

INEQUALITY

EE461, SEM2/2019





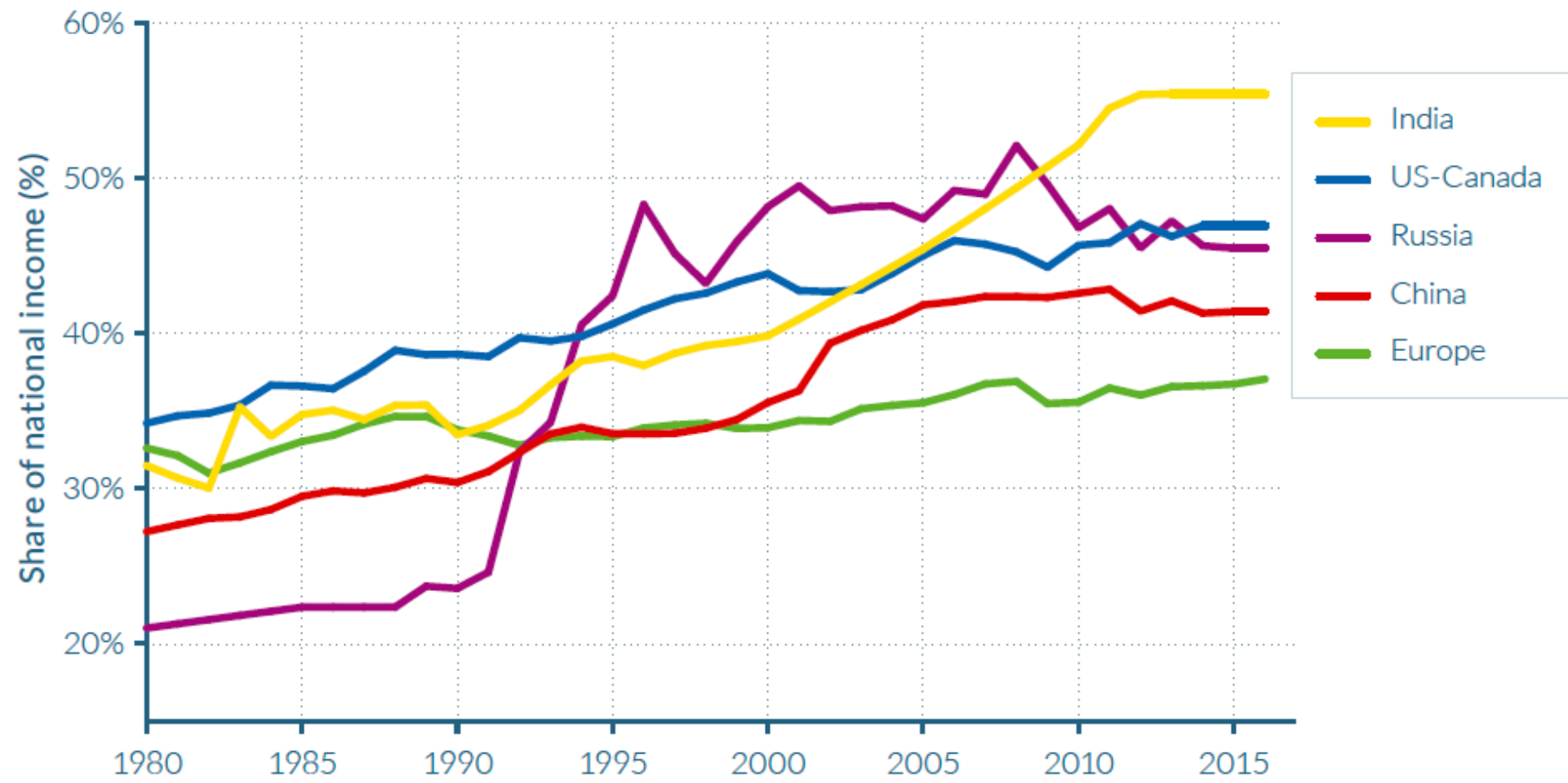
OUTLINE

- Measurement of Income Inequality
- Kuznets' curve: inverted-U hypothesis
- Inequality, saving, income, and growth

■ From World Inequality Report, in 2016, 47% of national income was received by the top 10% in US-Canada, compared to 34% in 1980.

Figure E2a

Top 10% income shares across the world, 1980-2016: Rising inequality almost everywhere, but at different speeds



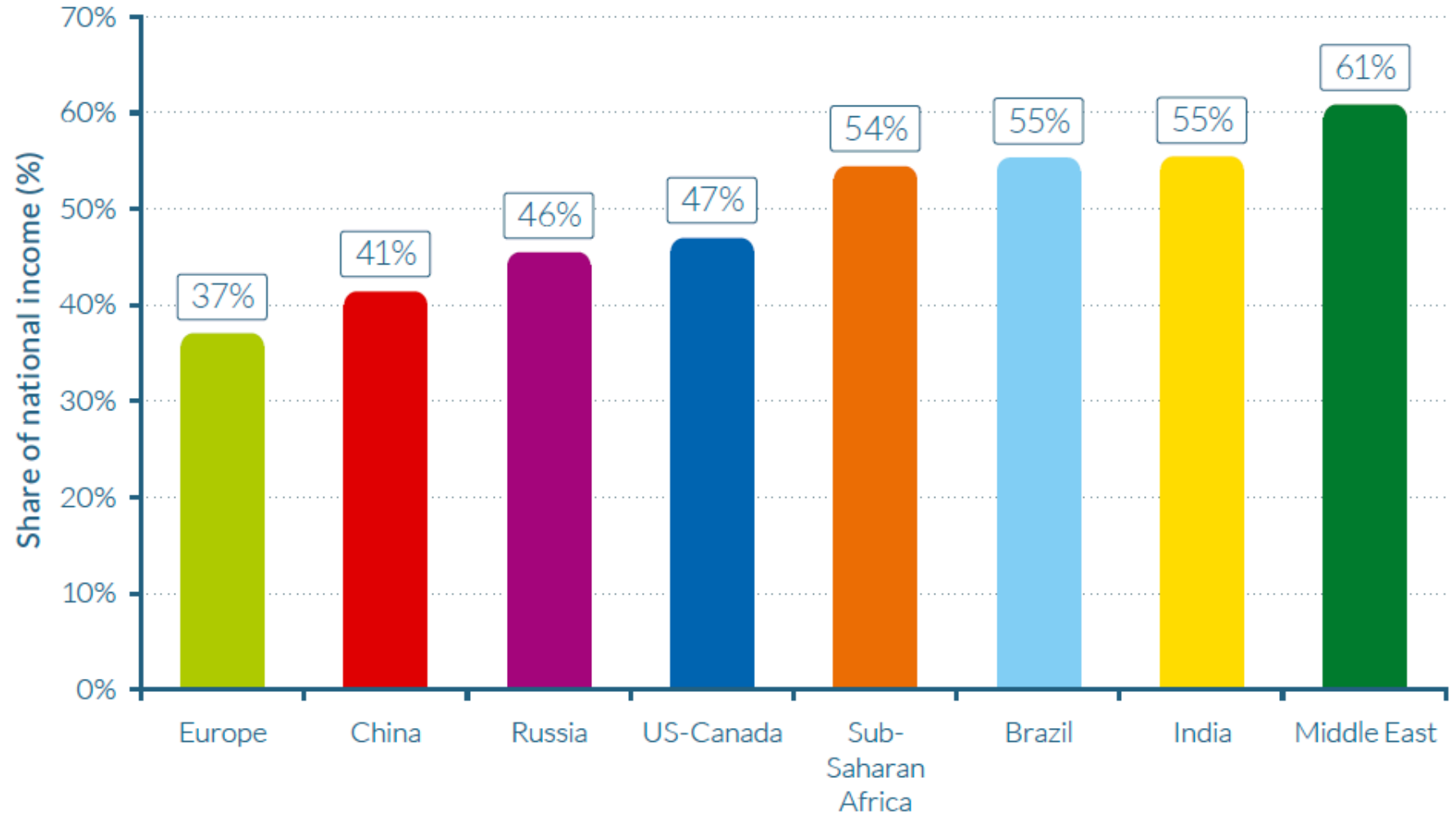
Source: WID.world (2017). See wir2018.wid.world for data series and notes.

