

INEQUALITY AND POVERTY

EE 462 Development Macroeconomics

Topics

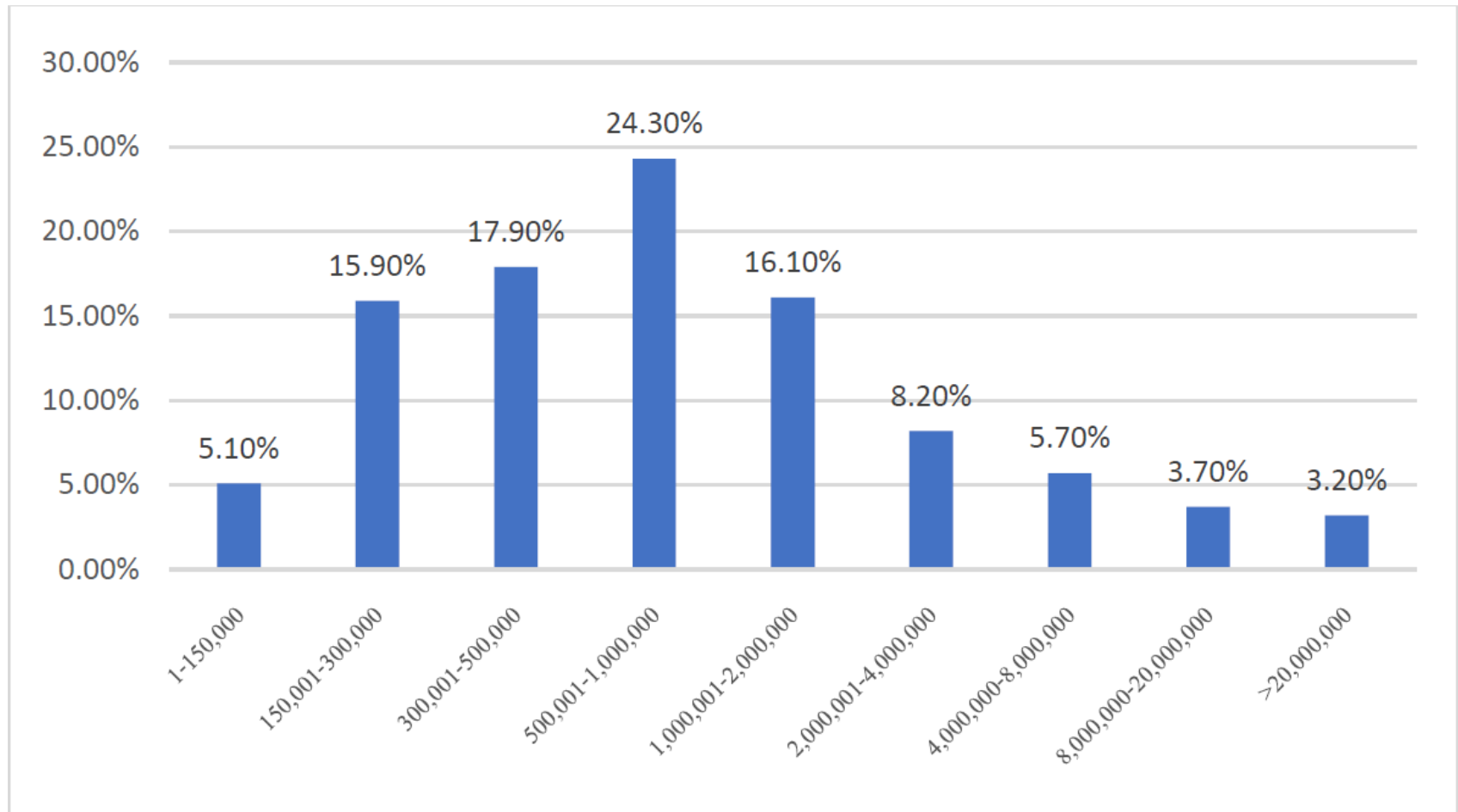
- Measuring Inequality
- Growth and Inequality
- Measuring Poverty
- Strategies to Reduce Poverty
- Global Inequality and the End of Poverty

Distribution and Development

- What is the extent of relative inequality, and how is this related to the extent of poverty?
- Who are the poor?
- Who benefits from economic growth?
- Does rapid growth necessarily cause greater income inequality?
- Are high levels of inequality always bad?
- Do the poor benefit from growth?
- What policies can reduce poverty?

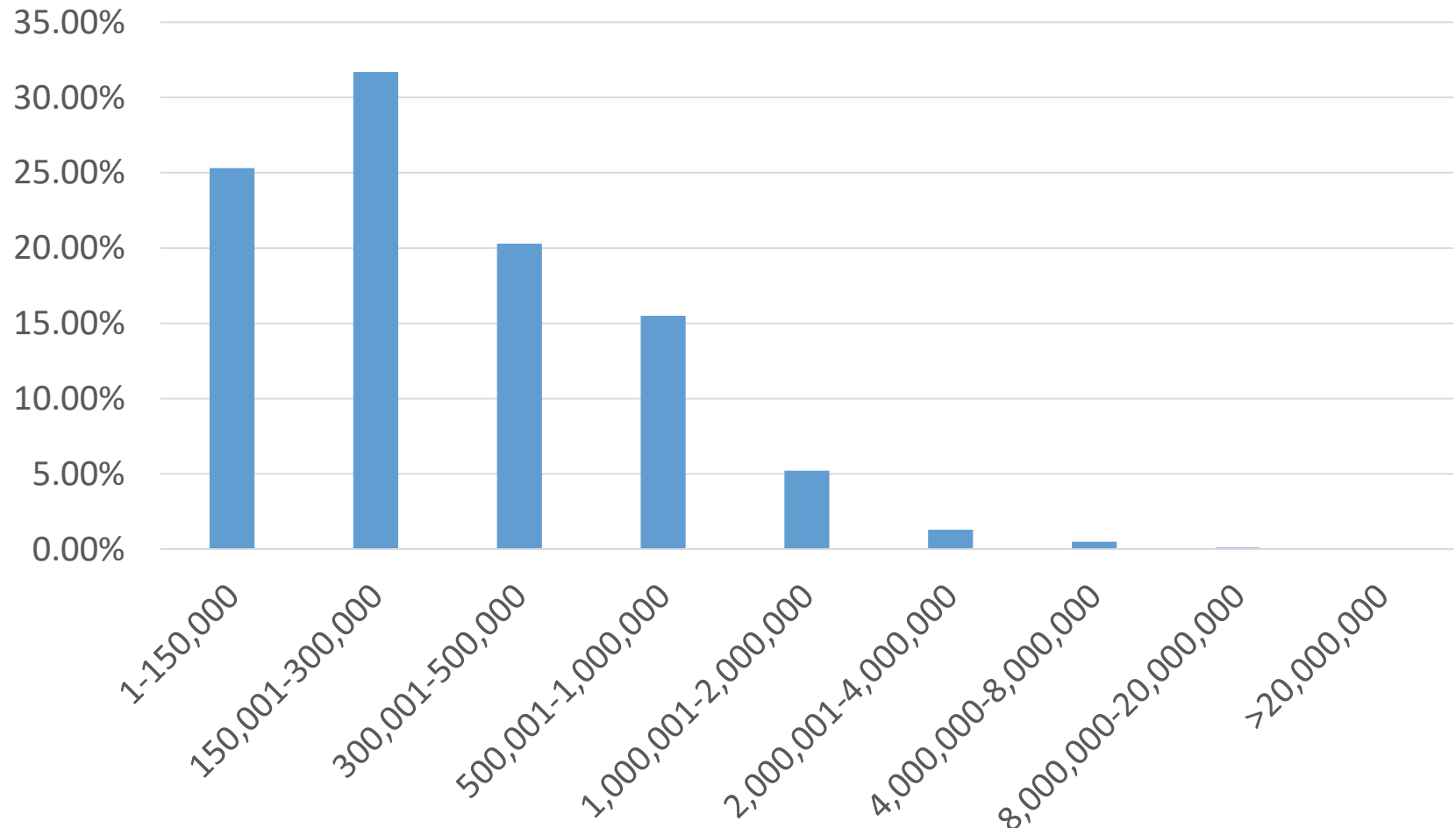
INEQUALITY

Income Distribution in Thailand 2016



Source: SES 2016

Income Distribution (% of Tax Payers)



Source: Jenmana (2018), "Income Inequality, Political Instability, and the Thai Democratic Struggle"

