What is So Bad About Inequality? What Can Be Done to Reduce It?

Todaro and Smith, Chapter 5 (11th edition)

What is so bad about inequality?

1. Extreme inequality leads to economic inefficiency.

- At a given avg.income, the higher the inequality, the smaller the % of the population that qualifies for a loan or other credit.
- With high inequality, the overall rate of saving in the economy tends to be lower, because the middle class has the highest rate of marginal saving.
- Inequality may lead to an inefficient allocation of assets.

2. <u>Extreme income disparities undermine social stability and solidarity.</u>

- High inequality strengthens the political power of the rich and hence their economic bargaining power.
- High inequality makes poor institutions very difficult to improve.
- High inequality may also lead the poor to support populist policies that can be self-defeating.

3. <u>Extreme inequality is generally viewed as unfair.</u>

Policy Options on Reducing Income Inequality and Alleviating Poverty

1. *Altering the functional distribution*
2. *Mitigating the size distribution*
3. *Moderating (reducing) the size distribution at the upper levels* through progressive taxation of personal income and wealth.
4. *Moderating (increasing) the size distribution at the lower levels* through public expenditures of tax revenues to raise the incomes of the poor either directly or indirectly.

Poverty and Undernutrition

Ray, Chapter 8

Todaro and Smith, Chapter 5 (11th edition)

- Some statistics:

The world has recorded significant growth over the past 40 years.

Per capita consumption in developing countries grew by 32% during 1965-75 and by 26% during 1975-85.

However, in 1990, there were still more than 1 billion poor people in the world.

A staggering figure!!

- Difficult to arrive at a tight estimate of the extent of global poverty at any point in time:

  Major WB reports issued within a couple of years of each other have provided estimates of the dollar-a-day headcount that differ by tens of millions of people.

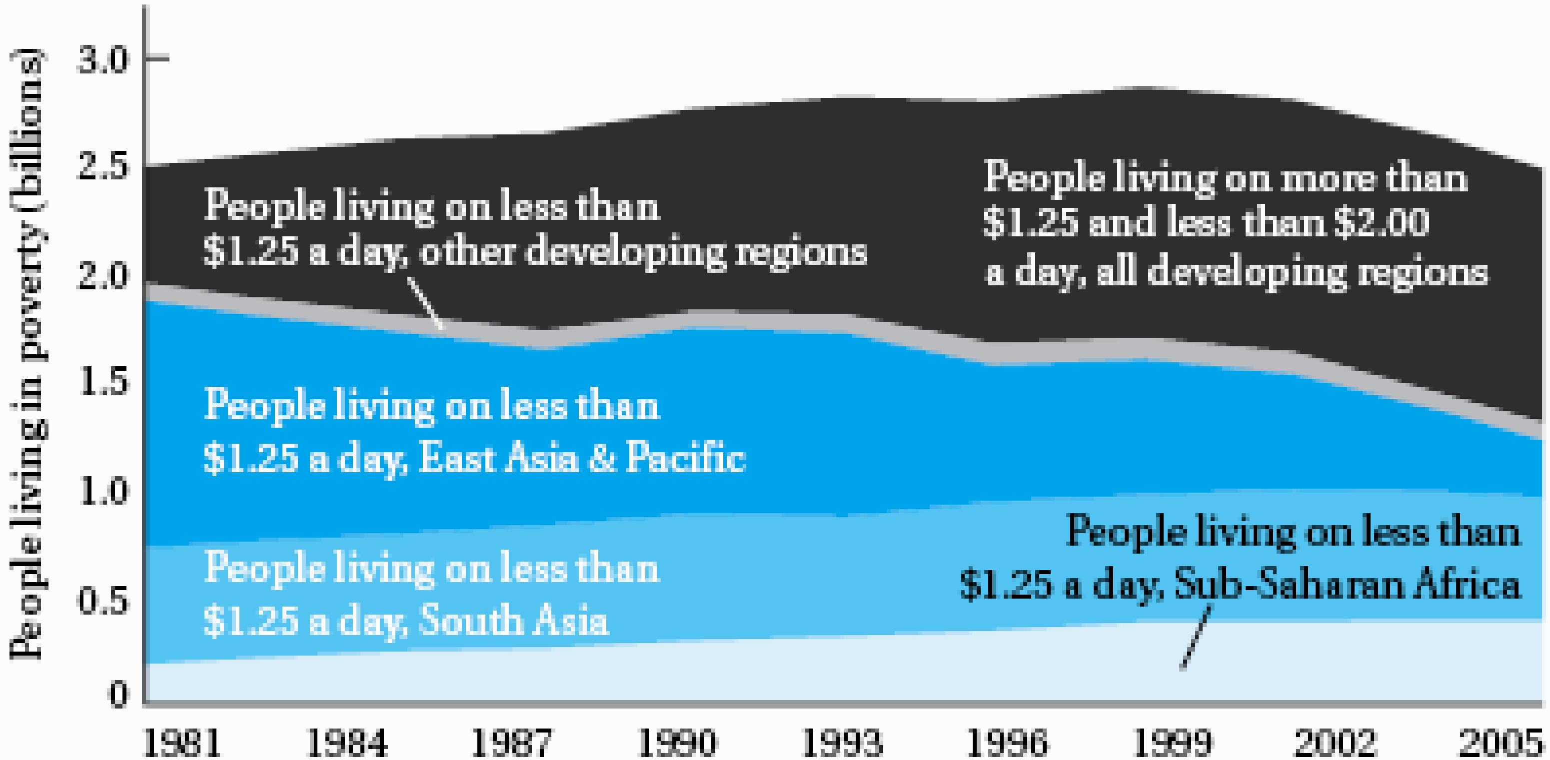
- Difficult to determine the most appropriate cutoff income for extreme poverty:

