Economic Inequality and Income Distribution

Lecture 2/1

EE461 – 2/2016

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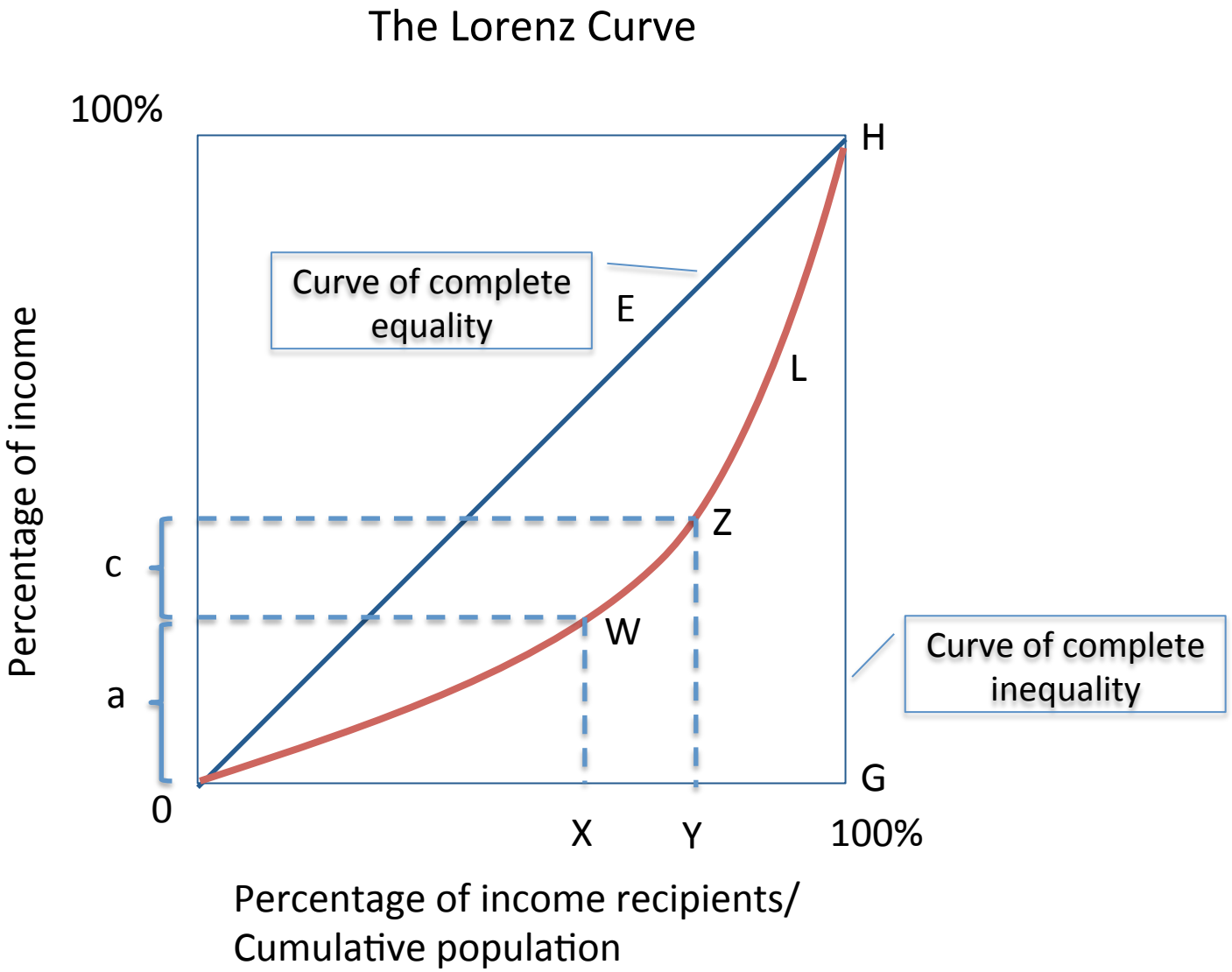
Outline

- Measurement of Income Inequality
- Kuznets' curve: inverted-U hypothesis
- Inequality, saving, income, and growth
- Inequality, capital markets, and development (occupational choice model) – lecture 2/2

Measurement of Income Inequality

- Popular measures:
  - The ratio of the share of income received by the 10th decile (richest 10 percent) of households (HH) to the share of income received by the first decile (poorest 10 percent) of HH (The Kuznets ratios).
  - Use the richest x percent and the poorest x (or y) percent
    - (see table in Lecture 1)
    - https://www.theguardian.com/global-development/2017/jan/16/worlds-eight-richest-people-have-same-wealth-as-poorest-50
  - Lorenz curve: plot the percentage of a country's income received by the poorest x percent of HH against x.