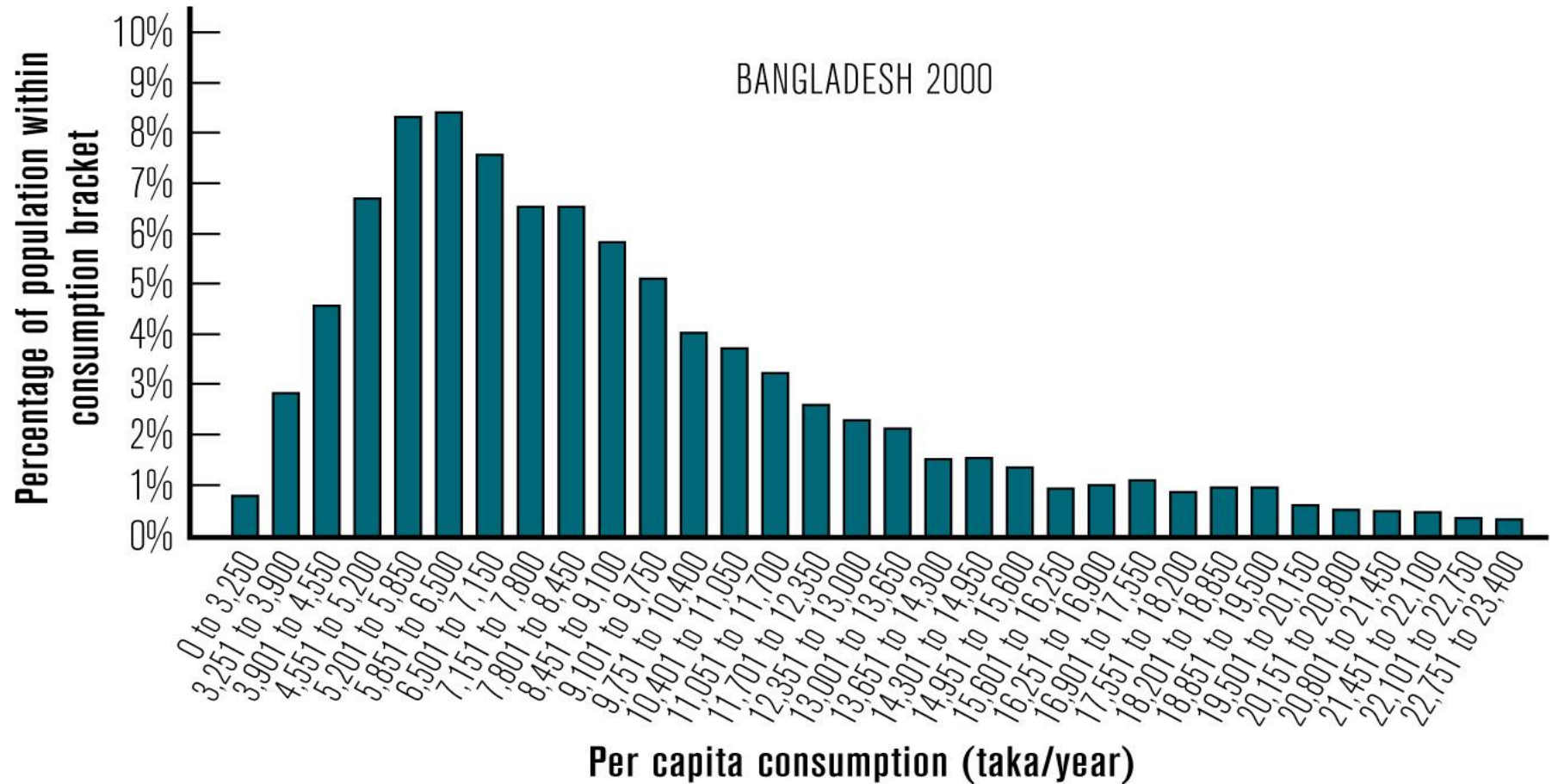


FIGURE 6.1 The Distribution of Income: Bangladesh, Mexico, and the United States (top)

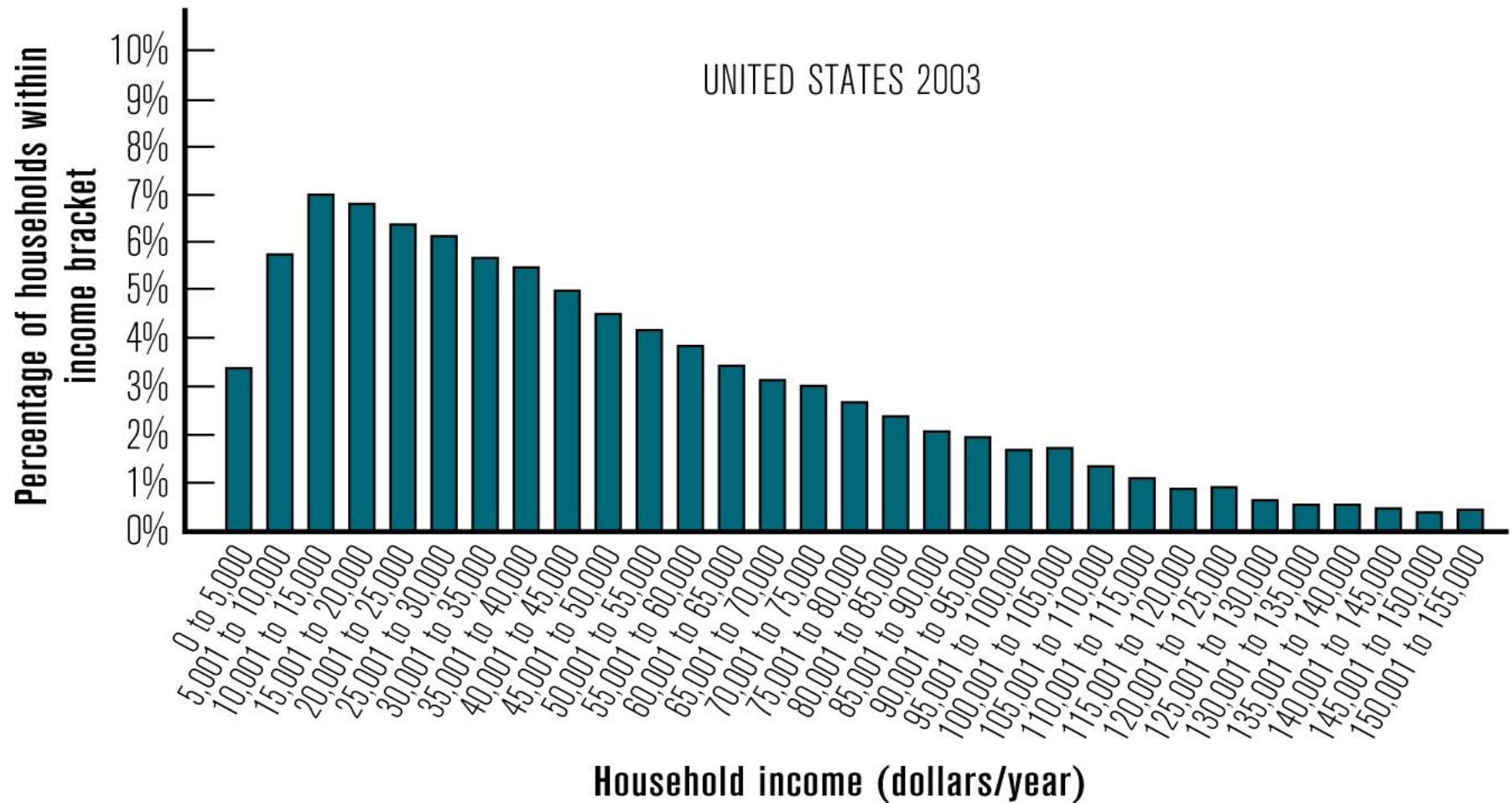


FIGURE 6.1 The Distribution of Income: Bangladesh, Mexico, and the United States (bot)

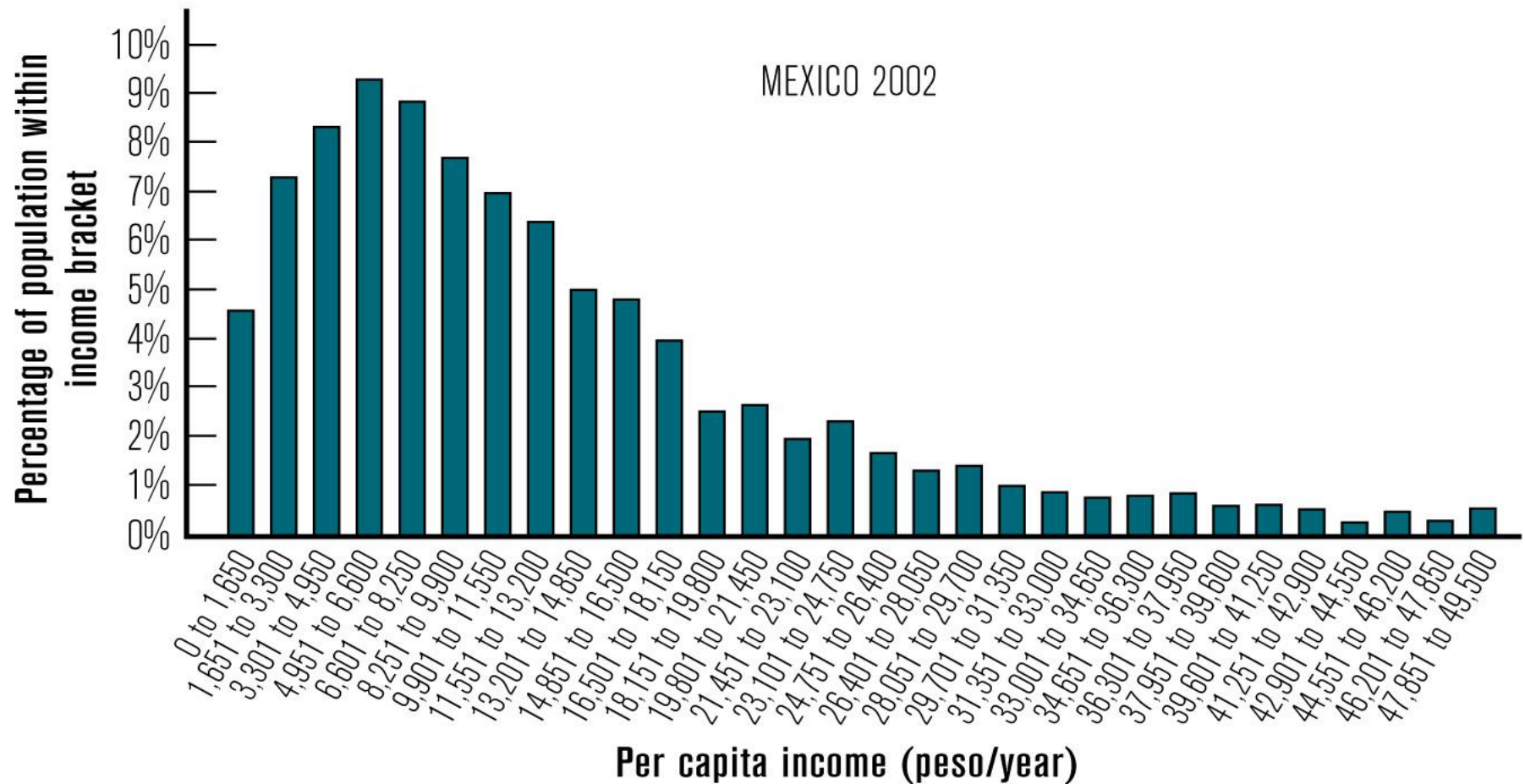


FIGURE 6.1 The Distribution of Income: Bangladesh, Mexico, and the United States (mid)

QUINTILE	SHARE OF TOTAL CONSUMPTION OR INCOME		
	BANGLADESH (2000)	MEXICO (2002)	UNITED STATES (2003)
Bottom 20%	9.0	3.5	3.4
Second 20%	12.5	8.2	8.7
Third 20%	16.0	13.3	14.8
Fourth 20%	21.5	21.2	23.4
Top 20%	41.0	53.7	49.8

Sources: Collaboration with Claudio E. Montenegro, World Bank; *U.S. Current Population Survey*, March supplement, March 2004.

