

Chapter 3

Economic Freedom and Global Poverty

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Over the period 1980–2005 many developing countries achieved remarkable increases in economic growth. Real per capita income increased substantially in countries that had experienced only modest increases in living standards for a century or more prior to 1980. Recent scholarship has pointed to the adoption of institutional and policy changes more consistent with economic freedom as an important, if not the most important, explanatory factor underlying the recent economic growth of developing countries.¹ But economic growth and increases in real per capita GDP only provide information on how average income figures are changing. They may be a misleading indicator of what is happening to the living standards of the poor. Did the rapid growth of 1980–2005 lead to lower poverty rates? How does economic freedom affect poverty? What can be done to accelerate reductions in poverty rates? This chapter will address all of these issues.

The first section uses a recently released data set of the World Bank to estimate the extreme and moderate poverty rates for the world at five-year intervals during 1980–2005, and the following section provides parallel estimates by region. The next section considers why countries with institutions and policies more consistent with economic freedom are likely to grow more rapidly and achieve larger reductions in poverty than those with less economic freedom. The penultimate section presents empirical evidence on this issue, and the chapter concludes with a summary of the findings.

World Poverty Rates, 1980–2005

The World Bank has recently released revised estimates for both the extreme and moderate poverty rates.² The new figures are measured in 2005 international dollars. The extreme and moderate poverty

rates are based on income thresholds of \$1.25 per day and \$2 per day, respectively. (Appendix A contains additional details on these data and how they differ from the previous World Bank estimates.) Because the World Bank poverty rate figures were derived from irregular surveys conducted during different years in different countries, data are unavailable during the same year for a comprehensive set of countries. In order to make the data more comparable, country estimates were assembled for years ending in zero and five. When available for the zero or five year, the actual World Bank poverty rates were used. When unavailable for these years, data from adjacent years were used to derive the missing values. (The statistical procedures used are described in appendix B.) Appendix C presents the extreme and moderate poverty rates for years ending in zero and five for the 128 developing countries for which the figures could be derived during 1980–2005.

Figure 3.1 presents data on the extreme poverty rate during 1980–2005 for developing countries and the entire world, including both developing and high-income countries. The high-income countries of Western Europe and North America along with Japan, Australia, and New Zealand are included in the calculation of the world poverty rate, but excluded from the derivation of the rate for developing countries. All countries for which the poverty rate data could be obtained during these years are included in these figures. In 2000 and 2005, the world poverty rate was derived from the figures for countries that comprise 99 percent of the world's population.

The extreme poverty rate for the world's developing economies fell from 58.3 percent in 1980 to 42.0 in 1990 and 25.1 in 2005. Thus, over the twenty-five-year time frame, the extreme poverty rate fell by more than 30 percentage points.³ When the high-income countries are also included, the world's poverty rate fell from 47.1 percent in 1980 to 35.6 in 1990 and 21.8 in 2005. The gap between the extreme poverty rate for developing countries and the parallel rate for all countries (including those with high-incomes) fell from 11 percent in 1980 to approximately 3 in 2005. The narrowing of this gap reflects both the substantial reduction of the extreme poverty rate in developing countries, as well as the increasing share of the world's population residing in the less developed world. While a little more than one in five persons in the world still lives in extreme poverty, this is less than half the rate of 1980.

Figure 3.2 presents similar data for the moderate (\$2 per day) poverty rate. Because this standard implies a higher level of income, the poverty rate for this measure will always be higher than the parallel extreme poverty rate. The moderate poverty rate of developing

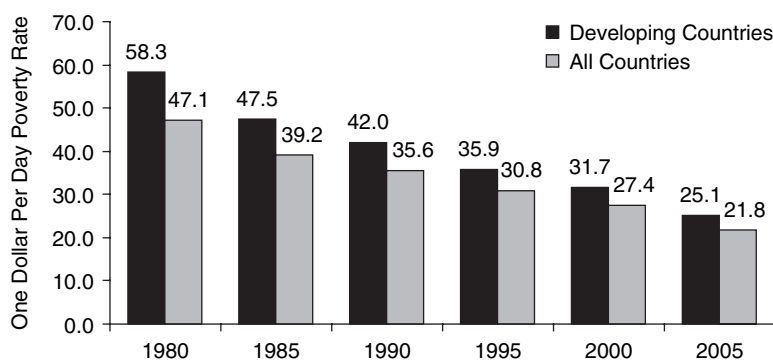


Figure 3.1 Extreme poverty rate (\$1.25 per day) of the world, 1980–2005

Notes: For the LDC series there were 87 countries in 1980, 94 in 1985, 116 in 1990, 125 in 1995, 127 in 2000, and 128 in 2005. For the series that includes the developed countries there were 115 countries in 1980, 122 in 1985, 144 in 1990, 153 in 1995, 155 in 2000, and 156 in 2005.

