

Chapter 5

Poverty, Inequality, and Development

■ Key Concepts

This chapter takes up the question of growth versus income distribution and poverty. The chapter examines eight questions:

- What is the extent of relative inequality and poverty in developing countries?
- What are the economic characteristics of the poor?
- Who benefits from economic growth?
- Are increased economic growth and more equitable income distributions compatible objectives?
- Do the poor benefit from growth?
- What is so bad about extreme inequality?
- What policies will reduce absolute poverty?

5.1 and 5.2 deal with measurement issues relating to poverty and inequality. The concepts of size and functional distribution of income are defined. Within this section, the following topics are covered:

- A discussion of Lorenz curves and the Gini coefficient.
- Measuring absolute poverty using the poverty gap (total and average poverty gap), the Foster-Greer-Thorbecke index, and the newly introduced Multidimensional Poverty Index.

An important conclusion is that there is no clear relationship between the level of income per capita and inequality.

5.3 seeks to explain:

- Why inequality is a problem.
- Three cases of dualistic development using Lorenz curves.
- The relationship between inequality and per capita income or the Kuznets inverted-U hypothesis.
- The relationship between growth and inequality.

The new edition includes updated data tables for various countries. Evidence suggests it is the character of economic growth that determines how much living standards improve as growth increases.

5.4 takes up the topic of absolute poverty. The new edition adds and explains the concept of extreme poverty and chronic poverty. New and more extensive data are presented on the degree of absolute poverty in the world today, and the question of growth versus equity is debated in terms of which to pursue first. Arguments are made for each case and include the following points:

- Economic growth is not sufficient to eradicate poverty because it may benefit only the modern sector with little or no trickle-down. The rich may not use their wealth to make productive local investments. Investing in health and education improves worker productivity. Increasing the income of the poor may be translated into demand-led growth.
- Pro-growth arguments emphasize more savings by the higher income groups and the trickle-down theory.

In 5.5, the economic characteristics of the poor are described. It is argued that poverty is disproportionately present among the rural population, women and minority/indigenous groups.

5.6 considers policy options for addressing poverty and inequality while still maintaining growth:

- Remove factor price distortions. This topic is discussed further in Appendix 5.1.
- Redistribution of asset ownership, such as land reform. This topic is discussed further in Chapter 9.
- Progressive income and wealth taxes to reduce income inequality.
- Direct transfer payments and public provision of goods and services to reduce the extent of poverty.

The price-incentive model, discussed in Appendix 5.1, suggests firms are profit maximizers who choose the combination of inputs that will minimize cost. The many factor price distortions present in developing countries send the wrong signal to firms in terms of choice over labor and capital. Graphical analysis using isoquants and isocost lines is included. The appropriate technology concept is introduced and suggests that developing countries that are relatively well endowed with labor should try to employ labor-intensive technologies. The employment effect of removing factor price distortions depends on the elasticity of substitution.

The Ahluwalia-Chenery Welfare Index is explained in detail in Appendix 5.2. GNP is shown to be a biased indicator of development and welfare, and equal-weighted and poverty-weighted measures are demonstrated to be better indicators of who is benefiting from the growth of production.

The chapter ends with a case study that demonstrates how the frameworks and multi-country statistical studies of Chapters 2 and 5 can be applied to understand development and experiences in a comparative perspective.

1. The following income distribution data are for Brazil.

Quintile	Percent Share
Lowest 20%	3.0%
Second quintile	6.9%
Third quintile	11.8%
Fourth quintile	19.6%
Highest 20%	58.7%
Highest 10%	43.0%

- (a) Carefully graph the Lorenz curve, labeling the axes.

Answer: The cumulative distribution by quintiles is 3.0, 9.9, 21.7, 41.3, and 100.

- (b) Explain how to find the Gini coefficient, graphically.

- (c) Brazil's national income is about \$300 billion. What is the approximate dollar income of the bottom 20%? Bottom 40%?

Answer: \$ 9 billion and \$ 29.7 billion.

- (d) Brazil's population is approximately 150 million. Suppose that each household makes the average income for its quintile. What is the level of poverty if the poverty line is \$400 per capita?

Answer: 1st quintile: \$300, below poverty line; 2nd quintile: \$ 590 above poverty line; headcount = 30 million; income shortfall = 30 Million \times \$100 = \$3.0B.