TABLE 6.1 Size Distributions of Consumption or Income within Quintiles in Bangladesh, Mexico, and the United States

Some Observations from 3 countries

- Bangladesh, Mexico, and USA show similar *lognormal distribution* with flat tail to the right.
 - Relatively small number of rich households and a larger number of lower-income families that make up “*the hump*” of the distribution
- The degree of inequality or varies among the three nations.
 - Need to calculate the *size distribution* – the share of total consumption or income received by different groups of households, ranked according to their consumption or income level
 - **Lorenz curve**: the share of total income received by any cumulative percentage of recipients

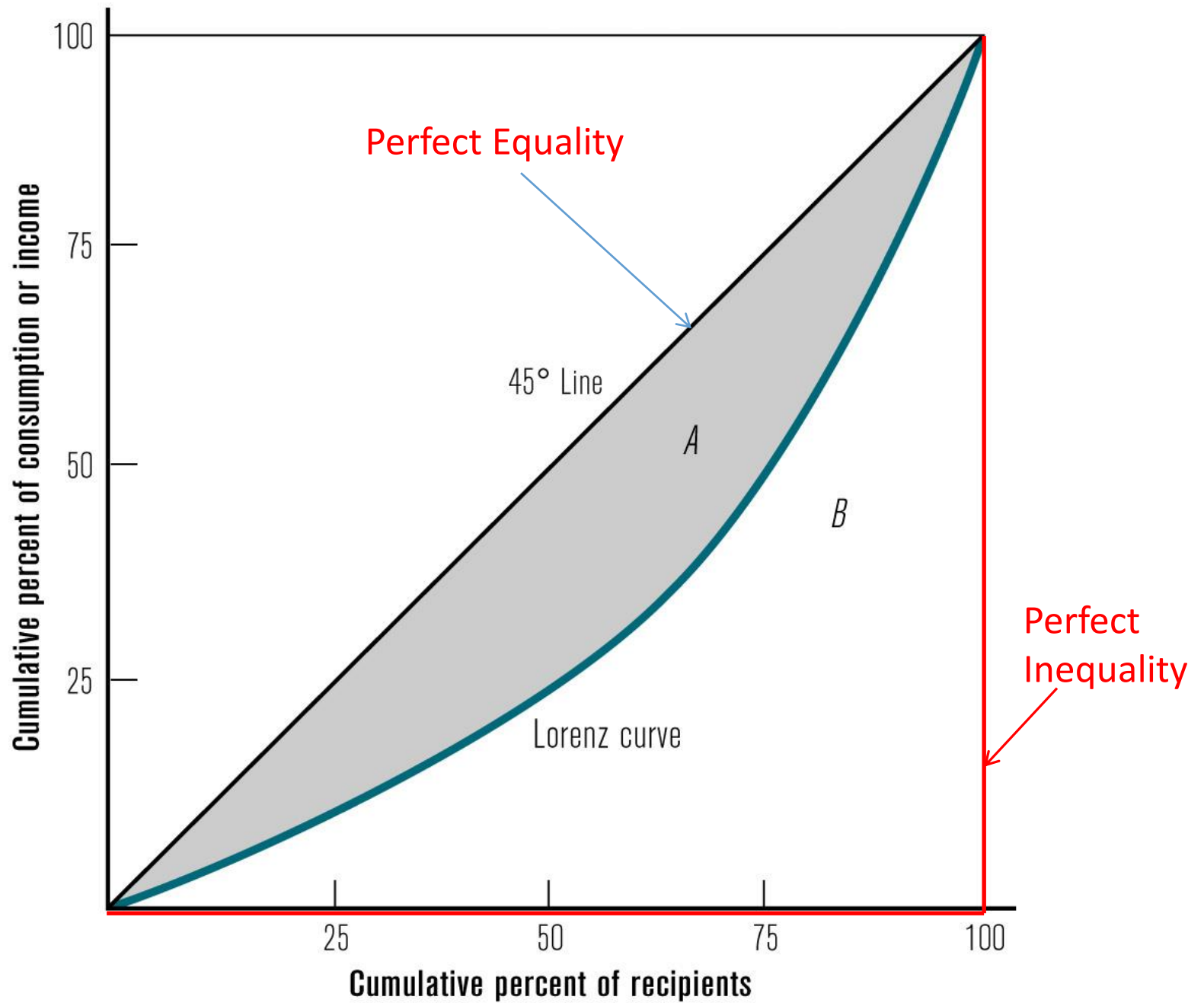


FIGURE 6.2 Lorenz Curve

Measuring Inequality

1. Ratio of the income share of the top 20% to the share of income share of the bottom 20%:

$$\text{Range} = \text{Top 20\%} / \text{Bottom 20\%}$$

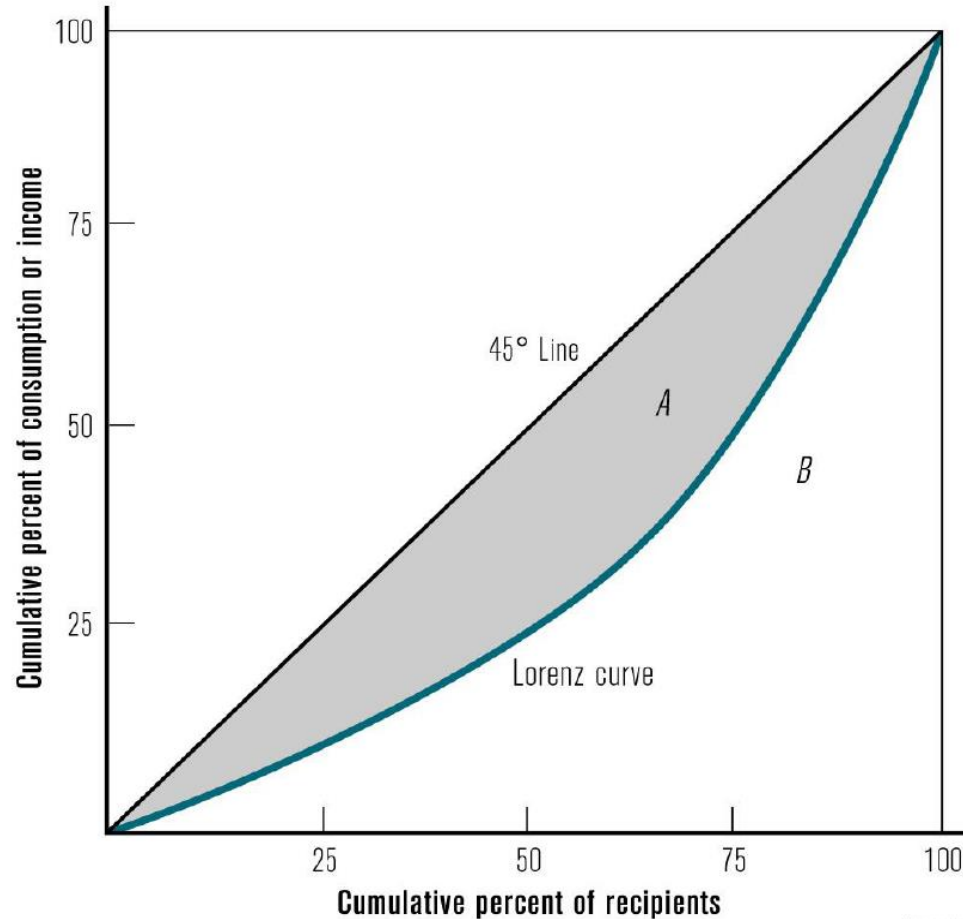
Examples

- Range in Bangladesh = $41/9 = 4.56$
- Range in Mexico = $53.7/3.5 = 15.34$
- Range in USA = $49.8/3.4 = 14.65$

2. **Lorenz Curve**

- Relates cumulative % of income recipients (persons) to cumulative % of consumption or income received

Measuring Inequality (Continued)



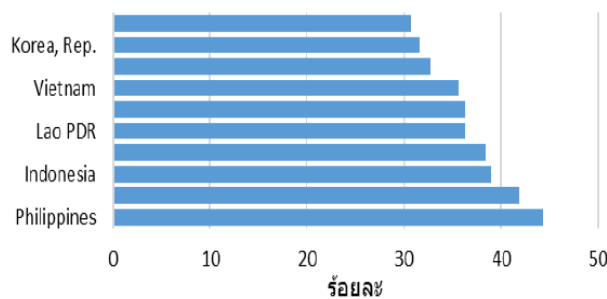
$$\text{Gini Coeff} = \frac{A}{A+B}$$

where A= area of inequality

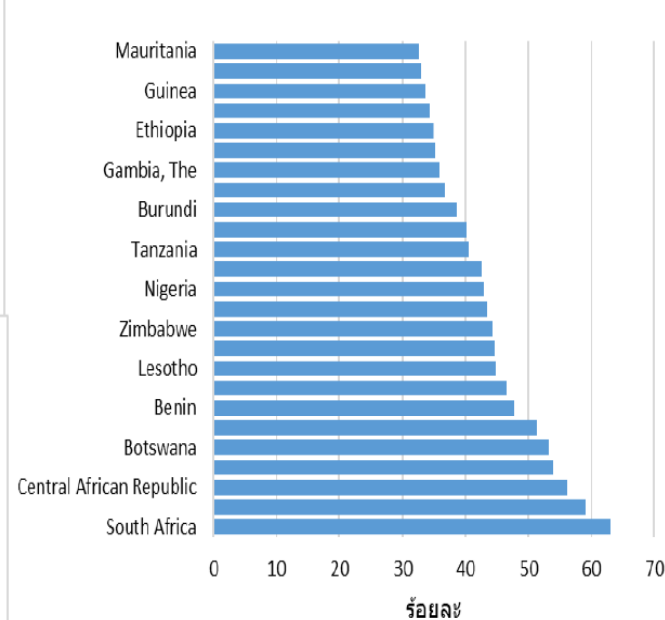
- $0 < \text{Gini} < 1.0$
- $\text{Gini} = 0 \rightarrow \text{Perfect equality}$
- $\text{Gini} = 1 \rightarrow \text{Perfect inequality}$
- In practice, Gini ranges between $\sim 0.25 - 0.65$.

