

# Economic Inequality

C. Echevarria



## Outline

- Introduction
  - Ethical principles
- Measures
  - Lorenz curve
  - Numerical measures



## Outline

- Effect of development on inequality: the Kuznets hypothesis
  - Testing the hypothesis
  - Latest word
- Effect of inequality on development
  - Sociopolitical consequences of inequality
  - Inequality, savings, investment, and financial markets



## Introduction

- Whole point of economic growth: eliminate poverty.
- Growth accompanied by an increase in inequality will eliminate poverty slower than distribution neutral growth
- On the other hand, growth accompanied by a decrease in inequality will eliminate poverty faster than distribution neutral growth.



## Introduction

- Plus fairness (equity) a goal in itself: people prefer fairness (test inconclusive)



## Ethical principles

- Two basic principles behind most discussions:
  1. equal opportunity: outcomes should reflect efforts and talents
  2. no absolute deprivation: Rawls: protect people below an absolute threshold even if principle one is upheld.



## Ethical principles



- Discussion between equity in opportunities and equity in outcomes crux of the arguments between communism and capitalism:
- capitalism favours equity in opportunities as being more efficient. Equity in opportunities entails inequity in outcomes (anthropological experiments).
- To get equity in outcomes we need a posteriori redistribution: disincentives.
- Equity in opportunities not totally fair → reason for principle 2

## Measures: The Lorenz curve



- Possibly the best way of depicting income distribution
- Problem with Lorenz curves: they can cross.
- we often need a numerical index

## Numerical measures



- income class  $j = 1, \dots, m$ .
- number of individuals in each income class,  $n_j$
- income in each income class,  $y_j$ .
- total number of people  $n = \sum n_j$
- mean (average) income  $\mu = (\sum n_j y_j)/n$
- Following measures are used:
  1. Range.
  2. Kuznets ratios.
  3. Coefficient of variation
  4. Gini coefficient:

## Numerical measures



- Crude measures (used when more detailed information not available). Loved by the news, pay no attention to what is going in between the extremes.
- 1. **Range**. Difference in income of the richest and the poorest, divided by mean (so it is independent of units of measure)
$$R = (y_m - y_1)/\mu$$
- 1. **Kuznets ratios**. Ratio of the shares of income of the richest  $x\%$  to the poorest  $y\%$ .

## Numerical measures



These two use the whole distribution:

3. **The coefficient of variation** = standard deviation divided by the mean (so it is independent of units of measure)
$$C = (1/\mu) \sqrt{[\sum (y_j - \mu)^2]/n}$$
3. **Gini coefficient** (most used): ratio of the area between the Lorenz curve and the  $45^\circ$  line of perfect equality to the area of the triangle below the  $45^\circ$  line.
  - It varies between 0 (perfect equality) and 1 (perfect inequality).

## Numerical measures



- C and G result in the same ranking if Lorenz curves do not cross.
- If Lorenz curves cross, G and C do not necessarily result in the same ranking.

### Effect of development on inequality: the Kuznets hypothesis



- Kuznets (1955, 1963) hypothesized that inequality might rise and then fall as the economy moves from lower to higher incomes: "trickle down".
- called the "Kuznets hypothesis" because, until recently, not enough information to either prove or disprove

### Testing the inverted-U hypothesis



- No income distribution time series long enough to test if this a stylized fact of development (not even for DCs);
- second route: cross-section study (Kuznets)
  1. Paukert's (1973): 56 countries, Gini coefficient.
  2. Ahluwalia (1976): 60 countries, using quintiles.

### Testing the inverted-U hypothesis



In 1996, Deininger and Squire (World Bank) constructed a database on income inequality: share of the richest 20% rises and then falls with per capita income; the share of the poorest 40% of the population falls and then raises (page 203).

### Testing the inverted-U hypothesis



- The problem with cross-section studies: not so many countries; anything can result in a spurious correlation. Example: the Latin effect.

### Latest word



- Deininger and Squire database: 58 countries, each of them with four or more observations. Enough data to run panel data ( combination of cross section and time series) analysis
- Deininger and Squire: Kuznets hypothesis vanishes.
- Chen and Ravillion (2000): economic growth is distribution neutral.