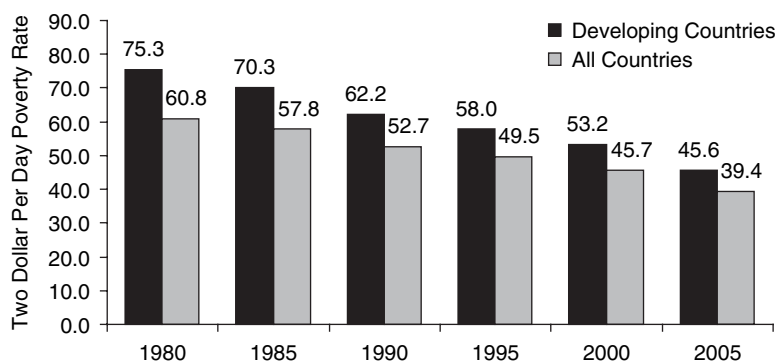


Figure 3.2 Moderate poverty rate (\$2.00 per day) of the world, 1980–2005

Notes: For the LDC series there were 87 countries in 1980, 94 in 1985, 116 in 1990, 125 in 1995, 127 in 2000, and 128 in 2005. For the series that includes the developed countries there were 115 countries in 1980, 122 in 1985, 144 in 1990, 153 in 1995, 155 in 2000, and 156 in 2005.

countries declined from 75.3 percent in 1980 to 62.2 in 1990 and 45.6 in 2005.⁴ Thus, there was a 29.7 percentage point reduction in moderate poverty in the world's developing countries during the quarter of a century following 1980. The moderate poverty rate in the developing countries in 2005 was approximately three-fifths the level of 1980. (Note that in all cases, the aggregate poverty rate calculations were derived by weighting the poverty rate for each country

by its population during the year. As a result, the rates presented here are also equal to the mean poverty rate for the grouping.)

When the high-income countries are included, the moderate poverty rate for the world was 39.4 percent in 2005, down from 60.8 in 1980. These figures indicate that in 2005 approximately two out of every five people in the world lived on an income of less than \$2 per day, compared with three out of every five in 1980.

Regional Differences in Poverty Rates

How do poverty rates vary across regions? Were some regions able to achieve larger reductions in poverty rates than others during 1980–2005? Table 3.1 presents data related to these questions. Both the extreme and moderate poverty rates are presented for sub-Saharan Africa, Latin America, and Asia, including figures presented separately for China and India, the world's two most heavily populated countries. Only countries with data available continuously for years ending in either five or zero are included in this table.

Several important points can be gleaned from these data. First, there was very little change in either the extreme or moderate poverty

Table 3.1 Extreme and moderate poverty rate for Africa, Latin America, Asia, India, and China, 1980–2005

	No. of Countries	1980	1985	1990	1995	2000	2005
<i>Extreme poverty rate (\$1.25 per day)</i>							
Sub-Saharan Africa	35	59.2	56.3	59.2	55.9	55.3	50.1
Latin America	24	15.6	14.7	11.2	9.7	10.9	8.1
Asia	14	69.4	55.8	53.5	43.2	36.2	27.0
China		84.0	61.7	60.2	45.0	32.0	15.9
India		65.9	55.5	53.6	49.4	46.5	41.6
Asia (omitting China and India)	12	46.0	45.1	41.4	31.8	29.5	24.9
<i>Moderate poverty rate (\$2.00 per day)</i>							
Sub-Saharan Africa	35	76.1	75.9	77.2	76.1	74.9	71.8
Latin America	24	25.5	26.8	21.3	20.6	21.4	17.0
Asia	14	88.3	82.2	79.1	70.9	63.1	52.6
China		97.8	88.3	84.6	71.8	56.3	36.3
India		89.0	84.8	83.8	81.7	79.4	75.6
Asia (omitting China and India)	12	69.0	67.4	63.1	54.9	52.6	47.8

rate in sub-Saharan Africa during 1980–2000. The extreme poverty rate for the thirty-five countries of sub-Saharan Africa was 55.3 percent in 2000, virtually unchanged from 56.3 percent in 1985. The extreme poverty rate declined modestly during the next five years, receding to 50.1 percent in 2005. The moderate poverty rate in sub-Saharan Africa ranged between 71 and 78 percent during the twenty-five years following 1980. It was 71.8 percent in 2005, only slightly less than the 76.1 percent registered in 1980.

Second, both the extreme and moderate poverty rates in Asia were considerably higher than for sub-Saharan Africa in 1980, but substantially lower in 2005. For example, the extreme poverty rate for the fourteen Asian countries was 69.4 percent in 1980, compared to 59.3 in sub-Saharan Africa. But by 2005, the extreme poverty rate for the Asian countries had fallen to 27.0 percent, compared to a rate of 50.1 in sub-Saharan Africa. The pattern of change in the moderate poverty rate in the two regions was similar.