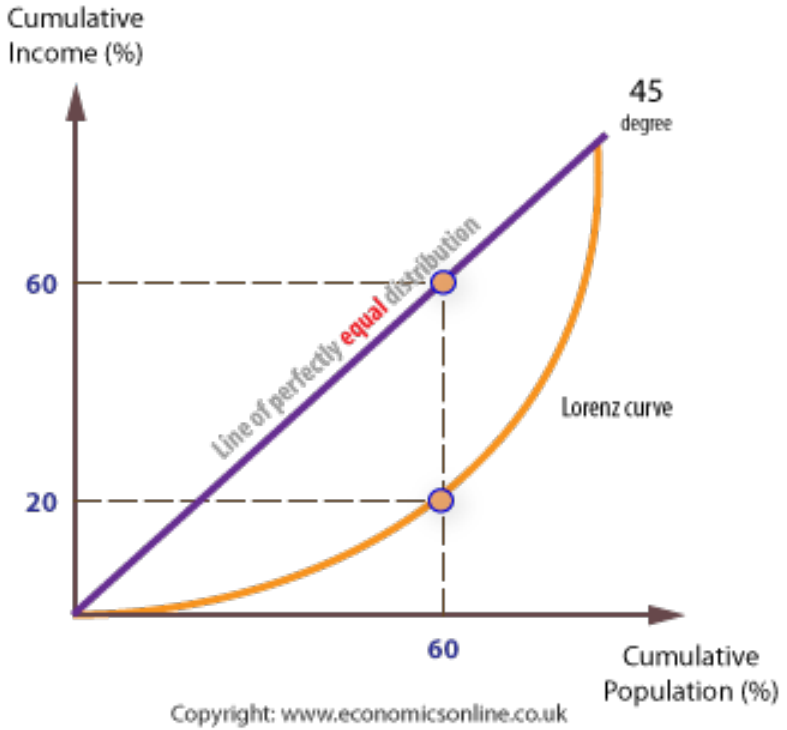
Measurement of Income Inequality

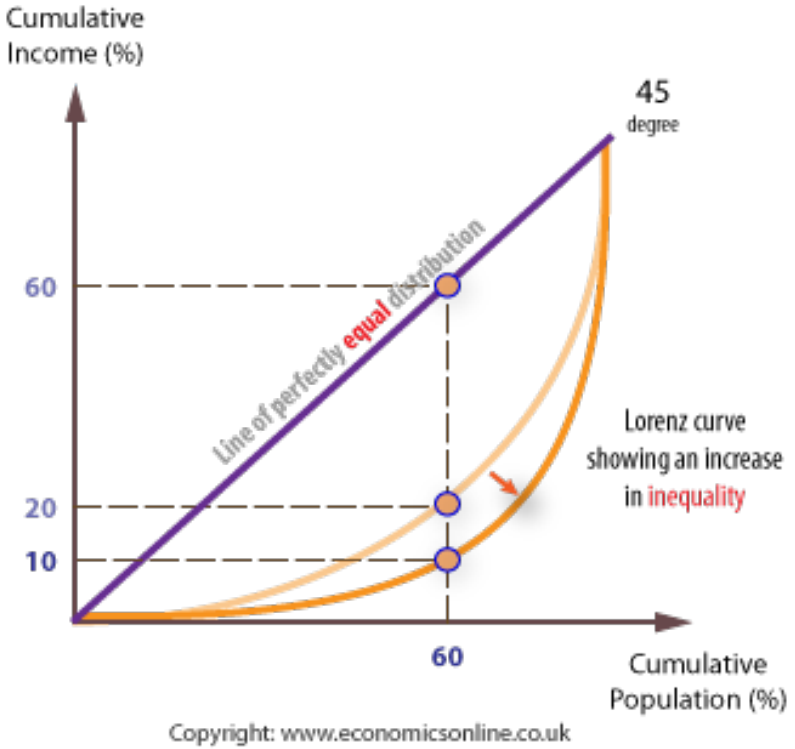


Measurement of Income Inequality

- Lorenz curve:
  - OX percent of HH (the poorest group) receives *a* percent of income, and so on, giving the Lorenz curve L.
  - Complete equality occur only if *a* percent of HH received *a* percent of income, yielding the curve of E.
  - The curve of perfect inequality is OGH. One household has 100 percent of country's income.
  - The points on the Lorenz curve are the percentage of income received by the poorest 10 percent of HH, and so on.
  - Distribution α dominates distribution β if the Lorenz curve of α lies above that of another income distribution β for at least one point and never lies below it.
  - Lower inequality implies higher welfare.

Measurement of Income Inequality





Measurement of Income Inequality

- Lorenz curves cannot be compared inequality of income distributions when the Lorenz curves cross.
  - use Gini coefficient

- Gini coefficient: the ratio of the shaded area, enclosed by the line of theoretical equality E and the observed Lorenz curve L, to the total area under the line of equality.
  - Gini coefficient ranges from 0 to 1.
  - The larger the coefficient, the greater the inequality.
  - If one income distribution Lorenz dominates another, its Gini coefficient will be smaller.
  - http://data.worldbank.org/indicator/SI.POV.GINI?view=map&year=2011