- (e) Suppose one percent of national income were transferred from the richest 20% of households to the poorest 20% of households. Show the effect on relative inequality.

Answer: Decreases by Lorenz criterion.

- (f) Under the same transfer, what is the effect on poverty?

Answer: Poorest quintile receives \$12B. $H = 30$ but income shortfall drops to \$ 0B. You may choose to have students calculate Gini, which is easily done with the trapezoid formula.

Analogous questions can easily be constructed for other countries using the World Development Report, 2004, Table 2.

2. Consider the following distribution of income in a 12-person economy, with the modern urban wage = 3, the traditional rural income = 1, and the informal urban wage = 2: (1,1,1,1,2,2,2,2,3,3,3,3). The poverty line = 1.25. Suppose rural incomes are raised to 1.5 through expanded agricultural exports. What happens to relative inequality? Absolute poverty? Calculate the Ahluwalia-Chenery welfare index for terciles (3 fractiles) under GNP weights and equal weights. Why is the equal-weighted index higher?

Answer: Inequality decreases. Poverty is eliminated. ACWI = 0.083 with GNP weights. ACWI = 0.167 with equal weights.

3. Consider the following distribution of income in a 12-person economy, with the modern urban wage = 10, the traditional rural income = 2, and the informal urban wage = 4: (2,2,2,2,4,4,4,4,10,10,10,10).

- (a) Suppose rural incomes are raised to 3, other things equal. Show the change using the Lorenz curve. How would this type of growth be characterized? (It is suggested that you use the Fields growth decomposition in answering. This shows traditional sector enrichment growth.)
- (b) Calculate the Ahluwalia-Chenery welfare index for terciles (3 fractiles) under GNP weights and equal weights. Which index is higher and why?

Answer: (GNP is 64, so the index with GNP weights is: $(1/2) (1/8) = (1/16)$. The index with equal weights is: $(1/2) (1/3) = (1/6)$. The latter is higher because growth is concentrated in a fractile with a smaller than average income share.)

■ Sample Questions

Short Answer

1. About how many people are living in extreme poverty in the world? Which regions have the greatest percentages of people living in extreme poverty?

Answer: There are various estimates, including the World Bank estimate of 1.4 billion people living in extreme poverty in 2005. Percentage wise, 40.3% of those who reside in South Asia, 51% of sub Saharan Africans live under \$1.25 per day. Specific examples and data cited in the text should also be expected in an answer.

2. Explain the difference between size and functional measures of income distribution.

Answer: Size refers to family or personal income and function refers to factor shares.

3. What is a Lorenz curve? Draw one, labeling the axes.

Answer: Examined in the text.

4. Explain why a Lorenz curve can never lie to the left or above the 45 degree line.

Answer: It is constructed by *ordering* income recipients from poorest to richest. Note: if ordered from richest to poorest, the curve would never fall below the 45-degree line.

5. Using a Lorenz curve diagram, explain how to calculate the Gini coefficient.

Answer: Examined in the text.

6. Distinguish between economic growth by modern sector enlargement, modern sector enrichment and traditional sector enrichment. For each of the three cases, show what happens to absolute poverty and to relative inequality, using a precise measure of each.

Answer: Students may use either the headcount or the income shortfall measure for absolute poverty, and the Lorenz criterion or fractile shares for an inequality measure.

7. Generally speaking, higher income countries tend to have less income inequality than low-income countries, however this does not always hold true. What could cause a low-income country to have low-income inequality?

Answer: Low inequality can result due to very little income to be distributed in the first place.

8. Discuss the benefits of using a “poverty weighted” index of GNP growth as a measure of social welfare as opposed to using the growth in GNP to measure change in social welfare.

Answer: Students should refer specifically to the Ahluwalia Chenery welfare index. Poverty weights will place more emphasis on what happens to the income of the poor.

9. Increasing GNP is a necessary but not a sufficient condition for improving living standards in less developed countries. True or false, explain.

Answer: True. Growth in income is necessary but it does not guarantee that all will benefit. See the discussion in the text.

10. “The 1980s were a lost decade for the absolutely poor.” Evaluate this statement.

Answer: Answers will vary. You might expect some presentation of data.