In 2016, 47% of national income was received by the top 10% in US-Canada, compared to 34% in 1980.

Figure E1

Top 10% national income share across the world, 2016

- From World Inequality Report, in 2016, 37% of national income was received by the Top 10% in Europe against 61% in the Middle-East.



Source: WID.world (2017). See wir2018.wid.world for data series and notes.

In 2016, 37% of national income was received by the Top 10% in Europe against 61% in the Middle-East.

MOTIVATION

- “The massive fall in the number of people living in extreme poverty is one of the greatest achievements of the past quarter of a century but rising inequality is **jeopardizing further progress**” Oxfam’s director of campaigns and policy, Matthew Spencer
- 26 richest billionaires own as many assets as the 3.8 billion people who make up the poorest half of the planet’s population.
- **The way our economies are organized should at least provide a fair chance in life.**
- <https://www.theguardian.com/business/2019/jan/21/world-26-richest-people-own-as-much-as-poorest-50-per-cent-oxfam-report>
- “If rising inequality is not properly monitored and addressed, it can lead to various sorts of **political, economic, and social catastrophes.**” World Inequality Report 2018

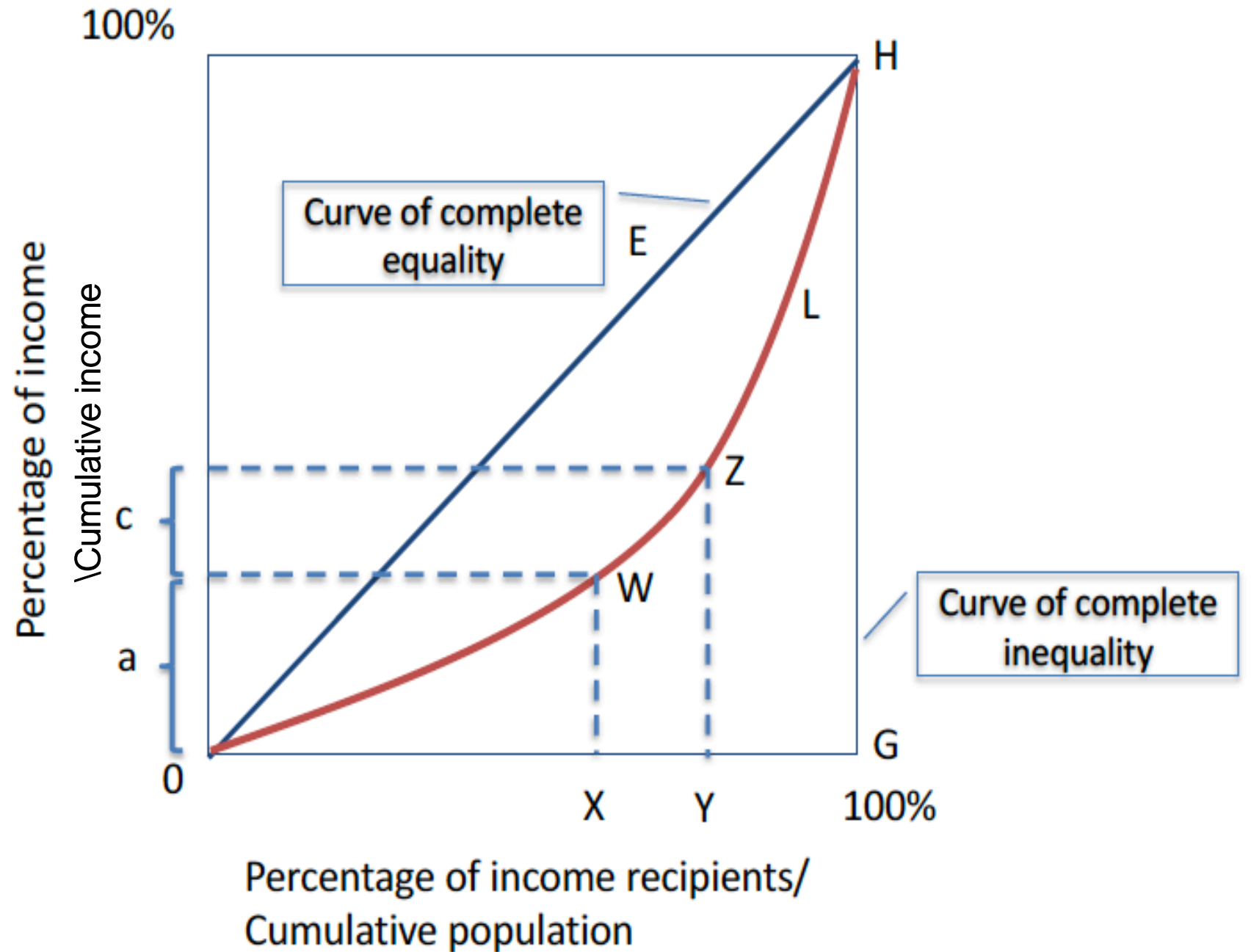
MEASUREMENT OF INCOME INEQUALITY

- “We need to have the necessary facts to engage in informed public debates on inequality.” World Inequality Report 2018
- For a given distribution of income there are many ways to measure inequality. Popular measures are such as:
 - **The ratio of the share of income received by the 9th decile (richest 10 percent) of households (HH) to the share of income received by the 1st decile (poorest 10 percent) of HH** (The Kuznets ratios).
 - Use the richest x percent and the poorest x (or y) percent
 - **The Lorenz curve**
 - Plot the percentage of a country’s income received by the poorest x percent of HH against x.