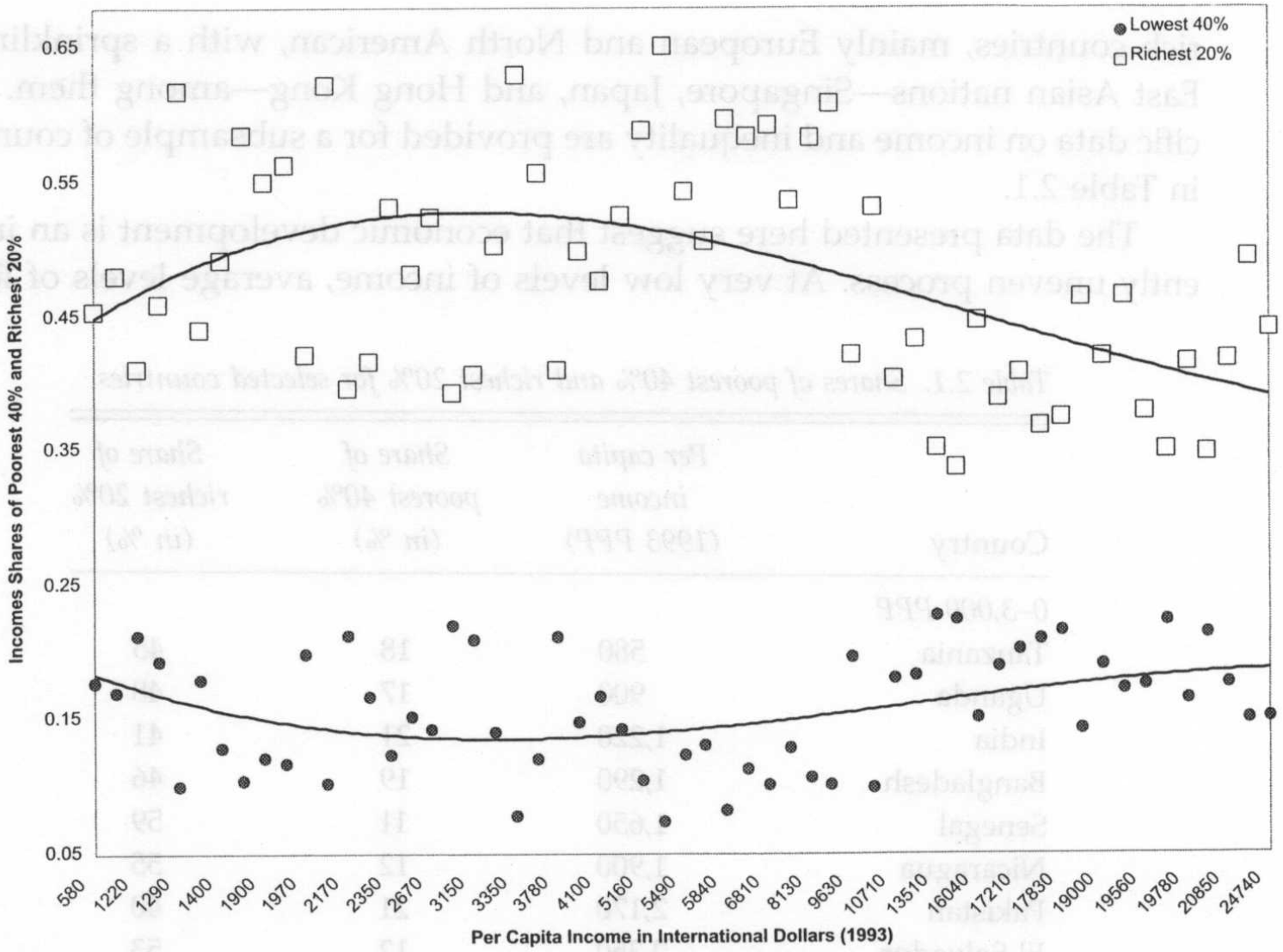
Inequality, income, and growth

- Inverted-U hypothesis
  - Kuznets (1955) used the ratio of the income share of the richest 20% of the population to that of the poorest 60% of the population as a measure of inequality
  - Result: developing countries tend to possess higher degrees of inequality than their developed counterparts.
  - Implication: economic development is fundamentally a sequential and uneven process. The process appears to pull up certain groups first and leave the other groups to catch up later. Hence, in the initial phase, inequality widens and later falls when everybody else catches up.
  - When plotting per capita income with some measure of inequality, the hypothesis suggests a plot that looks like an upside-down "U"

Inequality, income, and growth

- Testing Inverted-U hypothesis
  - Still lack of reliable data to track an individual country's inequality over time >> use cross section data instead
  - Pro: data can be obtained for different countries at widely different stages of development