11. What are the characteristics of the poor (be specific)?

Answer: A person is more likely to be absolutely poor if rural, agricultural, female or from a female-headed family, landless, from a large family, from a family with a high ratio of dependents, or from among ethnic minorities or indigenous peoples. Clearly, those who are poor are also more likely to come from a low-income country.

12. Why are about 100 million girls and women said to be “missing” in developing countries?

Answer: This is the number of females that would be proportional to the number of living males if females had equal access to resources such as food, medical care, and education, and were not subject to differential abortion and infanticide.

13. What are factor price distortions, and what are their major causes in developing countries?

Answer: Factors of production are paid prices that do not reflect the prices that would prevail under a true competitive market, that is, their scarcity prices. Prices for capital and intermediate goods are often artificially low because of tax rebates, investment subsidies, high capital depreciation allowances, ceilings on interest rates etc. Wages are often above opportunity costs due to trade union, political, and other pressures.

14. Just what is it that makes a technology “appropriate” for a developing country?

Answer: A technology is appropriate if it fits with existing factor endowments.

15. Discuss the reasons why developing countries so often use a technology with an excessively high capital labor ratio.

Answer: Factor price distortions and the unavailability of appropriate technology.

16. Discuss some policies or strategies that would give firms an incentive to substitute labor for capital within modern production techniques.

Answer: Depends on lecture development.

17. The 2002 World Development Report provides the following information for Colombia and Thailand:

	Per Capita GDP (\$)	Per Capita GDP (PPP \$)	Population below National Poverty Line (%)	Population below \$1 Day PPP (%)	Poverty Gap at \$1 Day PPP (%)	Gini Index
Colombia	2080	5890	17.7	11.0	3.2	57.1
Thailand	2010	6330	13.1	<2	<0.5	41.4

- (a) Explain carefully what each of the entries in the final four columns of this table measures. What concepts are being presented and what is their importance to economic development?

Answer: The student is asked to define and comment on the various ways of measuring poverty (headcount index, poverty gap) and income inequality (Gini coefficient)

- (b) The table above shows that Colombia and Thailand are roughly at the same level of economic development as measured by the level per capita national income. Their performance in terms of poverty indicators is quite different. What factors may contribute to their differing performance?

Answer: The student is asked to comment on the distinction between per capita income growth and poverty reduction.

18. Compare and contrast the similarities and the differences in the development experience of Ghana and Cote d'Ivoire. How did the economic development policies followed by the two countries differ?

Answer: The case study on Ghana and Cote D'Ivoire discusses these issues in detail.

19. What is the Multidimensional Poverty Index and how is it a more improved measure of poverty?

Answer: The MPI identifies the poor at the household level and uses the dual cutoff method. First, the cutoff levels within each of the dimensions and second, the cutoff of the number of dimensions in which a person must be deprived to be deemed multidimensionally poor. This is a better indicator of poverty and it goes beyond income and looks at other weighted indicators (health, education, and standard of living) for which poor households are deprived.

■ Multiple Choice

1. The absolute poverty line
- (a) decreases as real income grows.
 - (b) shows the average income of the lowest income group.
 - (c) can be measured with the Lorenz curve.
 - (d) none of the above.

Answer: D

2. The Gini coefficient provides a measure of

- (a) the level of poverty.
- (b) the level of relative inequality.
- (c) disguised unemployment.
- (d) the rate of growth.

Answer: B

3. Kuznets' inverted-U hypothesis

- (a) implies that things must get worse before they get better.
- (b) suggests that inequality will worsen and then improve as a country grows.
- (c) suggests that inequality will improve and then worsen as a country grows.
- (d) points out six characteristics of modern economic growth.

Answer: B

4. According to Kuznets, in the process of development inequality in an economy will normally

- (a) first rise and then fall.
- (b) first fall and then rise.
- (c) remain about the same.
- (d) show no definite pattern.

Answer: A

5. Poverty is better studied with size distribution measures than those based on factor distribution because

- (a) labor income may be highly concentrated in well-paid modern sector workers.
- (b) some poor farmers may receive a sizable share of income in rent.
- (c) income from nonmarket activities such as foraging may be important.
- (d) all of the above.

Answer: D

6. The number of people in the world who are absolutely poor is closest to

- (a) a quarter-billion.
- (b) a half-billion.
- (c) one and a half billion.
- (d) two billion.
- (e) four billion.