MEASUREMENT OF INCOME INEQUALITY

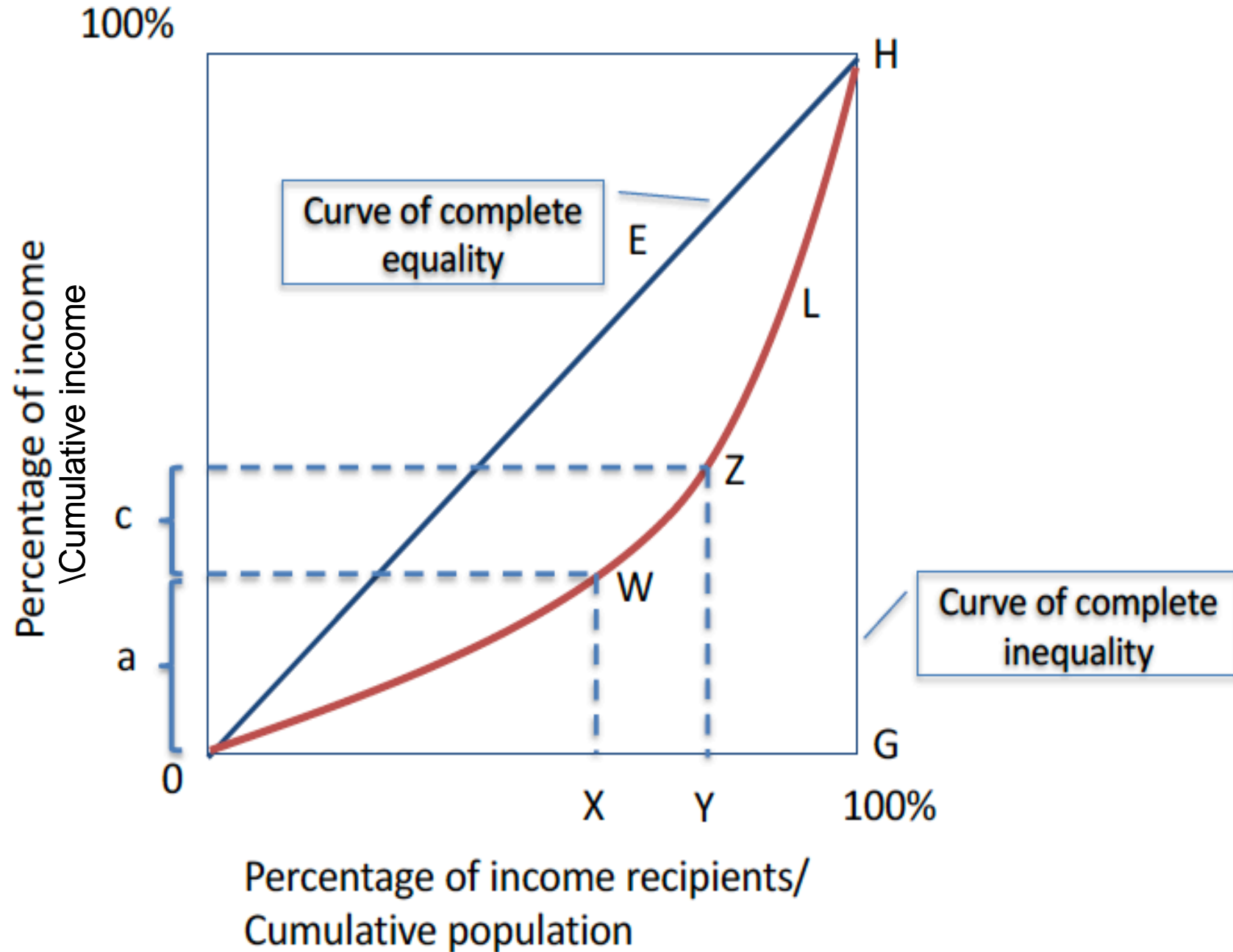
- The CRI index(Commitment to Reducing Inequality Index)
 - A global ranking of governments based on what they are doing to tackle the gap between rich and poor
 - <https://www.oxfam.org/en/research/commitment-reducing-inequality-index-2018>
 - <http://www.inequalityindex.com/>
- World Inequality Database&World Inequality Report
 - <https://wir2018.wid.world/>
 - <https://wid.world/>
- Global Wealth Report
 - <https://www.credit-suisse.com/about-us/en/reports-research/global-wealth-report.html>