Gini Coefficients by Country and Region in 2018

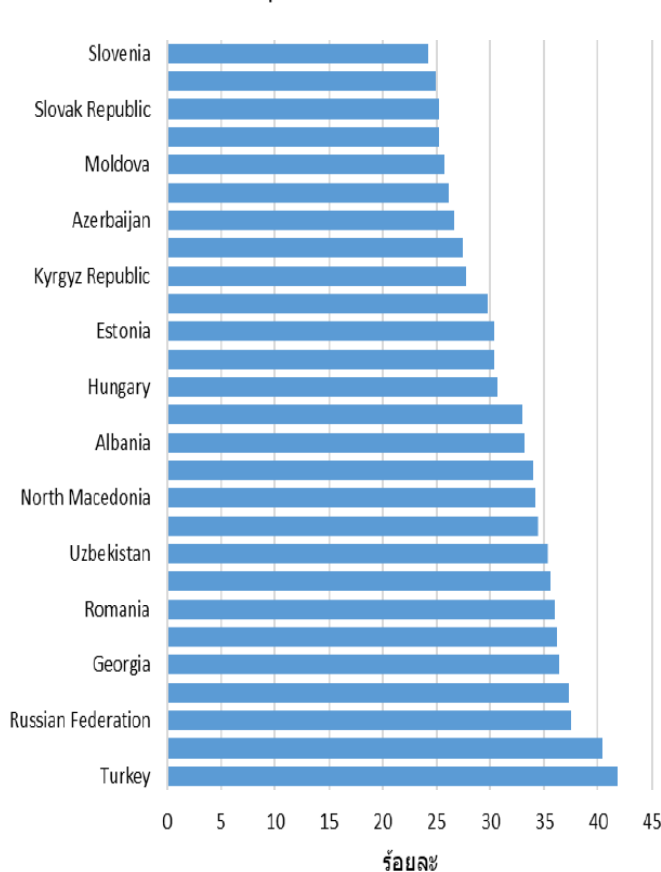
East Asia & Pacific



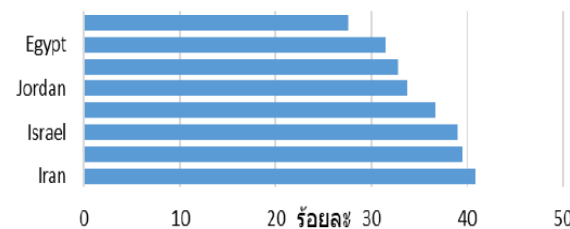
Sub-Saharan Africa



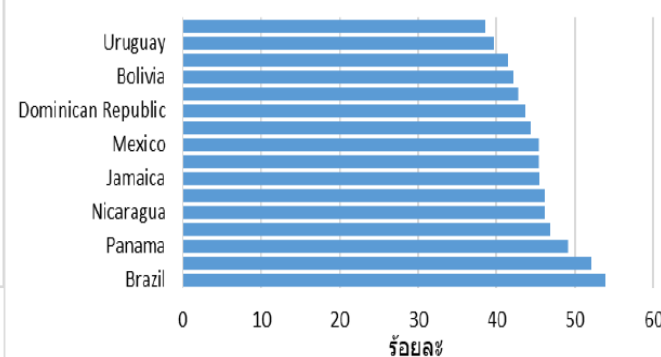
Europe & Central Asia



Middle East & North Africa



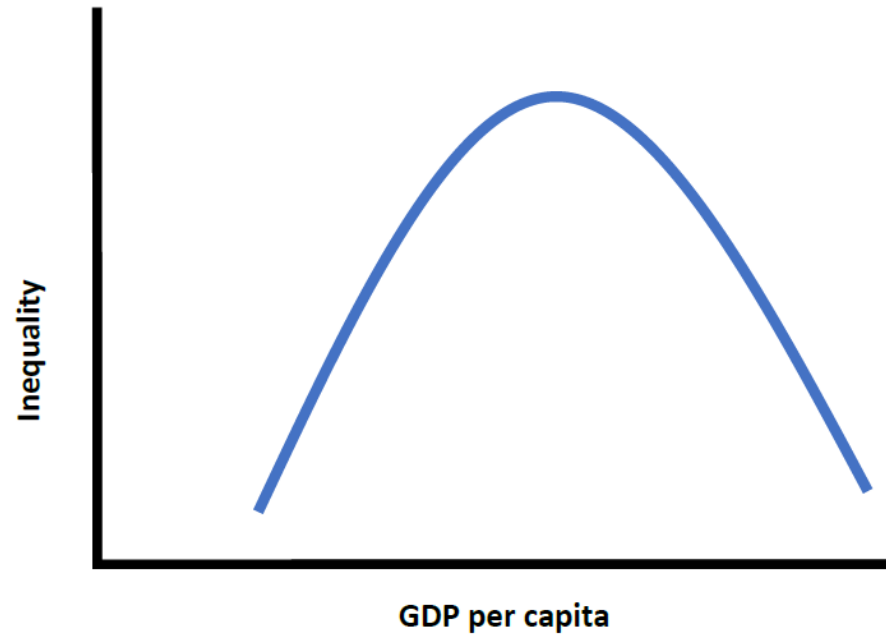
Latin America & Caribbean



Growth and Inequality

- The **inverted-U Kuznet's curve**
 - The hypothesis states that **inequality first rises and then falls over the course of development.**
 - Empirical evidence:
 - Early cross-section analysis support this hypothesis, and data for specific countries exhibit great differences.
 - More recent econometric tests show no relationship between inequality and growth: **the inverted-U shape was driven by the coincidence of Latin America's high level of inequality and middle-income ranking.**
 - No general pattern of the relationship between growth and inequality; i.e., all nations need not follow a similar distributional path.

Kuznet's Curve



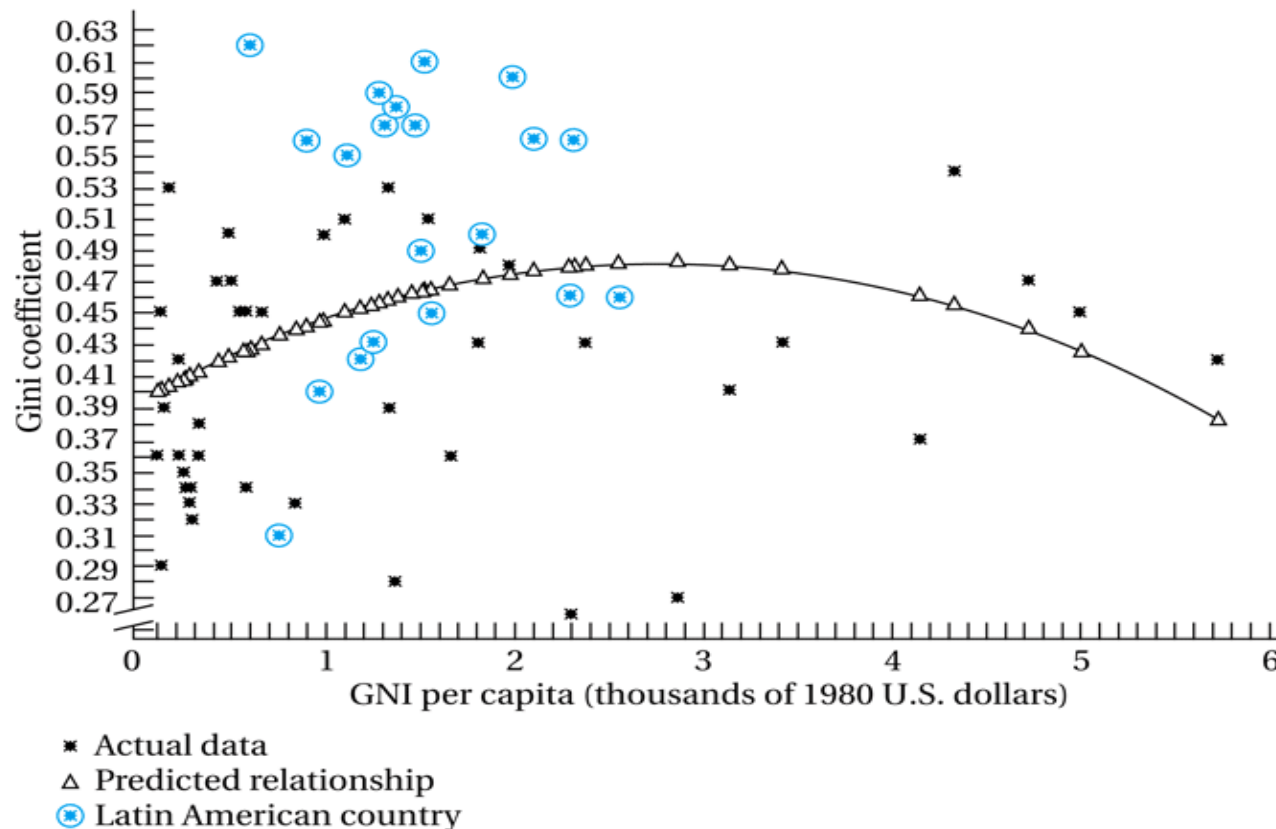
Income and Inequality in Selected Countries

