}^m n_j$$

- The mean μ of any income distribution is simply average income given by

$$\mu \equiv \frac{1}{n} \sum_{j=1}^m n_j y_j$$

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How to measure inequality2?

- This value is given by the difference in the incomes of the richest and the poorest individuals, divided by the mean to express it independently of the units in which income is measured

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

- This approach doesn't satisfy the Dalton principle. The Kuznets ratios is one of them.

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How to measure inequality3?

- Inequality is proportional to distance from the mean income. Therefore, this approach take all income distances from the average income, add them up, and divide by total income to express the average deviation as a fraction of total income

- The mean absolute deviation

$$M = \frac{1}{\mu n} \left| \sum_{j=1}^m n_j |y_j - \mu| \right|$$

- Doesn't satisfy Dalton principle

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How to measure inequality4?

- The coefficient variation satisfy all four principle and so it is Lorenz-Consistent.
- The main property of this approach is that give more weight to larger deviations from the mean.

$$C = \frac{1}{\mu} \sqrt{\sum_{j=1}^m \frac{n_j}{n} (y_j - \mu)^2}$$

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How to measure inequality5?

- The Gini coefficient satisfy as well as all four principle and so it is Lorenz-Consistent. It takes the difference between all pairs of incomes and simply totals the (absolute) differences.
- It's normalized by dividing by population squared (n) as well as income (y).
- Before we sum ks, holding each j costant, and then sum over all the js.

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

- It's precisely the ratio of the area between the Lorenz curve and the 45° line of perfect equality.

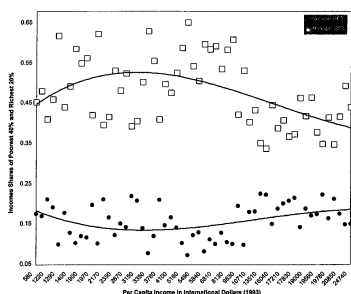
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Inverted-U Hypothesis

Income category	Average Gini	Range of Gini
< 100 \$ (1965)	0.419	0.33 – 0.51
101 – 200	0.468	0.26 – 0.50
201 – 300	0.499	0.36 – 0.62
301 – 500	0.494	0.30 – 0.64
501 – 1000	0.438	0.38 – 0.58
1001 – 2000	0.401	0.30 – 0.50
> 2000	0.365	0.34 – 0.39

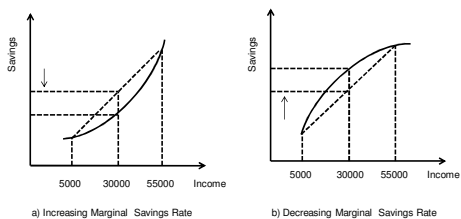
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U-Inverted Hypothesis Picture



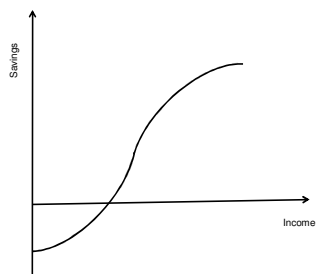
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Marginal Savings rate 1



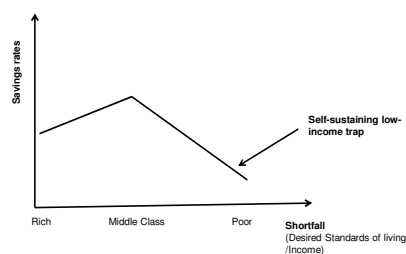
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Marginal saving rates 2



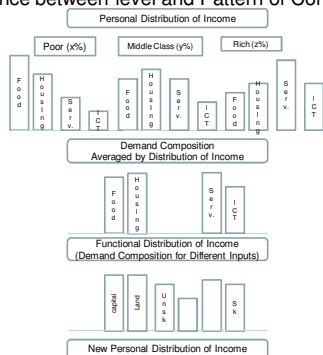
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Desired standards of living, Income and Saving rates



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Demand Composition Picture difference between level and Pattern of Consumption



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The problem of collateral

	If i pay	If i default	
Direct payment	220000	0	0
Collateral loss	0	110000	20000
Jail	0	50000	50000
Seizure of profits	0	125000	125000
Total	0	285000	195000

$$I(1+r) \leq W(1+r) + F + \lambda \{q - mw(t)\}$$

$$W \geq I - \frac{F + \lambda \{q - mw(t)\}}{1+r}$$

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The problem of collateral 2

$$I(1+r) \leq W(1+r) + F + \lambda \{q - mw(t)\}$$

$$W \geq I - \frac{F + \lambda \{q - mw(t)\}}{1+r}$$

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