THE LORENZ CURVE



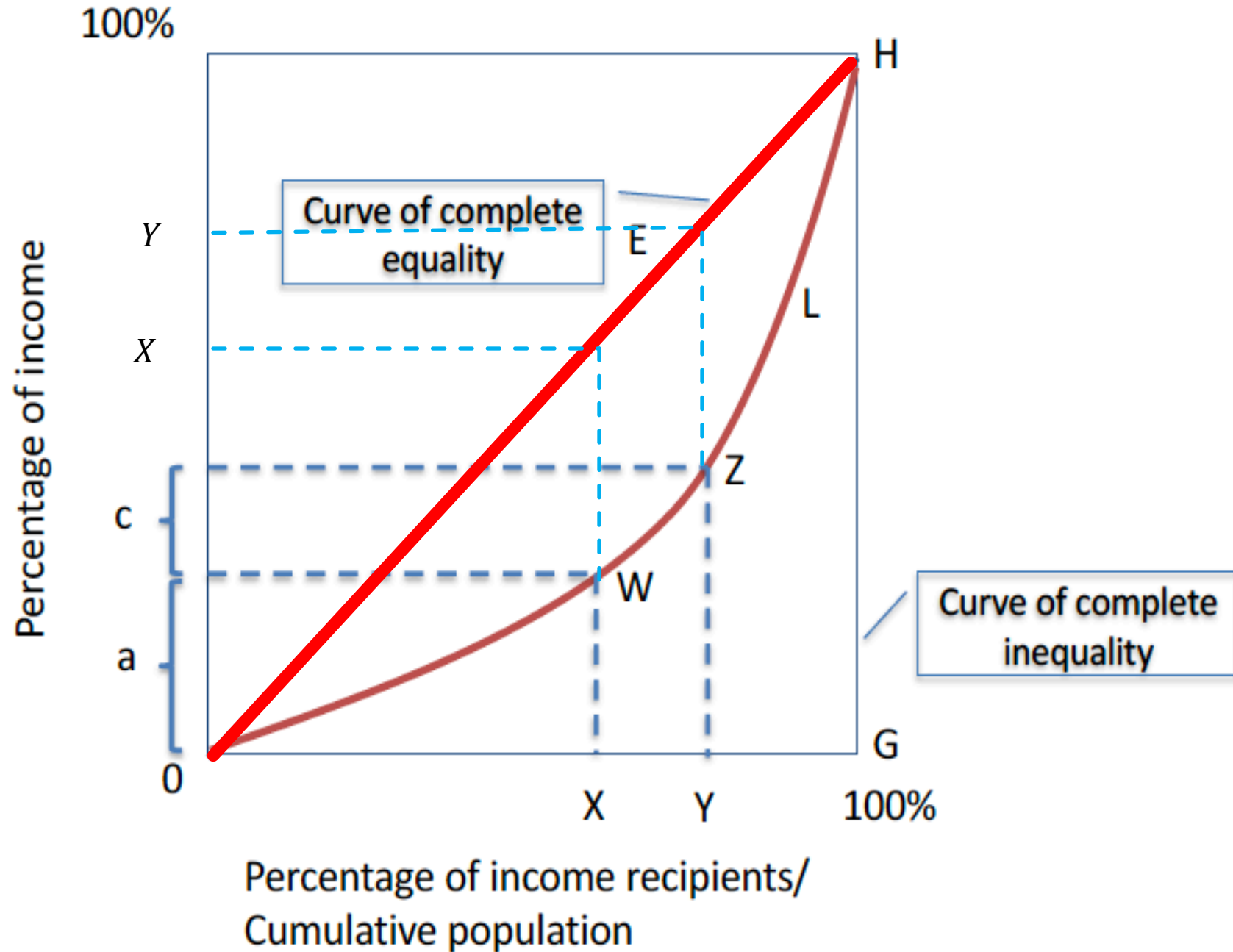
THE LORENZ CURVE

- **OX** percent of HH (the poorest group) receives **a** percent of income, and so on, giving the Lorenz curve **L**.
- The points on the Lorenz curve are the percentage of income received by the poorest **X** percent of HH.



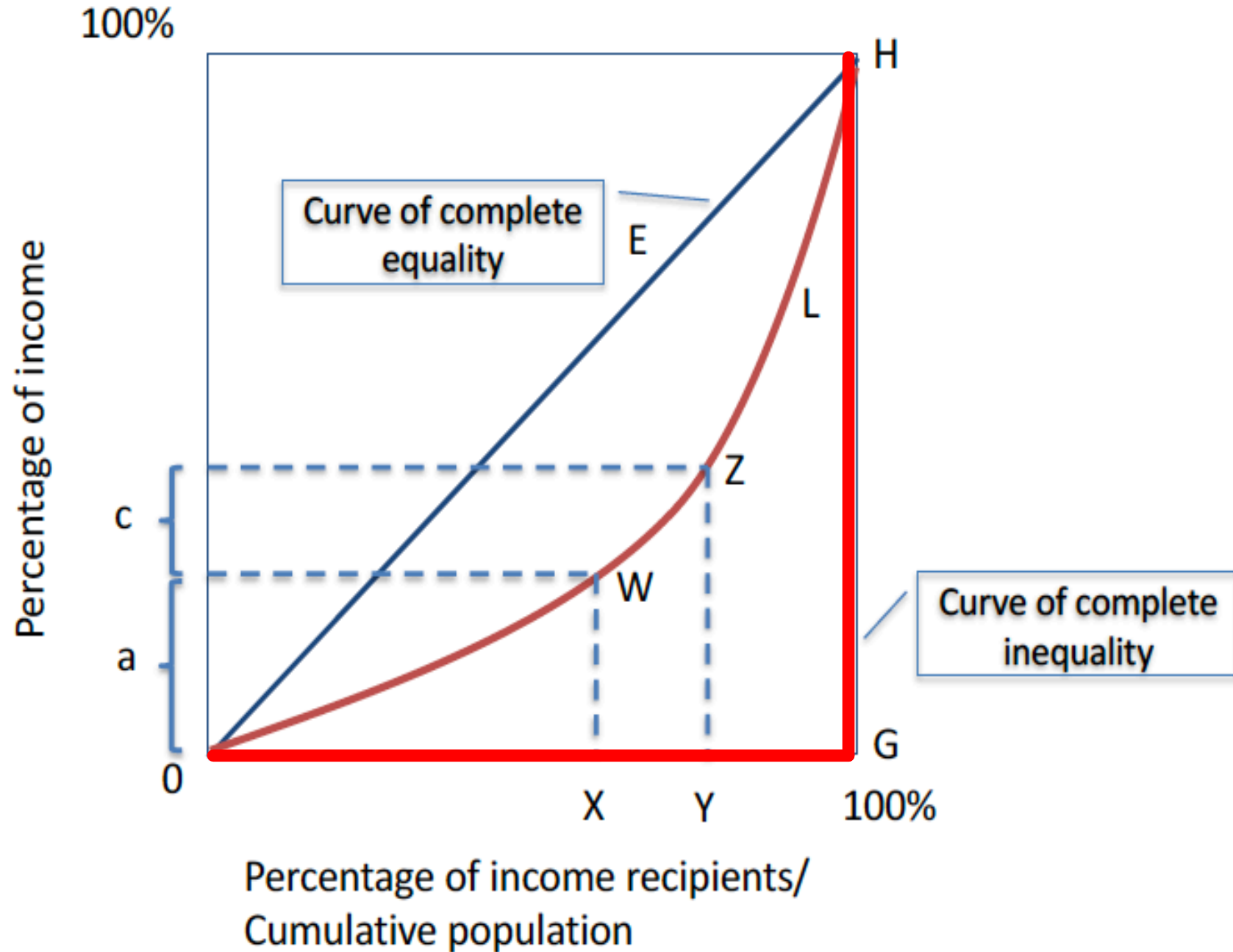
THE LORENZ CURVE

- Complete equality occur only if **a** percent of HH received **a** percent of income, yielding the curve of **E**.