    Con: need a systematic way to control for intercountry variation



Income shares of poorest 40% and richest 20% for 57 countries

Source: World Development Report (1995), Deininger and Squire (1996)

- plot the latest years for which country-level data on inequality are available

Inequality, income, and growth

- Testing Inverted-U hypothesis
  - Still lack of reliable data to track an individual country's inequality over time >> use cross section data instead
  - Pro: data can be obtained for different countries at widely different stages of development

    Con: need a systematic way to control for intercountry variation
  - Ahluwalia (1976) analyzed 60 countries: 40 developing, 14 developed, 6 socialist. Divide the population of each country into 5 quintiles, then run the regression:

    $s_i = a + by + cy^2 + D + \text{error}$

    s_i is the income share of the *i* th quintile

    y is the logarithm of per capita GNP

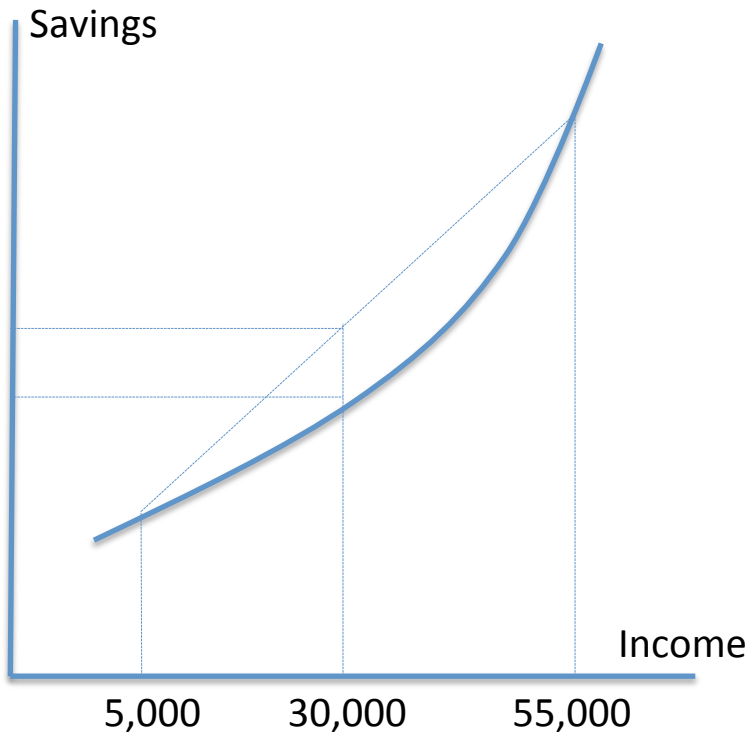
    D is a dummy variable = 1 if the country is socialist
    - the inclusion of the squared term permits a fit that changes direction