  The $1-a-day line was first set in 1987 dollars, and for years the standard was $1.08 in 1993 U.S. purchasing power parity.

  In 2008, the line was reset at $1.25 at 2005 U.S. purchasing power. This resulted in an increase in the estimated # of the poor but did not change the conclusion that the number in poverty has been falling markedly since 1990, most conspicuously due to progress in China.

- Even as updated to today's dollars, the poverty line is to some degree arbitrary (although it has corresponded roughly to what many developing countries use and is at least related to expenditures of people who barely meet minimum nutrition).
- In its *2010 World Development Indicators, the World Bank estimated that the* number of people living in extreme ($1.25-a-day) poverty was approximately 1.4 billion in 2005.

FIGURE 5.14 Global and Regional Poverty Trends



Source: PovcalNet and World Bank, *World Development Indicators 2010*, fig. 2.8a, p. 91.

Measurement of Poverty

- Poverty line: The min level of acceptable economic participation in a given society at a given point in time.

Alternative poverty lines:

- Cost of minimum nutrition, clothing and shelter
- Legal minimum wage
- 60% of the mean income in the country (?)

Ex: US poverty line: Three times (to account for the cost of other requirements) the cost of minimum consumption of calories.

Of course, the poorer the country, the better the nutrition-based approximation.

Some issues in poverty measurement

- Income or consumption? (See definitions below)

Extreme cases: Starving wealthy, a rich person not getting enough nutrients.

Permanent income hypothesis.

- Absolute or relative poverty line?

Some aspects of having a “min level of acceptable economic participation” are universal, some others are society-specific.

However, suppose we set poverty line = Mean income /2. Not Sensible! (Reduce all incomes by half, no change in poverty!!)

The above is better as a measure of inequality than poverty.

We have to have an absolute notion of the ability to function in a society.

Definitions:

Income is the flow of money and near money to a family. Because we want to reflect consumable resources, we subtract taxes on income and add the value of money-like transfers (Ex: face value of food stamps).

Expenditures is the outflow of money from a household.

Consumption = Expenditures – payments for durable goods + flow value of services from these goods – expenditures on investment items (Ex: health and education) – gifts to other families or charities.

Some issues in poverty measurement (continued)

- Temporary or chronic?

These two are complements. The policies needed to combat them may be very different.

Income in a given year may not be a good indicator of the resources that we have access to. What we need is the “smoothed” consumption stream that we enjoy. In this sense, consumption is a better indicator than income.