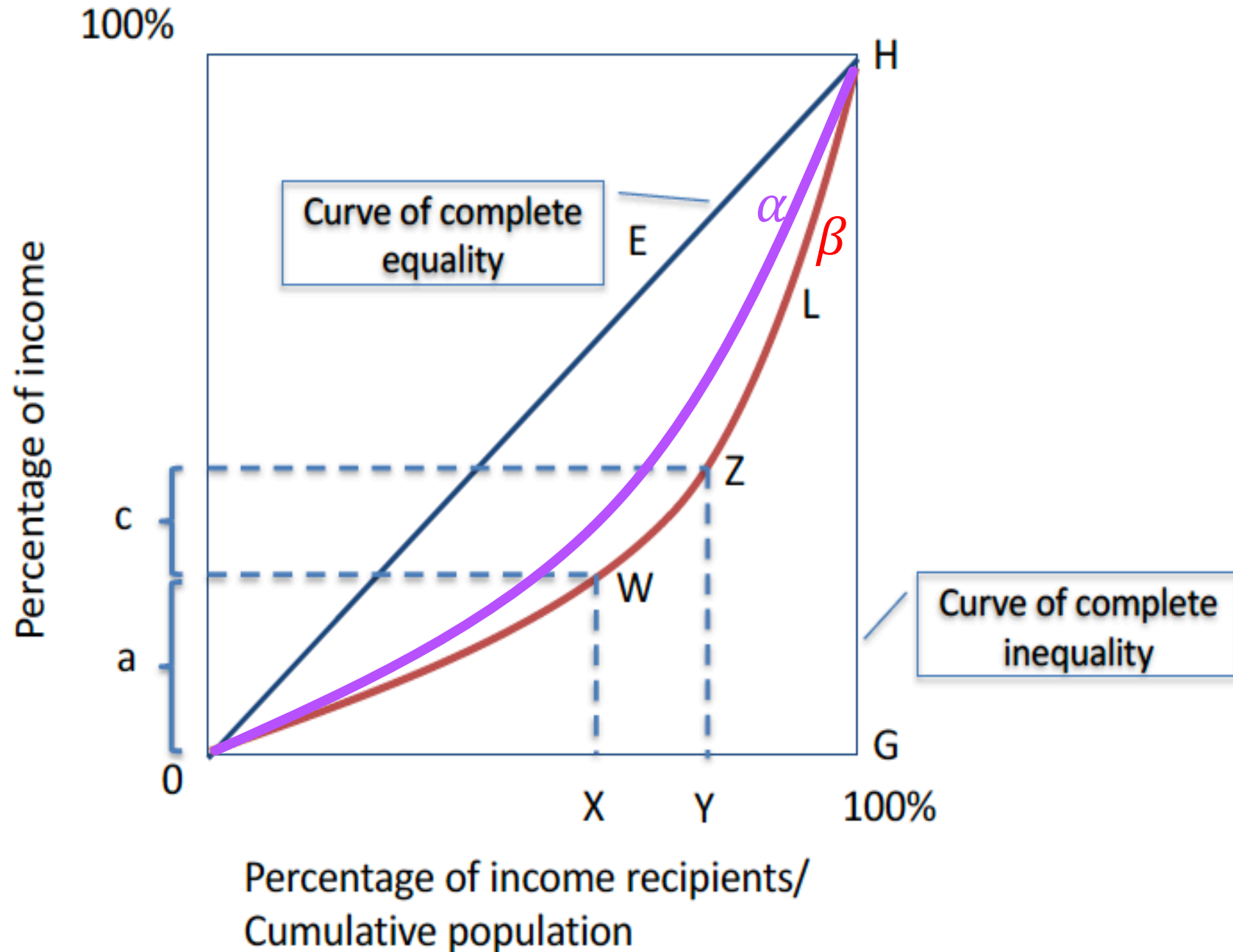
THE LORENZ CURVE

- The curve of perfect inequality is **OGH**. One household has 100 percent of country's income.



THE LORENZ CURVE

- Distribution α (lorenz) 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.
- Moving from α to β shows increase in inequality.
- Lower inequality implies higher welfare.



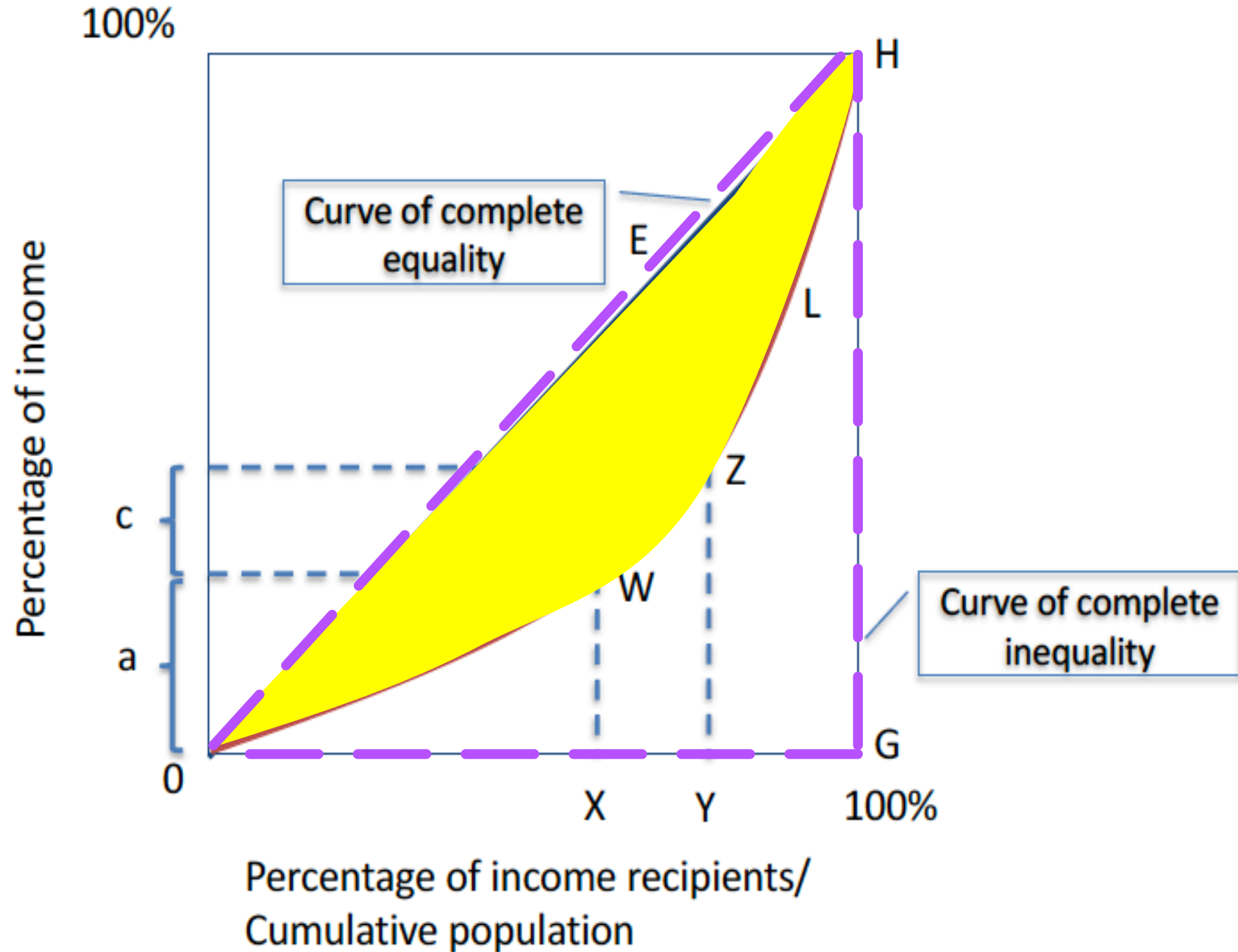


THE LORENZ CURVE

- Inequality of income cannot be compared by Lorenz curves if the curves cross.
- Use Gini coefficient instead

GINI COEFFICIENT

- “Area of inequality” is the shaded area, enclosed by the line of theoretical equality E and the observed Lorenz curve L.
- Gini coefficient is the ratio of area of inequality to the total area under the line of equality.