Answer: C

7. With modern sector enrichment growth, inequality will

- (a) first rise and then fall.
- (b) first fall and then rise.
- (c) remain about the same.
- (d) none of the above.

Answer: D

8. With modern sector enlargement growth, inequality will
- (a) first rise and then fall.
 - (b) first fall and then rise.
 - (c) remain about the same.
 - (d) all of the above.

Answer: A

9. Higher income countries tend to have lower levels of absolute poverty because
- (a) more employment opportunities
 - (b) more public assistance
 - (c) greater entrepreneurship opportunities.
 - (d) all of the above.

Answer: D

10. One of the characteristics of the poor is that they are
- (a) more likely to be employed in the modern industrial sector.
 - (b) more likely to come from small families.
 - (c) more likely to be well educated.
 - (d) more likely to live in a rural area.

Answer: D

11. Which of the following policies might increase labor intensity in industry?
- (a) a decline in the cost of credit
 - (b) a decline in the minimum wage rate
 - (c) a decline in the elasticity of substitution
 - (d) all of the above.

Answer: B

12. Which of the following policies may decrease the level of capital intensity in industry?
- (a) an increase in the cost of capital
 - (b) a decrease in the minimum wage
 - (c) an increase in the elasticity of substitution
 - (d) all of the above.

Answer: D

13. The Ahluwalia-Chenery welfare index
- (a) is a method used to measure changes in absolute poverty.
 - (b) shows the value judgment implications of using the change in income per capita as a measure of the change in development.
 - (c) is a method used to measure changes in inequality.
 - (d) is a method used to measure the growth rate of GDP.

Answer: B

14. About what percent of the world's poorest people are female?

- (a) 30
- (b) 50
- (c) 70
- (d) 90

Answer: C

15. About how many girls and women are said to be "missing" in LDCs?

- (a) 2 million
- (b) 20 million
- (c) 100 million
- (d) 2 billion

Answer: C

16. Which of the following groups is(are) more likely to be poor?

- (a) minorities
- (b) indigenous people
- (c) women
- (d) all of the above.

Answer: D

17. Distribution of income according to percentiles, such as the highest 40% or lowest 20% is known as the _____ distribution of income.

- (a) size
- (b) functional
- (c) GNP-weighted
- (d) equal-weighted

Answer: A

18. What conclusion can be reached from the following data on income shares?

	Percentage of Income Received by	
	Lowest 40%	Highest 20%
Bangladesh	17.3	45.3
Indonesia	14.4	49.4

- (a) absolute poverty is more widespread in Bangladesh
- (b) the size distribution of income is more unequal in Indonesia
- (c) Bangladesh had adopted a strategy of redistribution with growth
- (d) growth in Bangladesh is calculated using poverty weights rather than income weights

Answer: B

19. Developing countries who have adopted capital-intensive technologies tend to have
- (a) relatively higher Gini coefficients.
 - (b) relatively lower Gini coefficients.
 - (c) Gini coefficients equal to one.
 - (d) Gini coefficients equal to zero.

Answer: A

20. Assuming that the Gini coefficient for Egypt is 0.403 and the Gini coefficient for Australia is 0.404, it is possible to conclude that both Egypt and Australia have
- (a) virtually the same number of households in absolute poverty.
 - (b) virtually the same percentage of households in absolute poverty.
 - (c) virtually the same level of the Human Development Index.
 - (d) none of the above.

Answer: D

21. Brazil's growth rate during the 1960's was 6.0% when poverty weights were used to evaluate growth, compared with 8.2% when GNP weights were used to evaluate growth. One can conclude from these numbers that
- (a) average income growth was greater for poor households than for rich households.
 - (b) average income growth was greater for rich households than for poor households.
 - (c) more and more households were falling below the poverty line.
 - (d) the size distribution of income was getting worse.

Answer: B

22. The poverty gap is the
- (a) absolute number of people below the international poverty line.
 - (b) percentage of the population below the international poverty line.
 - (c) consumption (measured in dollars) necessary to bring everyone below the poverty line up to the line.
 - (d) percentage of a country's total consumption necessary to bring everyone in the country below the poverty line up to the line.

Answer: D

23. The functional distribution of income refers to the distribution of income between
- (a) individuals or households.
 - (b) rural individuals or households.
 - (c) urban individuals or households.
 - (d) the factors of production (land, labor and capital).

Answer: D