Country	Income Per Capita (U.S. \$, 2008)	Gini Coefficient	Survey Year for Gini Calculation
Low Income			
Ethiopia	280	29.8	2005
Mozambique	380	47.1	2003
Nepal	400	47.3	2004
Cambodia	640	40.7	2007
Zambia	950	50.7	2005
Lower Middle Income			
India	1,040	36.8	2005
Cameroon	1,150	44.6	2001
Bolivia	1,460	57.2	2007
Egypt	1,800	32.1	2005
Indonesia	1,880	37.6	2007
Upper Middle Income			
Namibia	4,210	74.3	1993
Bulgaria	5,490	29.2	2003
South Africa	5,820	57.8	2000
Argentina	7,190	48.8	2006
Brazil	7,300	55.0	2007
Mexico	9,990	51.6	2008
Upper Income			
Hungary	12,810	30.0	2004
Spain	31,930	34.7	2000
Germany	42,710	28.3	2000
United States	47,930	40.8	2000
Norway	87,340	25.8	2000

Source: World Bank, *World Development Indicators*, 2010 (Washington, D.C.: World Bank, 2010), tabs. 1.1 and 2.9.

From: Todaro (2012), chapter 5.

Kuznets Curve with Latin American Countries Identified



Source: Gary S. Fields, *Distribution and Development: A New Look at the Developing World* (Cambridge, Mass.: MIT Press, 2001), ch. 3, p. 46. © 2001 Massachusetts Institute of Technology, by permission of The MIT Press.

What Else Might Cause Inequality

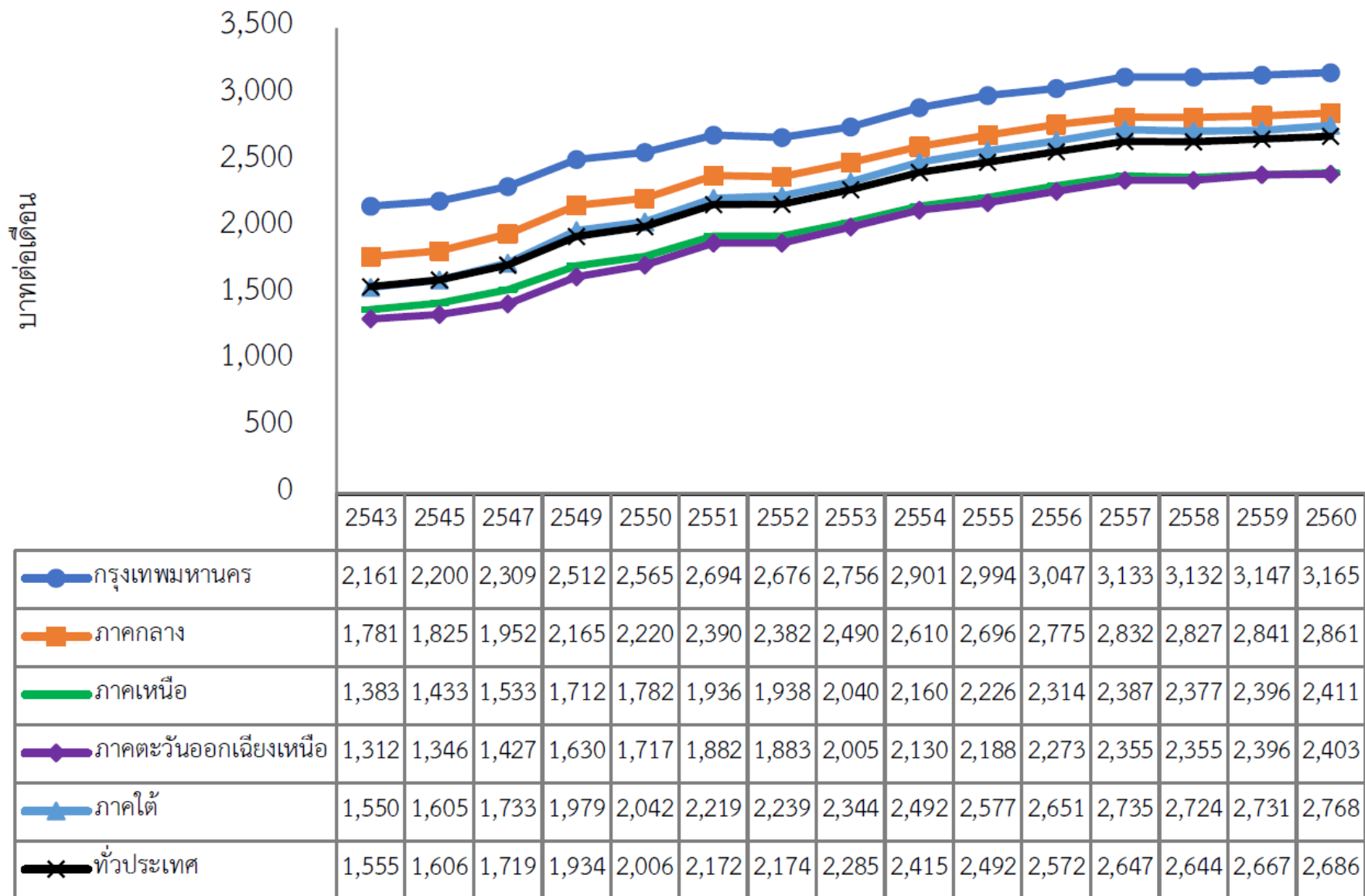
- History and politics
- Pattern of land ownership
- Resource endowments
- Other factors: education, population growth, and control by entrenched elites.
- On balance, the determinants of income inequality are not well understood.
 - Still an empirical matter

POVERTY

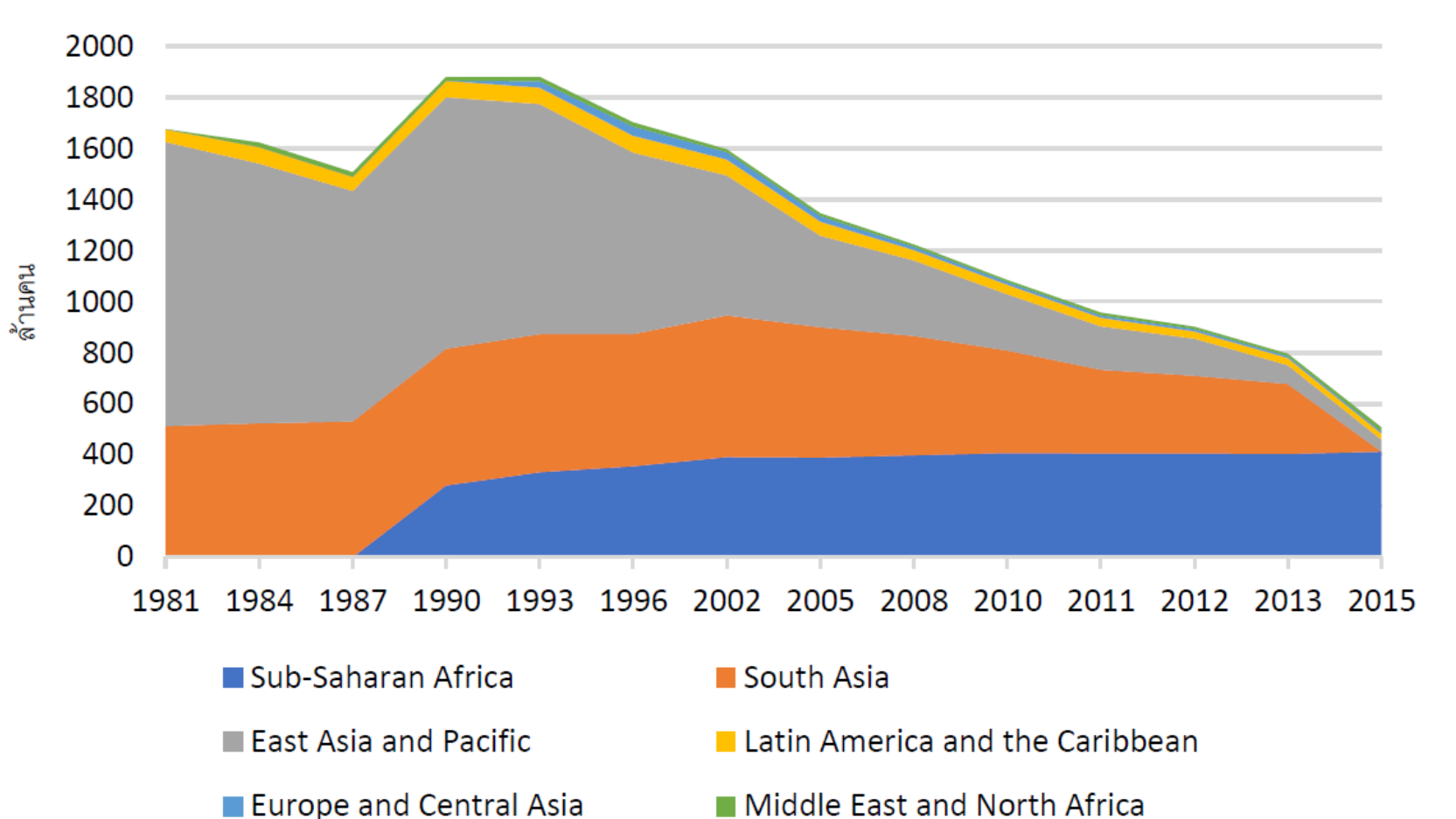
Poverty

- ***Absolute poverty (or extreme poverty)***
 - People living in absolute poverty are **those who live below the international poverty line**
 - According to WB studies , in 2005 there were ~1.4 billion people (or ~25% of the developing world's pop) living below the poverty line.
 - People living just to the right of the poverty line is considered as the **“near poor”**.
- ***Poverty Lines:***
 - Most recent estimate of the **global poverty line** (or poverty threshold) is at **\$1.9 per day, measured in terms of 2011 PPP dollars**.
 - This estimate is based on the compilation of poverty lines from 74 developing countries.