GINI COEFFICIENT

- 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.
- Gini coefficient = 0 → PERFECT EQUALITY
- Gini coefficient = 1 → PERFECT INEQUALITY
- Gini coefficient by World Bank

<https://data.worldbank.org/indicator/SI.POV.GINI?view=map&year=2013>

GINI COEFFICIENT

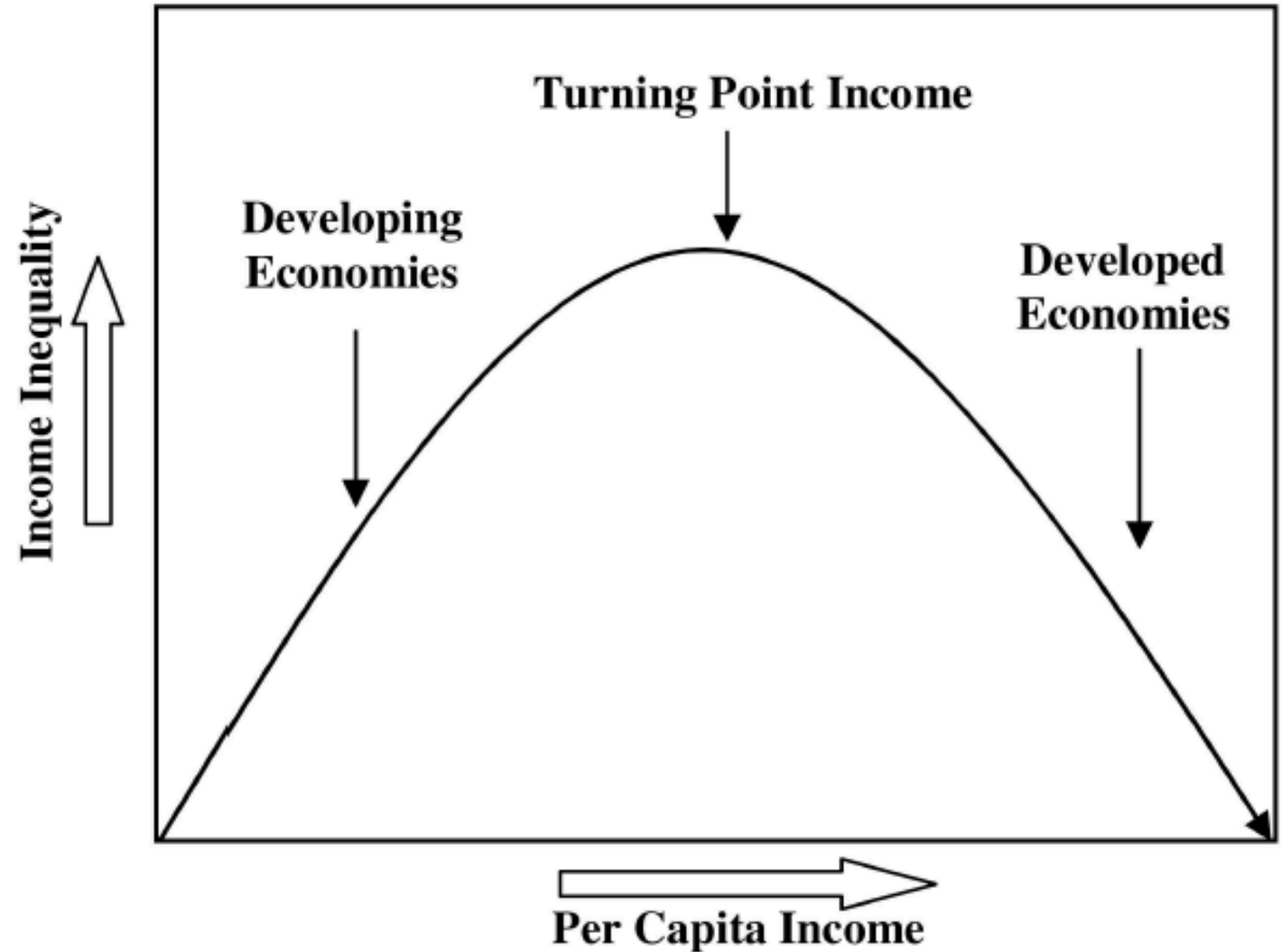
- Gini coefficient cannot be decomposed into inequality within and inequality between groups.
- The sum of inequality within and inequality between groups will not add up to the overall gini coefficient.
- If we want to know how much change in inequality can be attributed to a change within group (e.g. each education level, rural/urban, agricultural/non-agriculture) and to a change across groups, we need decomposable measures of income inequality, such as the variance in the logarithm of income and Theil index.

THE KUTZNET CURVE: THE INVERSE-U SHAPED HYPOTHESIS RELATING INCOME INEQUALITY AND ECONOMIC DEVELOPMENT

- 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
- Kuznets argued that as countries developed, income inequality first increased, peaked, and then decreased. He documented this using both cross-country and time-series data.

THE KUTZNET CURVE:
THE INVERSE-U SHAPED HYPOTHESIS
RELATING INCOME INEQUALITY AND
ECONOMIC DEVELOPMENT

- When plotting per capita income with some measure of inequality, the hypothesis suggests a plot that looks like an upside-down “U”.



THE KUTZNET CURVE: THE INVERSE-U SHAPED HYPOTHESIS RELATING INCOME INEQUALITY AND ECONOMIC DEVELOPMENT

- 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.

THE KUTZNET CURVE: MECHANISMS

- Kuznet conjectured that the pattern was caused by dual economy dynamics which were generated by the switch from the agricultural to the industrial sector.
- Income inequality will increase during the early stages of development as population shifts from the agricultural sector, where incomes are more equally distributed, to the urban sector, where incomes are less equally distributed.
- During the later stages of development, this force for inequality is more than offset by growing equality of income distribution within the urban sector, owing to better adaptation of the children of rural-urban migrants to urban economic life and growing political power of urban lower income groups.