Inequality, income, and growth

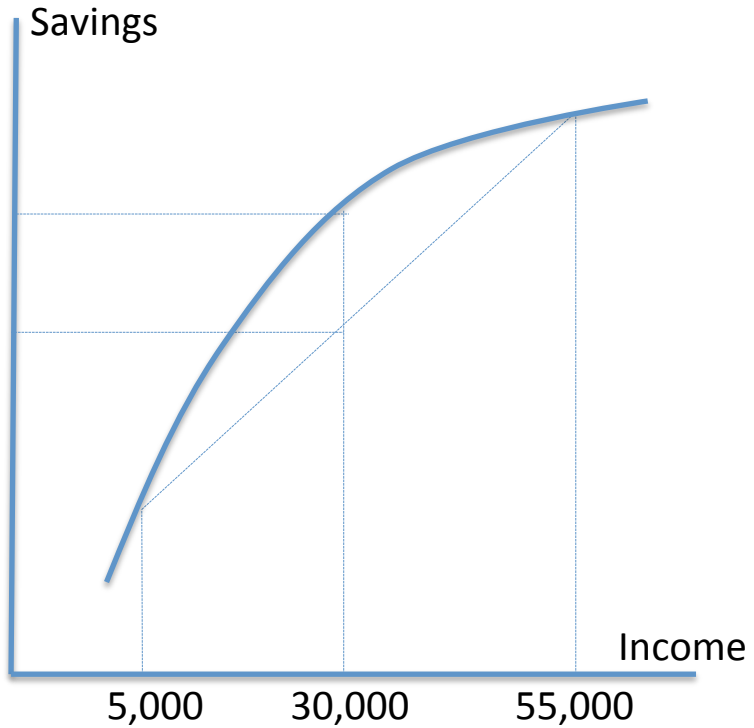
- Comments on Inverted-U hypothesis
  - Problem with cross-sectional studies: the implicit assumption is that all countries have the same inequality-income relationship
  - Countries are different, but there is still some connection between their inequality-income curves >> do estimation by adding country-specific dummy variables that move the intercept term of the estimated curve (if we have time series data of inequality for each country).
  - "Latin effect": most of the high-inequality middle-income countries are Latin American. Hence, the inverted-U is just an artificial consequence of the Latin American countries sitting in the middle.
  - There are many factors (policies, structural differences across countries) that are left out from the tests.
  - With panel data and country-specific dummies, the Kuznets inverted-U hypothesis largely vanishes: the coefficients are not significant.

Inequality, saving, income, and growth

- The rate of saving affects the LR level of per capita income and the rate of growth of the economy
- We should focus not the total savings generated by various individuals, but their marginal savings behavior



(a) Increasing marginal savings rate



(b) Decreasing marginal savings rate

Inequality, saving, income, and growth

- Suppose that as income increases, the marginal savings rate increases (a):
  - If we were to transfer a dollar of income from a poor person to a rich person, more of that dollar would be saved.
  - Savings of one of the average persons is lower than the average generated by the poor and the rich.
  - Hence, a reduction in inequality depresses the saving rate in the economy.
- If on the other hand, the marginal savings rate decreases (b):
  - Transfer a dollar from a rich person to a poor person, more would be saved.
  - Hence, a reduction in inequality will increase the volume of savings in the economy.

Inequality, saving, income, and growth

- In the real world, how does savings change with income?

- Subsistence needs: need for food, clothing, and shelter
  - Although everyone wants to save for the future, many people can't because the needs of the present prevent them from doing so.
- Conspicuous consumption: the rich tend to consume at high levels
  - Their average rate of savings may be low and so is their propensity to save out of a marginal increase in income.
- Aspirations and savings: people whose behaviors are molded by their aspirations to a better economic life
  - They tend to save large fractions of their income, both on average and at the margin.