Poverty Line in Thailand



Global and Regional Poverty Trends



Source: <http://iresearch.worldbank.org/PovcalNet/povDuplicateWB.aspx>

Measuring Poverty

- **Headcount Index**: the ratio of the number below the poverty line to total population (H/N)

➤ HI tells what proportion of the population is poor.

$$P_0 = \frac{1}{N} \sum_{i=1}^N I(y_i \leq z) = \frac{N_P}{N}$$

- **Poverty Gap (PG)**: How many people fall below poverty line and how far they are from the line

➤ PG measures how much income is needed to get the poor from poverty line.

$$P_1 = \frac{1}{N} \sum_{i=1}^N \frac{(z - y_i) \cdot I(y_i \leq z)}{z} = \frac{1}{N} \sum_{i=1}^N \frac{G_i}{z}$$

Measuring Poverty (Cont'd)

- **Poverty Gap Squared** calculated from squaring PG.
 - Put more weight on incomes that fall farther below the poverty line.

$$P_2 = \frac{1}{N} \sum_{i=1}^N \frac{G_i^2}{z}$$

- **Foster-Greer-Thorbecke (FGT) index**

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

where y_i = income of the i th poor person; Y_P = poverty line; N = number of population; H = number of poor persons

Number of Poor (Millions), 1981-2005

Region	1981	1984	1987	1990	1993	1996	1999	2002	2005
(a) Number living below \$1.00 a day									
East Asia and Pacific	921.7	721.8	590.2	623.4	588.7	404.9	420.8	326.8	175.6
Of which China	730.4	548.5	412.4	499.1	444.4	288.7	302.4	244.7	106.1
Eastern Europe and Central Asia	3.0	2.4	2.1	4.1	10.1	11.7	14.4	12.6	10.2
Latin America and Caribbean	28.0	35.8	36.9	29.0	27.6	35.6	37.8	40.7	30.7
Middle East and North Africa	5.6	4.6	4.7	3.8	3.7	4.1	4.7	3.9	4.7
South Asia	387.3	374.3	384.4	381.2	348.8	368.0	359.5	372.5	350.5
Of which India	296.1	282.2	285.3	282.5	280.1	271.3	270.1	276.1	266.5
Sub-Saharan Africa	169.4	195.9	209.0	245.2	259.0	287.6	308.4	310.1	304.2
Total	1,515.0	1,334.7	1,227.2	1,286.7	1,237.9	1,111.9	1,145.6	1,066.6	876.0
(b) Number living below \$1.25 a day									
East Asia and Pacific	1,071.5	947.3	822.4	873.3	845.3	622.3	635.1	506.8	316.2
Of which China	835.1	719.9	585.7	683.2	632.7	442.8	446.7	363.2	207.7
Eastern Europe and Central Asia	7.1	5.7	4.8	9.1	20.1	21.8	24.3	21.7	17.3
Latin America and Caribbean	42.0	52.3	52.3	42.9	41.8	52.2	54.8	58.4	46.1
Middle East and North Africa	13.7	11.6	11.9	9.7	9.8	10.6	11.5	10.3	11.0
South Asia	548.3	547.6	569.1	579.2	559.4	594.4	588.9	615.9	595.6
Of which India	420.5	416.0	428.0	435.5	444.3	441.8	447.2	460.5	455.8
Sub-Saharan Africa	213.7	243.8	259.6	299.1	318.5	355.0	381.6	390.0	390.6
Total	1,896.2	1,808.2	1,720.0	1,813.4	1,794.9	1,656.2	1,696.2	1,603.1	1,376.7

Source: Chen and Ravallion. (2010). The developing world is poorer than we thought, but no less successful in the fight against poverty. *Quarterly Journal of Economics*, 125 (4).

Number of Poor (Millions), 1981-2005 (Cont'd)

Region	1981	1984	1987	1990	1993	1996	1999	2002	2005
(c) Number living below \$2.00 a day									
East Asia and Pacific	1,277.7	1,280.2	1,238.5	1,273.7	1,262.1	1,108.1	1,104.9	954.1	728.7
Of which China	972.1	963.3	907.1	960.8	926.3	792.2	770.2	654.9	473.7
Eastern Europe and Central Asia	35.0	28.4	25.1	31.9	48.6	56.2	67.6	56.8	41.9
Latin America and Caribbean	82.3	98.8	96.3	86.3	88.9	105.7	108.5	114.6	91.3
Middle East and North Africa	46.3	43.9	47.1	44.4	48.0	52.2	51.9	50.9	51.5
South Asia	799.5	835.9	881.5	926.0	950.0	1,008.8	1,030.8	1,083.7	1,091.5
Of which India	608.9	635.6	669.0	701.6	735.0	757.1	782.8	813.1	827.7
Sub-Saharan Africa	294.2	328.3	351.3	393.6	423.8	471.1	508.5	535.6	556.7
Total	2,535.1	2,615.4	2,639.7	2,755.9	2,821.4	2,802.1	2,872.1	2,795.7	2,561.5
(d) Number living below \$2.50 a day									
East Asia and Pacific	1,315.8	1,352.8	1,361.9	1,393.7	1,393.7	1,293.9	1,282.8	1,150.5	955.2
Of which China	987.5	1,009.8	1,001.7	1,040.4	1,019.0	930.2	899.2	788.8	645.6
Eastern Europe and Central Asia	64.3	54.4	50.2	55.7	71.0	86.4	101.2	84.0	61.0
Latin America and Caribbean	106.9	126.3	122.6	113.9	119.5	139.5	142.1	150.5	121.8
Middle East and North Africa	67.6	66.1	71.8	70.3	75.9	83.8	84.2	85.2	86.7
South Asia	855.0	902.1	954.6	1,011.0	1,056.1	1,118.5	1,156.8	1,216.3	1,246.2
Of which India	650.3	686.1	725.0	766.5	808.8	841.1	875.2	911.4	938.0
Sub-Saharan Africa	322.0	356.9	383.5	426.4	460.6	509.4	549.5	584.0	613.7
Total	2,731.6	2,858.7	2,944.6	3,071.0	3,176.7	3,231.4	3,316.6	3,270.6	3,084.7

Source: Chen and Ravallion. (2010). The developing world is poorer than we thought, but no less successful in the fight against poverty. *Quarterly Journal of Economics*, 125 (4).

Headcount Index, 1981-2005

Region	1981	1984	1987	1990	1993	1996	1999	2002	2005
(a) % living below \$1.00 a day									
East Asia and Pacific	66.8	49.9	38.9	39.1	35.4	23.4	23.5	17.8	9.3
Of which China	73.5	52.9	38.0	44.0	37.7	23.7	24.1	19.1	8.1
Eastern Europe and Central Asia	0.7	0.6	0.5	0.9	2.1	2.5	3.1	2.7	2.2
Latin America and Caribbean	7.7	9.2	8.9	6.6	6.0	7.3	7.4	7.7	5.6
Middle East and North Africa	3.3	2.4	2.3	1.7	1.5	1.6	1.7	1.4	1.6
South Asia	41.9	38.0	36.6	34.0	29.3	29.1	26.9	26.5	23.7
Of which India	42.1	37.6	35.7	33.3	31.1	28.6	27.0	26.3	24.3
Sub-Saharan Africa	42.6	45.2	44.1	47.5	46.4	47.6	47.0	43.8	39.9
Total	41.4	34.4	29.8	29.5	27.0	23.1	22.8	20.3	16.1
(b) % living below \$1.25 a day									
East Asia and Pacific	77.7	65.5	54.2	54.7	50.8	36.0	35.5	27.6	16.8
Of which China	84.0	69.4	54.0	60.2	53.7	36.4	35.6	28.4	15.9
Eastern Europe and Central Asia	1.7	1.3	1.1	2.0	4.3	4.6	5.1	4.6	3.7
Latin America and Caribbean	11.5	13.4	12.6	9.8	9.1	10.8	10.8	11.0	8.2
Middle East and North Africa	7.9	6.1	5.7	4.3	4.1	4.1	4.2	3.6	3.6
South Asia	59.4	55.6	54.2	51.7	46.9	47.1	44.1	43.8	40.3
Of which India	59.8	55.5	53.6	51.3	49.4	46.6	44.8	43.9	41.6
Sub-Saharan Africa	53.7	56.2	54.8	57.9	57.1	58.7	58.2	55.1	50.9
Total	51.8	46.6	41.8	41.6	39.1	34.4	33.7	30.6	25.2

Source: Chen and Ravallion. (2010). The developing world is poorer than we thought, but no less successful in the fight against poverty. *Quarterly Journal of Economics*, 125 (4).