Expenditures are more likely to reflect our long-term prospects, but are lumpy as they include purchases such as houses and cars.

Some issues in poverty measurement (continued)

- Households or Individuals?

Usually income and expenditures data are collected at the household level. How can we compare households of different size?

- Divide by the number of individuals.

(Simple, easy to do, but ignores economies of scale, ignores that allocation of resources within household is often skewed.)

Some issues in poverty measurement (continued)

- Adjust by an adult equivalence scale. (This takes into account the number of individuals and their ages. There are conceptual difficulties here, but still better than per capita measures.)

Ex: “OECD equivalence scale”. This assigns a value of 1 to the first household member, of 0.7 to each additional adult and of 0.5 to each child.

Some issues in poverty measurement (continued)

What is "per person" household income for households with different size and structure? (per capita vs. per adult euqivalent)

	Equivalence Scales	
Household Size	Per capita	OECD equiv. scale
1 adult	1	1
2 adults	2	1.7
2 adults, 1 child	3	2.2
2 adults, 2 children	4	2.7
2 adults, 3 children	5	3.2

Poverty Measures

p: Poverty line

y_i: income (or expenditure) of individual i

m: mean income of country

n: total population

Headcount ratio: Headcount / n

$$HCR = \frac{HC}{n}$$

Question 1: Suppose p=1,000 TL.

There are 200 poor people.

100 earning 500 TL and 100 earning 900 TL.

You have a budget of 20,000.

a) Who would you give the money to?

b) Answer (a) again thinking that your aim is to min HCR.

Poverty Gap Ratio:

The ratio of the average income (or extra expenditure) needed to get all poor people to the poverty line, divided by the mean income (m) of the society.

$$PovertyGapRatio = \frac{\sum_{y_i < p} (p - y_i)}{nm}$$

In a sense, this ratio is a measure of the resources required to eradicate poverty.

In a highly unequal but wealthy society (where there are a lot of poor people), dividing by average income can be misleading. The poverty gap ratio might look small, although poverty is a severe problem.

(Use “Income Gap Ratio”)

$$IncomeGapRatio = \frac{\sum_{y_i < p} (p - y_i)}{pHC}$$

That is, divide the overall shortfall by the total income required to bring all poor to the poverty line.

Question 2: Answer Question 1 again.

p=1000. There are 200 poor people.

100 earning 500 TL and 100 earning 900 TL.

You have a budget of 20,000.

a) Who would you give the money to, if your aim were to reduce PGR or the IGR?

Question 3: Consider the situation in Question 1 again.

There are 200 poor people.

100 earning 500 TL and 100 earning 900 TL.

Suppose each 500 TL earner gave 50 TL to each 900 TL earner. So the new incomes are 450 and 950.

a) What happens to the HCR, the PGR and the IGR?

b) Answer (a) again if the transfer amount is 110 TL.

Poverty : Empirical Observations

Headcount Ratios based on $1.08 per day poverty line at 1993 PPP (as percentages)			
	1990	**1996**	**2001**
East Asia	29.6	16.6	14.9
China	33	17.4	16.6
Eastern Europe and Central Asia	0.5	4.2	3.7
Latin America and the Caribbean	11.3	10.7	9.5
Middle East and North Africa	2.3	2	2.4
South Asia	41.3	36.6	31.3
India	42.1	42.21	34.7
Sub-Saharan Africa	44.6	45.6	46.9
Total	**27.9**	**22.8**	**21.1**

Poverty : Empirical Observations

Numbers of Poor People (million) based on $1.08 per day poverty line at 1993 PPP			
	1990	**1996**	**2001**
East Asia	472	286	271
China	374	211	211
Eastern Europe and Central Asia	2	19	17
Latin America and the Caribbean	49	52	49
Middle East and North Africa	5	5	7
South Asia	462	461	431
India	357	399	358
Sub-Saharan Africa	226	271	315
Total	**1218**	**1096**	**1092**

- As was the case with inequality measures, there are criteria for a desirable poverty measure that are widely accepted by development economists (axioms of poverty measurement):

1. anonymity principle,
2. population principle,
3. monotonicity principle, and
4. transfer principle.