### Latest word



- Similar results obtained by Dollar and Kraay (2002): income of the lowest quintile of the population rises one-for-one with growth → growth shifts the distribution curve maintaining the shape.
- Show no generalized Kuznets curve by breaking the sample into two sub-samples: no "trickle-down"

## Effect of inequality on development



- The inverted-U shape (cross country) may also be due to characteristics of high-income countries:
- Is inequality or equality good or bad for growth?
- Alesina and Rodrik (1994): regressed growth 1960-85
  - a substantial negative relation between initial inequality (G) and subsequent growth,
  - Democracy non-significant

## Effect of inequality on development



- Their findings confirmed by Deininger and Squire (comprehensive data).
  - Results are robust to introduction of regional dummies.
  - also find democracy non-significant

## Effect of inequality on development



- Anecdotal evidence: Korea and Taiwan, states in India,...
  - What drives this relationship?
1. political consequences of a large initial inequality; affects (mostly)
  2. interrelation between inequality, savings and investment (physical and human), and financial markets; affects the accumulation of factors of production

## Sociopolitical consequences



1. Alesina and Rodrik (Persson and Tabellini): initial inequality increases the demand for redistribution.
  1. Redistribution of wealth: optimal but difficult to implement for political reasons.
  2. next alternative: redistribute income: implies some degree of inefficiency (distort saving decisions)
  3. democracy non-significant casts doubt. No evidence that initial inequality leads to more redistributive taxation: quite the opposite (Perotti).

## Sociopolitical consequences



2. political instability: Latin American:
3. crime against property
  - Alesina and Perotti constructed an index of sociopolitical instability: relation between income inequality and sociopolitical instability is positive

## Inequality and savings



- saving rate are a function of income
- distribution of income affects the saving rate and, thus, SS levels
- savings are a luxury good: the saving rate increases with income (looks like a risk-lover utility function): a redistribution of income decreases aggregate saving.
- saving is an inferior good: saving rate decreases with income (looks like risk-aversion): a redistribution of income increases aggregate savings.

## Inequality and saving



- if subsistence minima exist, saving is a luxury good (Echevarria, Weil)
- a saturation point in consumption means saving is an inferior good.
- The coexistence of minima of subsistence with a saturation point in consumption means an inflection (Ray)

## Inequality and capital markets



- We do not need to save to invest
- However, we usually need collateral: collateral determines access to credit market.
- a larger inequality means more people barred from entrepreneurship

## Inequality and human capital



- Inequality affects:
  1. Health (infant mortality, stunting, access to immunization, and incidence of disabilities)
  2. education.

## Inequality and human capital



- Low levels of wealth plus credit market failures prevent people from investing in human capital
- Educational loans special case (in DCs) because the result of the investment (the human capital) cannot be seized and transferred to the creditor in case of default: governments intervention
- negative relation between income inequality and education as predicted by the theory.
- positive relation between inequality and fertility

## Poverty

C. Echevarria

## Outline

- Poverty:
  - Concept
  - measures
- Empirical observations
  - Characteristics
  - Global poverty
  - Trend in global inequality
- Possible solutions
  - Improving global markets
  - Foreign aid

## What is poverty?

- poverty line: a critical threshold of income (or consumption) below which individuals are declared to be poor.
- Poverty lines define who is poor and who is not
- used for two main purposes:
  1. to guide microeconomic policy regarding social assistance.
  2. to measure the extent of poverty, used to make comparisons
    1. across countries
    2. inside the same country across time

## Absolute or relative?

- relative poverty line: cost of participating in the everyday life of society (WB):
  - vary from country to country.
  - guide microeconomic policy
  - usually defined in terms of income distribution.
  - more a measure of inequality than a measure of poverty

## Absolute or relative?

- To make comparisons we need an absolute poverty line:
- WB: the expenditure necessary to buy a minimum standard of nutrition and other basic necessities.
- estimated to be an annual income of 1985 PPP\$ 370 (a dollar a day) per person: 2009 PPP\$ 2 dollars per day per person (3% inf.)
- poverty line defined in terms of nutrition

## Poverty measures

- $p$  = poverty line,  $y_i$  = income of individual  $i$ ,  
 $m$  = average income.
- head count (HC) = number of people whose income falls below  $p$
- head count ratio (HCR) =  $HC/n$  where  $n$  = total population.
- they do not take into account the depth of poverty

## Poverty measures

- poverty gap ratio = ratio of the average shortfall to average income (mistake in Ray's)

$$PGR = (\sum (p - y_i)) / (HC \cdot m)$$

- income gap ratio = ratio of average shortfall to poverty line

$$IGR = (\sum (p - y_i)) / (HC \cdot p)$$

Does not give an idea of the ability of the country to close this gap.

- an incidence measure is normally used in conjunction with a depth measure.