Headcount Index, 1981-2005 (cont'd)

Region	1981	1984	1987	1990	1993	1996	1999	2002	2005
(c) % living below \$2.00 a day									
East Asia and Pacific	92.6	88.5	81.6	79.8	75.8	64.1	61.8	51.9	38.7
Of which China	97.8	92.9	83.7	84.6	78.6	65.1	61.4	51.2	36.3
Eastern Europe and Central Asia	8.3	6.5	5.6	6.9	10.3	11.9	14.3	12.0	8.9
Latin America and Caribbean	22.5	25.3	23.3	19.7	19.3	21.8	21.4	21.7	16.6
Middle East and North Africa	26.7	23.1	22.7	19.7	19.8	20.2	19.0	17.6	16.9
South Asia	86.5	84.8	83.9	82.7	79.7	79.9	77.2	77.1	73.9
Of which India	86.6	84.8	83.8	82.6	81.7	79.8	78.4	77.5	75.6
Sub-Saharan Africa	74.0	75.7	74.2	76.2	76.0	77.9	77.6	75.6	73.0
Total	69.2	67.4	64.2	63.2	61.5	58.2	57.1	53.3	47.0
(d) % living below \$2.50 a day									
East Asia and Pacific	95.4	93.5	89.7	87.3	83.7	74.9	71.7	62.6	50.7
Of which China	99.4	97.4	92.4	91.6	86.5	76.4	71.7	61.6	49.5
Eastern Europe and Central Asia	15.2	12.5	11.2	12.0	15.1	18.3	21.4	17.8	12.9
Latin America and Caribbean	29.2	32.4	29.6	26.0	25.9	28.8	28.0	28.4	22.1
Middle East and North Africa	39.0	34.8	34.6	31.2	31.4	32.5	30.8	29.5	28.4
South Asia	92.6	91.5	90.8	90.3	88.6	88.5	86.7	86.5	84.4
Of which India	92.5	91.5	90.8	90.2	89.9	88.7	87.6	86.9	85.7
Sub-Saharan Africa	81.0	82.3	81.0	82.5	82.5	84.2	83.8	82.5	80.5
Total	74.6	73.7	71.6	70.4	69.2	67.2	65.9	62.4	56.6

Source: Chen and Ravallion. (2010). The developing world is poorer than we thought, but no less successful in the fight against poverty. *Quarterly Journal of Economics*, 125 (4).

Poverty Gap Index, 1981-2005

Region	1981	1984	1987	1990	1993	1996	1999	2002	2005
(a) \$1.25									
East Asia and Pacific	35.5	24.2	18.8	18.2	16.4	10.5	10.7	8.0	4.0
Of which China	39.3	25.6	18.5	20.7	17.6	10.7	11.1	8.7	4.0
Eastern Europe and Central Asia	0.4	0.3	0.3	0.6	1.6	1.7	1.6	1.3	1.1
Latin America and Caribbean	4.0	4.7	4.7	3.6	3.3	3.9	4.2	4.2	3.2
Middle East and North Africa	1.6	1.3	1.2	0.9	0.8	0.8	0.8	0.7	0.8
South Asia	19.6	17.5	16.4	15.2	12.9	12.6	11.7	11.5	10.3
Of which India	19.6	17.2	15.8	14.6	13.6	12.4	11.7	11.4	10.5
Sub-Saharan Africa	22.9	24.6	24.3	26.6	25.6	25.9	25.7	23.5	21.1
Total	21.3	16.8	14.5	14.2	12.9	11.0	10.9	9.6	7.6
(b) \$2.00									
East Asia and Pacific	54.7	44.9	38.0	37.4	34.8	25.9	25.5	20.2	13.0
Of which China	59.3	47.3	38.2	40.9	36.6	26.3	25.6	20.6	12.2
Eastern Europe and Central Asia	1.9	1.5	1.3	2.0	3.7	4.1	4.5	3.8	3.0
Latin America and Caribbean	8.9	10.2	9.7	7.8	7.4	8.6	8.6	8.7	6.7
Middle East and North Africa	7.4	6.1	5.9	4.8	4.8	4.8	4.6	4.1	4.0
South Asia	40.7	38.4	37.2	35.7	32.8	32.7	31.0	30.8	28.7
Of which India	40.8	38.2	36.7	35.3	34.1	32.4	31.3	30.8	29.5
Sub-Saharan Africa	38.8	40.6	39.8	42.2	41.4	42.3	42.1	39.7	37.0
Total	36.5	32.5	29.5	29.1	27.5	24.7	24.3	22.1	18.6

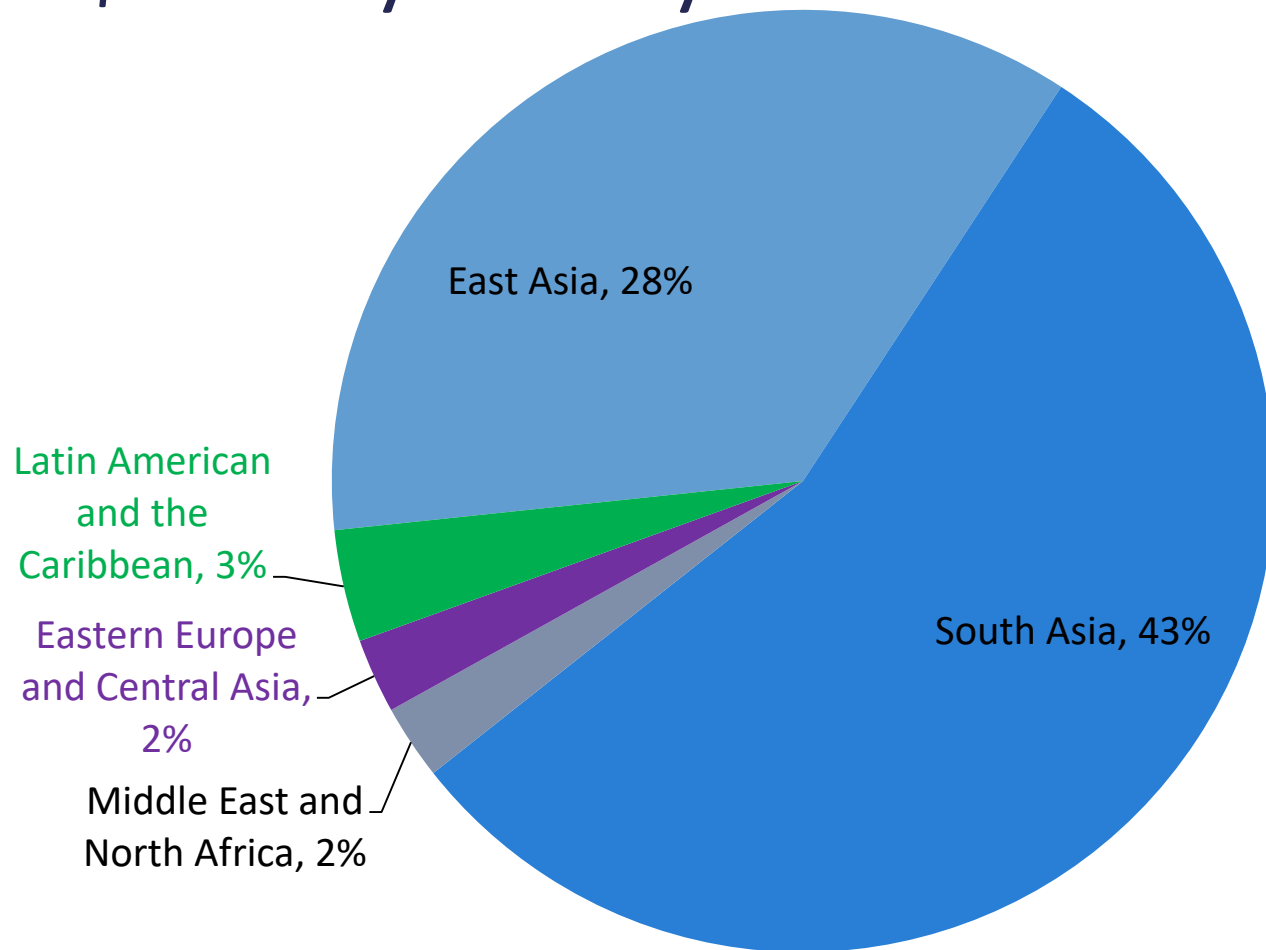
Source: Chen and Ravallion. (2010). The developing world is poorer than we thought, but no less successful in the fight against poverty. *Quarterly Journal of Economics*, 125 (4).

Mean Consumption of the Poor (\$/day), 1981-2005

Region	1981	1984	1987	1990	1993	1996	1999	2002	2005
(a) \$1.25									
East Asia and Pacific	0.68	0.79	0.81	0.83	0.85	0.88	0.87	0.89	0.95
Of which China	0.67	0.79	0.82	0.82	0.84	0.88	0.86	0.87	0.94
Eastern Europe and Central Asia	0.97	0.95	0.95	0.84	0.79	0.78	0.86	0.91	0.89
Latin America and Caribbean	0.82	0.82	0.78	0.79	0.80	0.79	0.77	0.78	0.77
Middle East and North Africa	0.99	0.99	0.99	0.99	1.01	1.01	1.00	1.01	0.98
South Asia	0.84	0.86	0.87	0.88	0.91	0.91	0.92	0.92	0.93
Of which India	0.84	0.86	0.88	0.89	0.91	0.92	0.92	0.93	0.93
Sub-Saharan Africa	0.72	0.70	0.70	0.68	0.69	0.70	0.70	0.72	0.73
Total	0.74	0.80	0.82	0.82	0.84	0.85	0.85	0.86	0.87
(b) \$2.00									
East Asia and Pacific	0.80	0.97	1.06	1.05	1.07	1.18	1.17	1.20	1.31
Of which China	0.79	0.98	1.09	1.03	1.07	1.19	1.17	1.19	1.33
Eastern Europe and Central Asia	1.55	1.56	1.57	1.51	1.38	1.37	1.31	1.29	1.25
Latin America and Caribbean	1.22	1.22	1.20	1.23	1.21	1.21	1.21	1.24	1.26
Middle East and North Africa	1.44	1.47	1.46	1.48	1.49	1.50	1.48	1.50	1.50
South Asia	1.05	1.10	1.11	1.14	1.19	1.18	1.20	1.20	1.22
Of which India	1.06	1.10	1.12	1.15	1.17	1.19	1.20	1.21	1.22
Sub-Saharan Africa	0.98	0.94	0.94	0.91	0.92	0.89	0.92	0.95	0.99
Total	0.94	1.03	1.08	1.08	1.11	1.14	1.15	1.16	1.21

Source: Chen and Ravallion. (2010). The developing world is poorer than we thought, but no less successful in the fight against poverty. *Quarterly Journal of Economics*, 125 (4).