- Monotonicity:

Given other things, a reduction in the income of a poor household must increase the poverty measure .

- Transfer principle:

Given other things, a pure transfer of income from a poor household to any other household that is richer must increase the poverty measure.

The Foster-Greer-Thorbecke (FGT) Index of Poverty:

$$P_\alpha = \frac{1}{N} \sum_{i=1}^{H} \left(\frac{Y_p - Y_i}{Y_p} \right)^\alpha$$

When $\alpha = 0$: headcount ratio

When $\alpha = 1$: another measure that is similar to poverty gap ratio and income gap ratio.

We can think of α as a poverty aversion parameter; a larger α gives greater emphasis to the poorest poor.

The FGT index of poverty satisfies the anonymity and population principles.

It satisfies monotonicity principle for α >0 and the transfer principle for α >1.

In Table 5.5 (on the next slide) you will see P_0, P_1 and P_2 measures of poverty for some geographical regions.

TABLE 5.5 Regional Poverty Incidence, 2005

Region	Headcount Ratio	Poverty Gap	Squared Poverty Gap
Regional Aggregation at $1.25 per Day			
East Asia and the Pacific	16.78	4.04	1.40
Europe and Central Asia	3.65	1.05	0.47
Latin America and the Caribbean	8.22	2.75	1.46
Middle East and North Africa	3.60	0.78	0.30
South Asia	40.34	10.29	3.64
Sub-Saharan Africa	50.91	20.74	11.05
Total	25.19	7.5	3.22
Regional Aggregation at $2 per Day			
East Asia and the Pacific	38.64	12.94	5.80
Europe and Central Asia	8.84	2.97	1.43
Latin America and the Caribbean	17.12	6.45	3.41
Middle East and North Africa	16.85	4.03	1.50
South Asia	73.91	28.70	13.81
Sub-Saharan Africa	72.85	36.39	22.42
Total	47.00	18.51	9.43

Source: World Bank, "PovcalNet," http://iresearch.worldbank.org/PovcalNet.

Demographic Features of the Poor:

- Larger households (poverty both a cause and a consequence of high population?)
- High ratio of dependent members
- Higher share of female-headed households
- Rural poverty is significantly higher than urban poverty (Up to 80-90% of the poor live in rural areas.)
- Poverty is correlated with lack of productive assets such as land and human capital.

Nutrition and Poverty:

- Closely related
- Low income $\Rightarrow$ Difficult to acquire adequate nutrition $\Rightarrow$ Low productivity $\Rightarrow$ Low income
- Severe consequences for children: stunting, increased susceptibility to illness and infection, worse cognitive skills.
- A poor person is more likely to be undernourished than a rich person. Yet, the link from increases in income to increases in nutrition is not strong. Therefore, direct nutrition supports may have a far greater impact on undernutrition than an increase in income.

The Functional Impact of Poverty:

Poverty, nutrition and labor markets

We will investigate the relationship between nutritional status and work capacity, and how this relationship creates a vicious cycle in the labor market.

The four main components of energy balance:

- Energy input
- Resting metabolism
- Energy required for work
- Storage and borrowing

The Functional Impact of Poverty:

Poverty, nutrition and labor markets (continued)