Inequality, saving, income, and growth

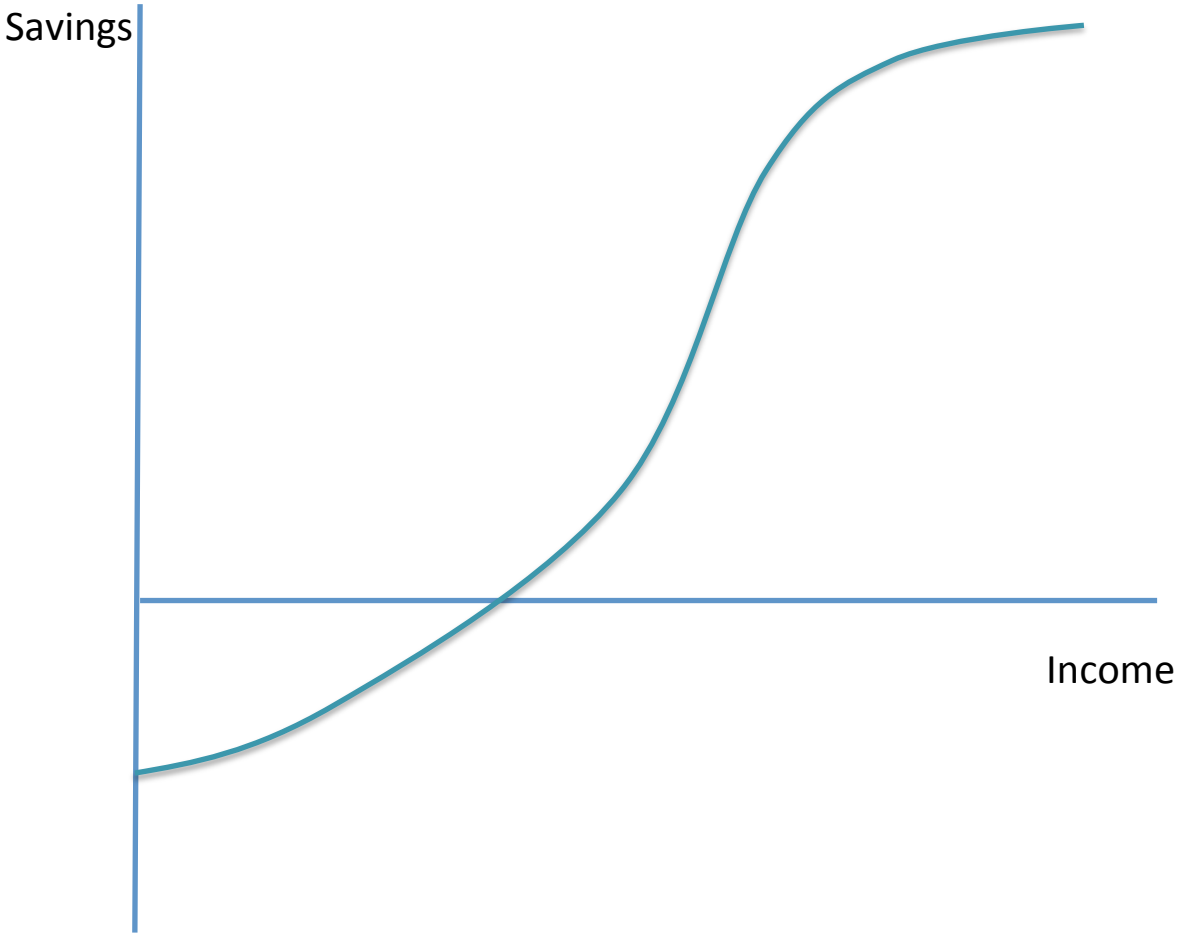


Figure 7.3 (Debraj Ray)

Effect of inequality on savings and growth

- For the poor country, redistributive policies may bring down the rate of savings and therefore the rate of growth in the medium or long run.
  - At the initial shape of Fig 7.3 (increasing marginal saving rate), a redistribution brings down the national saving rate.
  - Without redistribution, there is a small fraction of population who possess the desire and the means to accumulate wealth.
- For medium-income countries, redistributive policies might work because they create a large and ambitious middle class with aspirations (middle-later part of Fig 7.3 or at a decreasing marginal saving rate).

Inequality, saving, income, and growth

- Savings behavior is not only determined by income but by income and aspirations, and the latter depend on existing inequalities of income and wealth.
  - The difference between a desired standard of living and the actual standard of living has an effect on savings behavior. As the shortfall of income increases, aspirations are created.
  - The poor is likely to be in a self-sustaining low-income trap whereas the middle class grows more rapidly.