Regional Distribution of People Living Below the \$2-a-Day Poverty Line

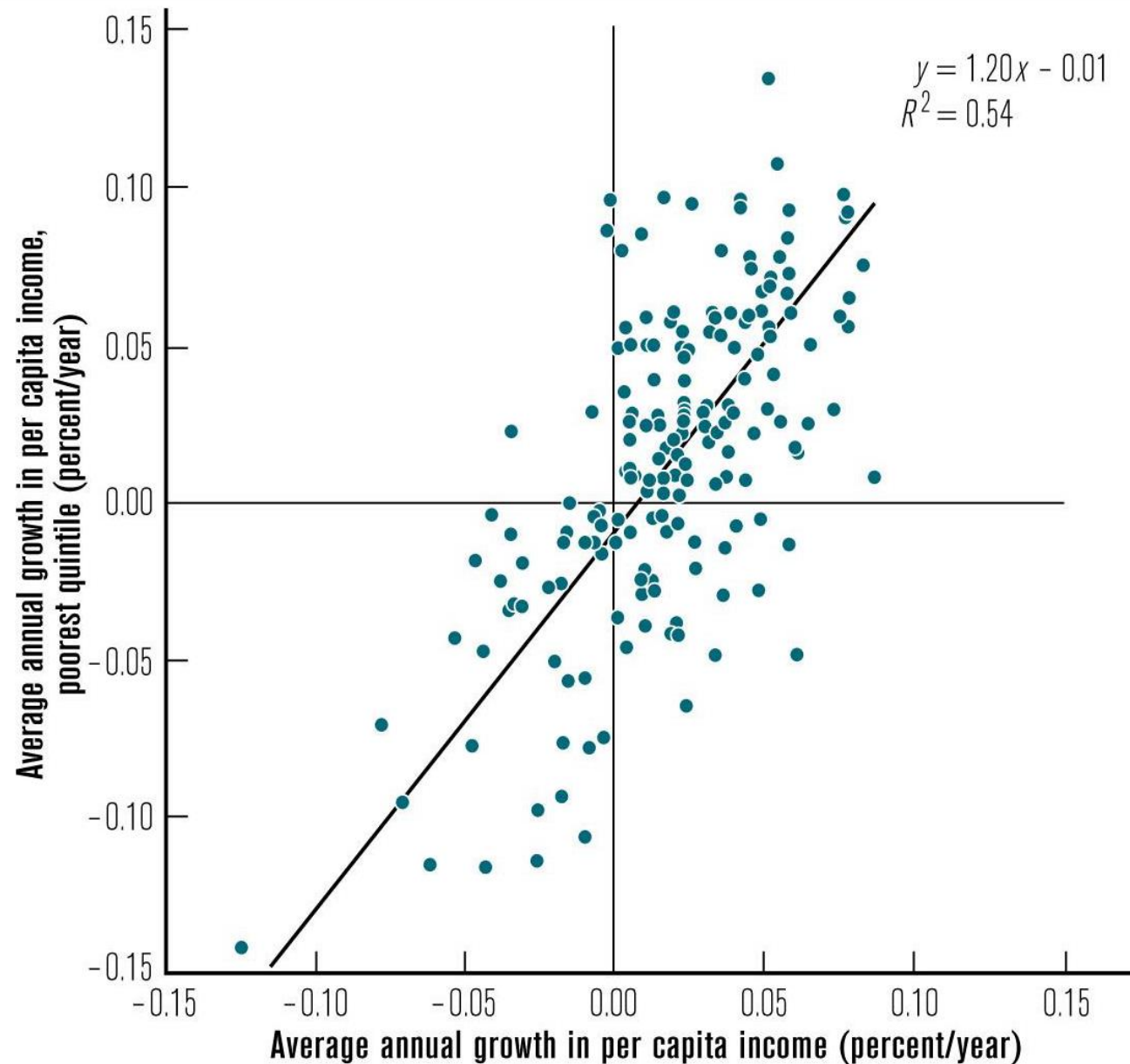


Source: Chen and Ravallion. (2010). The developing world is poorer than we thought, but no less successful in the fight against poverty. *Quarterly Journal of Economics*, 125 (4).

Strategies to Reduce Poverty

- From the 1990 WDR, a strategy to alleviate poverty should include:
 1. Promote market oriented economic growth (based on Washington Consensus)
 2. Direct investment on basic health, education of the poor
 3. Develop social safety nets to assist individuals unable to take advantage of market opportunities
- Most poverty reducing strategies are “trickle down approach”
- Human Development Report approach sees problems with economic growth approach - Growth can be jobless, ruthless, voiceless, and rootless, & futureless or unsustainable.
- Main concern: whether economic growth is good for the poor or whether the benefits are more likely to be concentrated on the rich

Is Growth Good for the Poor?

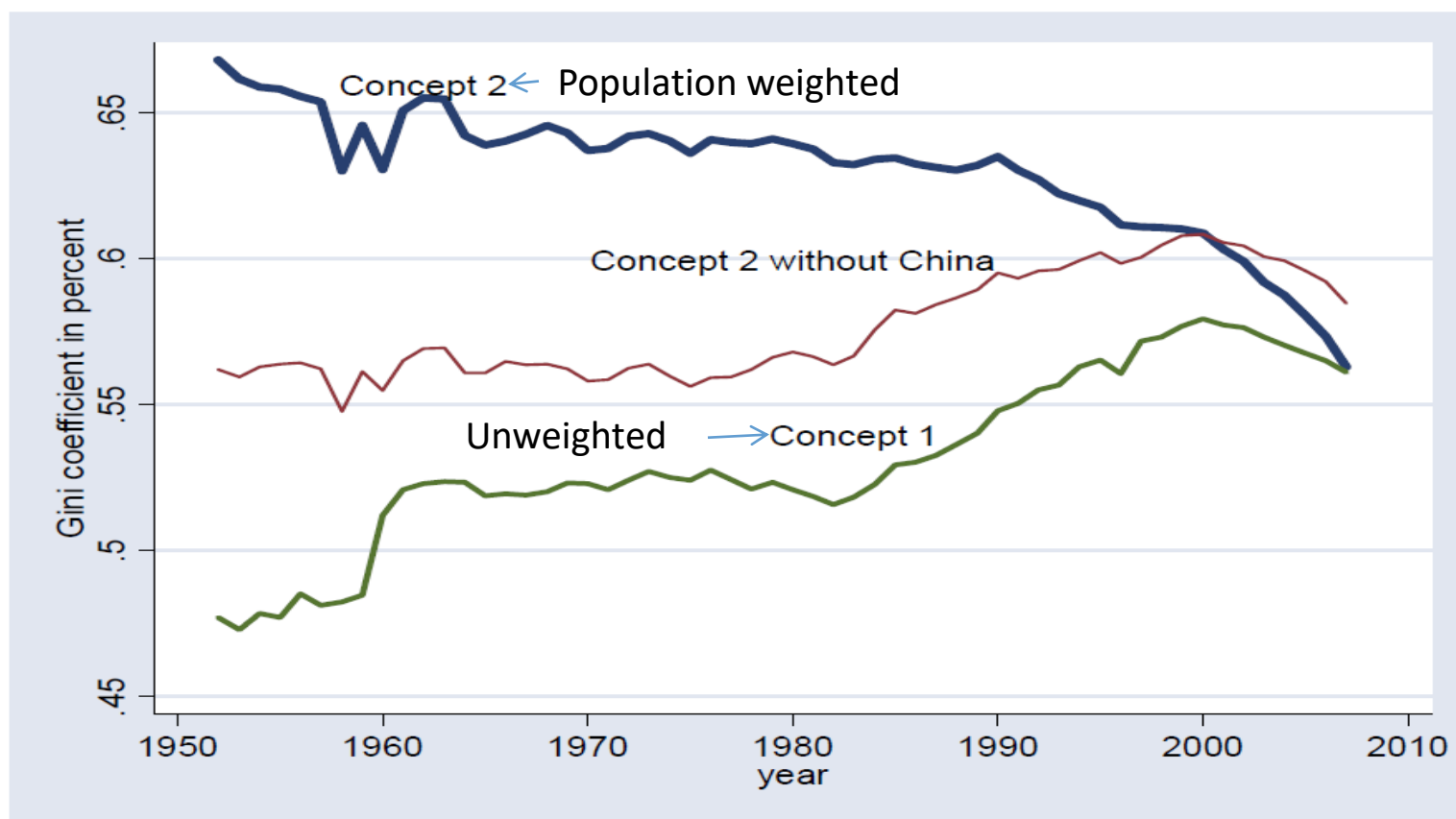


Pro-Poor Growth

- What does *pro-poor growth* mean?
 - The situation in which income growth among the poor is faster than average income growth
 - Economic growth that includes any growth in the incomes of the poor
- **Pro-poor growth strategy** is a development strategy that combines more rapid economic growth with increased opportunities for the poor to participate in the economy.
 - Market-friendly policies (e.g. maintaining fiscal discipline, reducing price inflation, and increasing economic openness)
 - Strategies designed to include the poor

Global Inequality and The End of Poverty

Figure 1. Concept 1 and Concept 2 (international) inequalities, 1952-2006



Note: Before 1960, there are between 80 and 90 countries included. After 1960, the number varies between 130 and 150. .

Source: Milanovic, B. (2009). Global Inequality Recalculated. The World Bank: *Policy Research Working Paper* 5061.