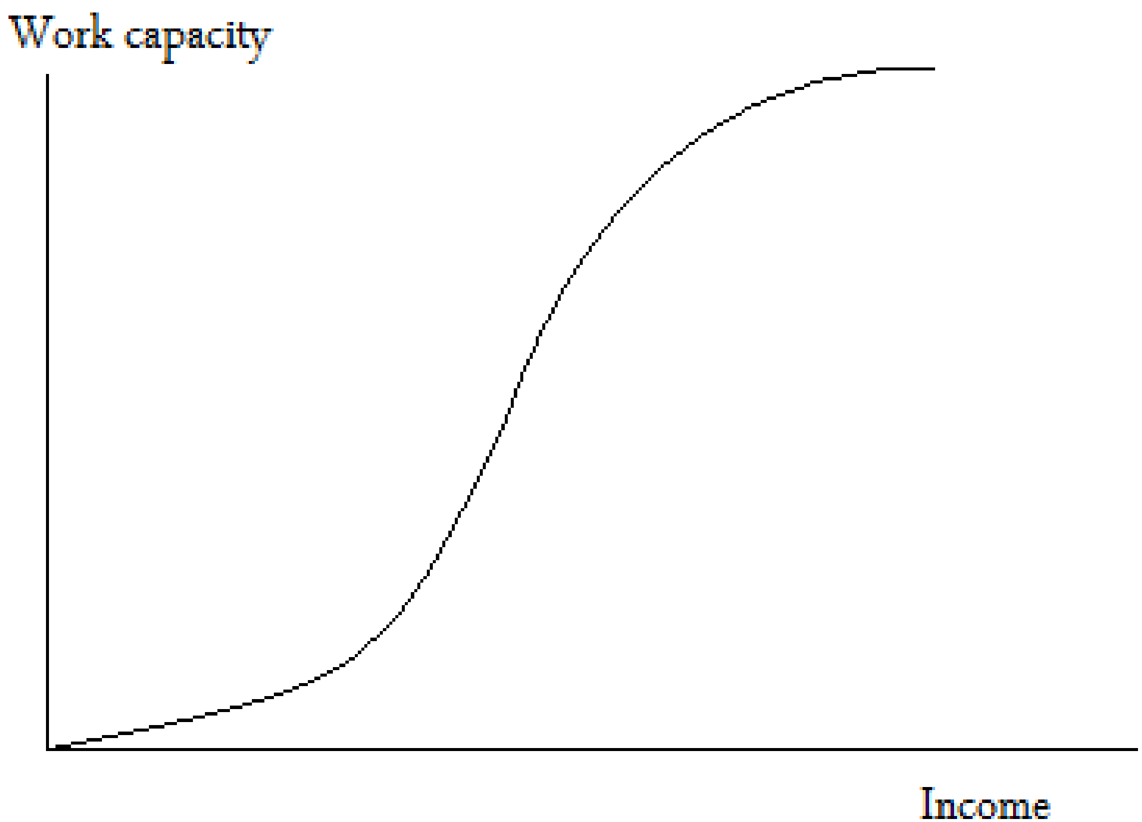
- Resting metabolism: A significant portion of body's requirement. For a European male of 65 kg. weight (called the "reference man"), this is around 1700 kcal per day (Source: FAO). Varies with individual characteristics, body mass, environment etc.
- Energy required for work: "Moderate activity" requires an extra 400 kcal per day for the reference man. The requirement of the poor are higher, considering that they mostly do hard labor. An estimate is 213 kcal per hour of carrying a log of 20 kg. Physical labor requires significant amounts of energy.

The Functional Impact of Poverty:

Poverty, nutrition and labor markets (continued)

- Storage and borrowing: An energy deficit is met by running down stores from the body. An energy surplus is partly dissipated, partly stored. Many people in the developed world worry about accumulating stores, while millions in the developing world try to cope with the threat of an energy deficit.

What is the relationship between nutrition and the capacity of the body to perform tasks that generate income?