THE KUTZNET CURVE: MECHANISMS

- Later works argued that only the difference in income between industrial and agricultural sectors is the source for inequality.
- With two sectors, there are three classes of wage earners: rural agricultural workers, urban formal-sector workers, and urban informal-sector workers.
- Inequality first rises when urbanization is low, and falls after urbanization , and consequently rural incomes, has increased sufficiently.

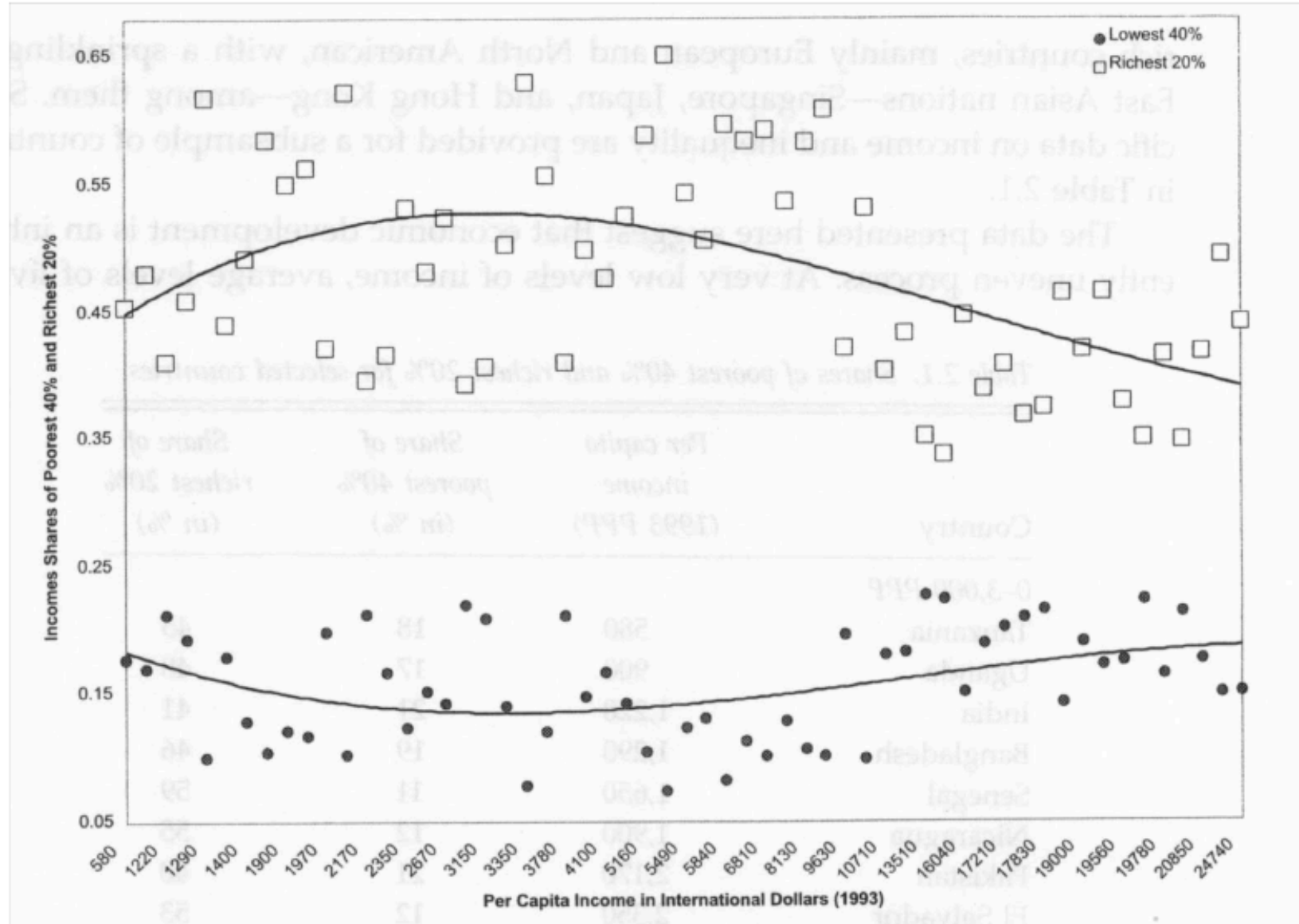


TESTING KUZNETS HYPOTHESIS

- CROSS-SECTIONAL DATA
 - Because we still lack reliable data to track an individual country's inequality over time, we can 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

TESTING KUZNETS HYPOTHESIS

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



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

TESTING KUZNETS HYPOTHESIS

- Ahluwalia (1976), in “Inequality, Poverty, and Development” paper, analyzed 60 countries: 40 developing, 14 developed, 6 socialist. The population of each country was divided into 5 quintiles, then the regression was:
- $s_i = a + by_i + cy_i^2 + D_i + \epsilon_i$
 - s_i is the income share of the i th quintile.
 - y_i is the logarithm of per capita GNP.
 - $D_i = 1$ if the country is socialist.

STILL KUZNETS ?

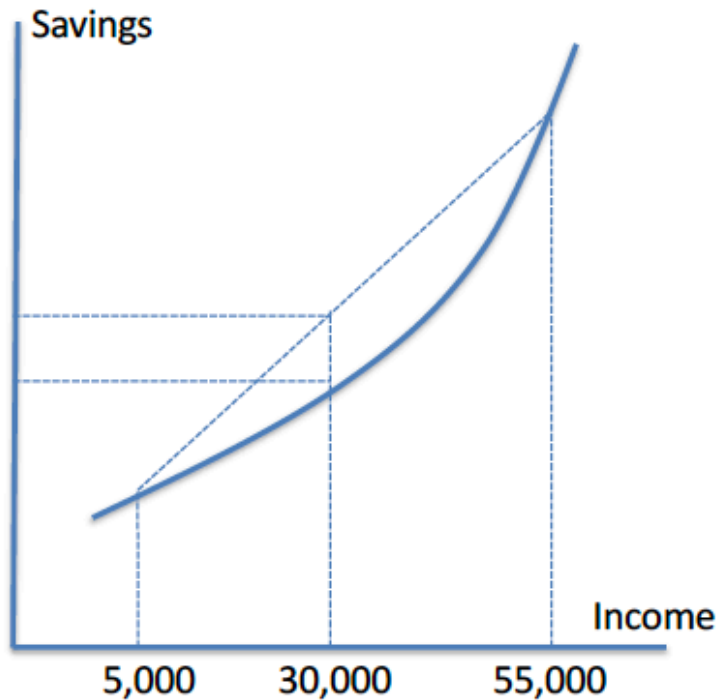
- Problem with cross-sectional studies: the implicit assumption is that all countries have **the same inequality-income relationship**
- Countries are different, but there is still some connection between their inequality-income curves >> do estimation by adding **country-specific dummy** variables that move the intercept term of the estimated curve (if we have time series data of inequality for each country).
- There are many factors (policies, structural differences across countries) that are left out from the tests.>>**Correlation vs Causation ?**

STILL KUZNETS ?