## Empirical observations

- Characteristics

1. A large number of the poor are women and children;
2. Poverty is more prevalent in rural than in urban environments (table 8.2 in page 260);
3. Correlated with lack of ownership of at least formal physical assets as well as with low levels of human capital

## Global poverty

- **Ray (page 257)**: 1985: 1 bn, 30% of LDCs were poor.
- 2/3 of global population in LDCs → 20% of global population were poor
- Ray very pessimistic but ...
- **(Sala)** Poverty rate declined from 44.5 % in 1970 to 18.7 in 1998.
- in 1970 almost 1/2 of the world below the \$2 dollar;
- even though global population almost doubled from 1970 to 1998 (from 3.33 bn to 5.24 bn in 1998), number of poor people decreased from 1.48 bn to 0.98 bn: 500m fewer poor people.

## The trend in global inequality

- Sala uses GDP per capita in each country, countries' distribution of income, and countries' share of global population to construct a global distribution of income
- decrease in global income inequality
- mainly accounted for the convergence in per capita income across countries; especially growth in China's (1/6 of the global population) income since 1978 and India's (15% of the population) since 1991

## Possible solutions

- Improving global markets
  1. Greater migration
  2. Freer trade

## Foreign aid, development and the role of multilateral institutions

C. Echevarria

## Outline

- Foreign aid
- Foreign aid and development
- Improving ODA
- Multilateral institutions

## Foreign aid

- UN target: 0.7% GDP.
  - Above: Netherlands, Sweden, Norway.
  - Average: 0.4% (Canada)
  - Less than 0.2: Italy, Japan, Greece, USA (biggest in absolute terms).
- New mechanisms such as global taxes?

## Aid and development

- One trillion plus in aid during the last 50 years: "donors' fatigue" ·
- No link between aid and development (living standards in the long run)
- But ... need to differentiate between "development aid" and "humanitarian aid" (first increases welfare more than the second).

## Aid and development

Reasons:

1. Problems of donors:
  1. political or religious reasons (should not be counted as foreign aid)
  2. foul-ups: poor choice of priorities, flawed designs, ...
  3. responding to crisis rather than preventing them,
  4. lack of coordination (30 or more aid agencies)

## Aid and development

2. problems of recipient countries:
  - conflicts,
  - religious fanaticism,
  - corruption and poor governance: conditional aid does not seem to work

## Aid and development

- Bilateral aid favours allies and ex-colonies (Alesina and Dollar): non-democratic ex-colonies receive twice as much as democratic non-colonies, closed colonies receive twice as much as open non-colonies, ...

## Improving ODA

- Goals:
  1. Enhancing aid effectiveness:
  2. Improving allocation of aid: most ODA responds to political reasons rather than **need** or **effectiveness**
  3. Harmonization and coordination

## Improving ODA

- Ways
  1. auditing and control

## Improving ODA

2. Centralizing channeling of aid through international (multilateral) institutions to:
    - a. poor countries
    - b. with sound economic policies.
- (\$10b could lift 25m out of poverty if targeted; spread out as it is, only 7m)

## Improving ODA

3. Recipient participation?

- Non-way:

"earmarked funds": fungibility

## Multilateral institutions

1. **World Bank**
2. **IMF**
3. **UN**
4. **Regional Banks**: African Development Bank, Asian Development Bank, Inter-American Development Bank
5. **Others**: European Commission, OPEC fund, Islamic Development Bank

## World Bank

- Founded in Bretton Woods (1944).
- Five institutions
  1. IBRD
  2. IDA (International Development Assoc.): only institution that provides foreign aid.
  3. IFC (International Finance Corp.)
  4. MIGA (Multilateral Investment Guarantee Agency)
  5. ICSID (International Centre for Settlement of Investment Disputes).

## World Bank

- Owned by 184 members. Voting proportional to GDP. (Differs slightly among institutions.)

## World Bank

- IDA finances: physical infra., agricultural extension services, training of gov. officials, purchases of school material or medical equipment, ...

## World Bank

- To be eligible for IDA funds, country needs
  - to be low-income (per capita less than 2004 \$965)
  - not have access to private international capital markets.

## World Bank

- About 80 countries eligible.
- Loans are
  1. interest free (service charge of 1%)
  2. 20-40 years
  3. 10 year "grace period"
- 15-20% of the financing are grants.

## IMF

- Also founded in Bretton Woods (1944).
- Its main purpose is not foreign aid: international central bank: to provide international monetary stability and liquidity
- Needs reform:
- Dominated by Europe and America: more saying to others, especially "emerging" (contributions are also proportional to GDP).

## United Nations

- Founded in 1945 to replace the League of Nations
- Technical cooperation through agencies:
  1. UNDP
  2. UN Population Fund
  3. WHO
  4. WFP (World Food Program)
  5. UNICEF
  6. UNHCR