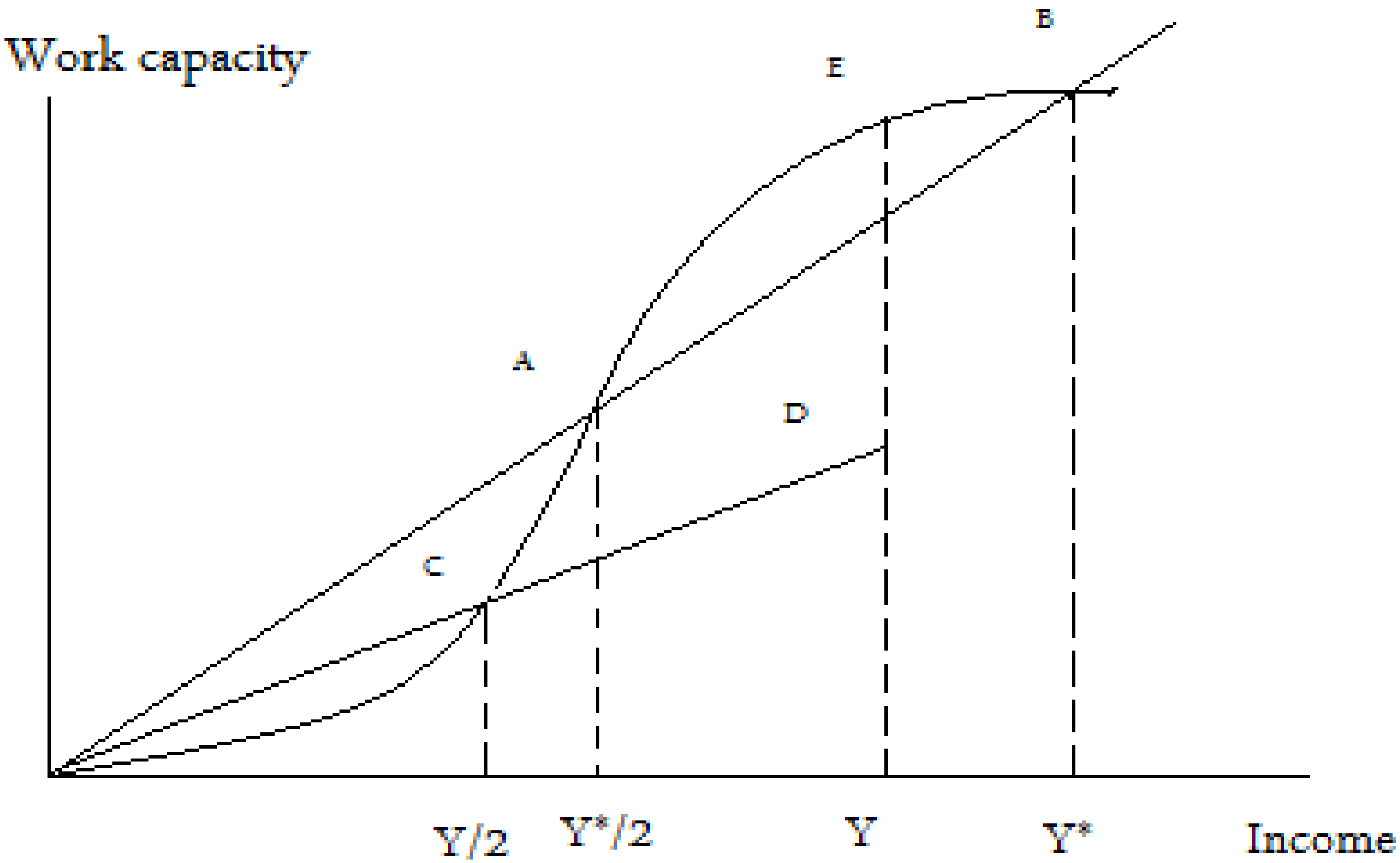
What is the relationship between nutrition and the capacity of the body to perform tasks that generate income?

(Ruling out the storage and borrowing options)

- Initially most of the calories go to maintaining resting metabolism. Very little energy is left over for work.
- Once resting metabolism is taken care of, there is a marked increase in work capacity.
- Finally, diminishing returns set in, as the natural limits of the body restrict the conversion of additional nutrition to increasing work capacity.

The Functional Impact of Poverty:

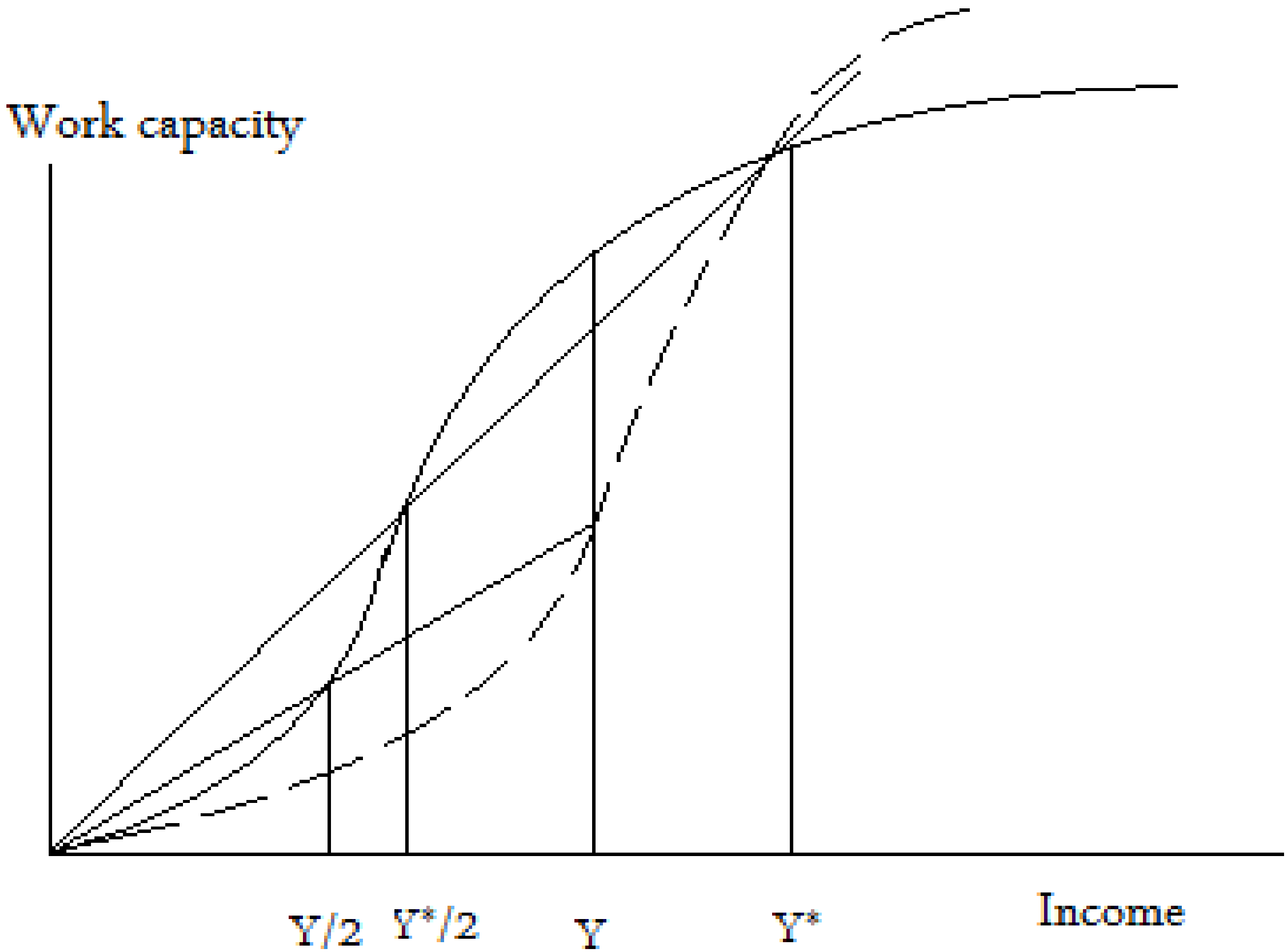
Poverty and the household



The Functional Impact of Poverty:

Poverty and the household

- Consider a household of two persons with total income of Y^*.
- The diagram is drawn such that when income is shared equally between the two persons, total work capacity is equal to the case when household income is consumed by one of the individuals.
- Suppose $Y < Y^*$.
- Equal division means each person gets $Y/2$. Total work capacity is twice the height of C, shown by the height of D, which is less than the height of E.
- Therefore, when $Y < Y^*$, unequal consumption allocations create greater household work capacity.



Work capacity
Y/2
Y*/2
Y
Y*
Income

- The dashed curve shows the total income earned when income is equally shared.
- Poverty is correlated with unequal allocation (due to the convex part of the capacity curve).
- Thus, certain individuals may be systematically denied nourishment and medical care, so that scarce resources can be better focused on the remaining family members.

- Who are the denied individuals?
- Typically females (both adults and children), the old and the infirm.