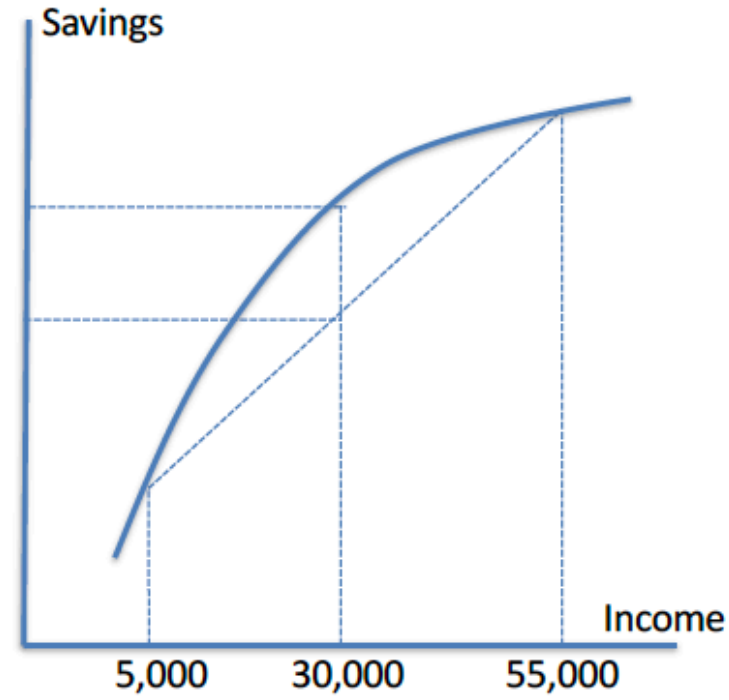
- “Latin effect”: most of the high-inequality middle-income countries are Latin American. Hence, the inverted-U is **just an artificial consequence of the Latin American countries sitting in the middle ?**
- With panel data and country-specific dummies, the Kuznets Inverted-U hypothesis largely vanishes: the coefficients are not significant.

INEQUALITY, SAVING, INCOME, AND GROWTH

- The rate of saving affects the long-run 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:
 - 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.

INEQUALITY, SAVING, INCOME, AND GROWTH

- If on the other hand, **the marginal savings rate decreases:**
 - 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.

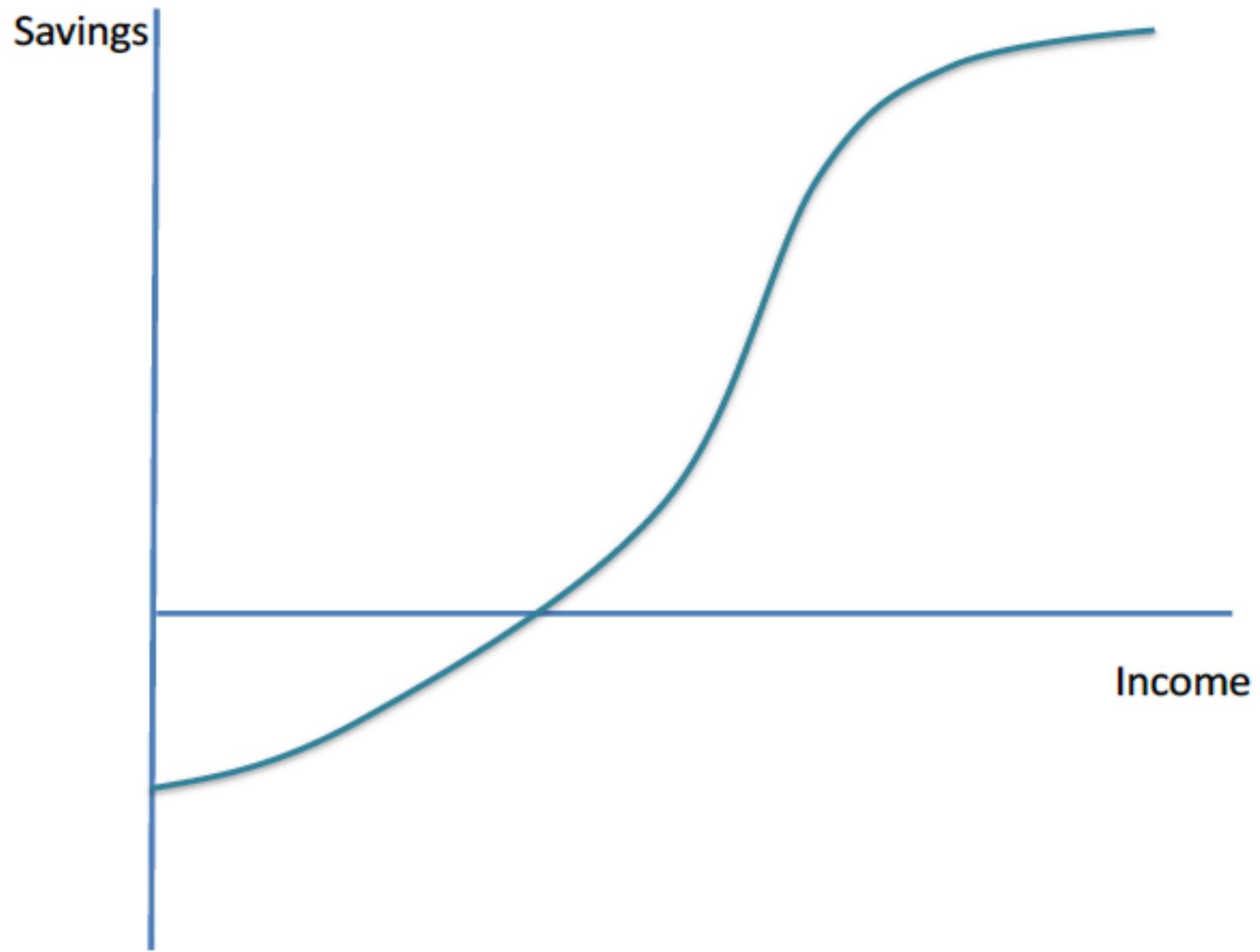


Figure 7.3 (Debraj Ray's textbook)



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.



EFFECT OF INEQUALITY ON SAVINGS AND GROWTH

- 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).
- 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 saving behavior.