Third, the reductions in both extreme and moderate poverty in Asia during the quarter of a century following 1980 were huge, and the reductions in China were a major force underlying the declines. The extreme poverty rate of China fell from 84.0 percent in 1980 to 15.9 in 2005. The moderate poverty rate declined from 97.8 percent in 1980 to 36.3 in 2005. Put another way, almost everyone in China had an income less than the moderate poverty rate in 1980, but only a little more than a third had incomes below this threshold in 2005.

Fourth, India also achieved substantial reductions in poverty, although their gains were not nearly as impressive as those of China. The extreme poverty rate of India fell from 65.9 percent in 1980 to 41.6 in 2005. The moderate poverty rate declined from 89.0 percent to 75.6 during the same period.

Fifth, both the extreme and moderate poverty rates in the twenty-four Latin American countries were substantially lower than those of both Africa and Asia throughout the twenty-five-year period. Moreover, poverty rates in Latin America have been declining. The extreme poverty rate in Latin America fell from 15.6 percent in 1980 to 8.1 percent in 2005. Over the same time frame, the moderate poverty rate fell from 25.5 percent to 17.0 percent.

Economic Freedom, Growth, and Poverty

What is economic freedom and how will it impact poverty? The core ingredients of economic freedom are personal choice, voluntary

exchange, open markets, and protection of privately owned property. Economies are freer when they rely more heavily on markets rather than on the political process to allocate resources, goods, and services. When economic freedom is present, the role of government is limited to the protection of property rights, unbiased enforcement of contracts, and arrangement for the provision of a limited set of “public goods” such as national defense and access to money of relatively stable value.⁵ Conceptually, this institutional structure corresponds closely with that implied by standard textbook analysis of microeconomics.

There are at least four major reasons why one would expect that freer economies will grow more rapidly and achieve higher income levels than those that are less free. First, countries with institutions and policies more consistent with economic freedom will attract more investment. Private investment will tend to flow toward countries with more secure property rights and fewer trade barriers. Investors will be reluctant to build structures and engage in business activities in areas with insecure property rights. Moreover, transportation and communication costs have been declining for several decades. As a result, entrepreneurs have more flexibility than ever before with regard to where they will locate their productive facilities and business operations. Investment is a key source of economic growth. Therefore, as the freer economies attract more investment, they will grow more rapidly than those that are less free.

Second, economic freedom encourages innovation and the discovery of valuable new products and lower cost production methods; Joseph Schumpeter famously referred to the constant replacement of old products by new improved ones as “creative destruction.” Examples abound: the word processor replaced the typewriter, and the phonograph was replaced by the cassette tape player, which was later largely replaced by CD and now MP3 players. This process of creative destruction is an important source of economic growth. But better products and lower cost production methods do not just happen; they reflect the actions of entrepreneurs, who are willing to innovate and undertake risk. Economic freedom, particularly secure property rights, open markets, and absence of trade barriers, facilitate these discoveries and innovative activities.

Third, the market process encourages activities that are productive and discourages those that are unproductive. The efficient use of resources is about the discovery and production of goods and services that are valued more highly than the resources required for their production. When property rights are protected and markets

open, profits and losses will perform this function. Profits provide entrepreneurs with a strong incentive to produce goods for which consumers are willing to pay a price that exceeds the cost of production. By doing so, they increase the value of the embodied resources. In contrast, losses will channel resources away from production of goods that consumers do not value enough to pay prices sufficient to cover their cost. As a result, counterproductive activities will eventually be brought to a halt. The political process does not have a parallel mechanism that will consistently channel resources into productive and away from counterproductive activities. Therefore, greater reliance on political allocation will mean less productive use of resources, slower economic growth, and lower income levels.

Fourth, a market economy is a network system and people integrated into the system will be able to achieve larger outputs and higher incomes than those outside of it. Much like a telephone or Internet system, expansion in the size of an integrated market system generates benefits for all participants. As the size of the market expands from the local town or village, to the region, nation, and beyond, network participants derive larger and larger benefits from trade, specialization, and economies of scale. For those connected with the market network, this system generates production and employment opportunities, high productivity per worker, and a vast array of consumer goods that are available at almost unbelievably low prices. But those living in countries with high trade barriers and a legal system that fails to enforce contracts and protect property rights will not be integrated into this system, at least not completely. When a sound legal system is absent, the gains from trade will be limited to those derived from personalized exchange, trade among family members and persons in the local neighborhood or village who know each other or at least know about each other. Here, trade is based on personal knowledge, and contract enforcement is achieved through family ties and social pressures. Under these circumstances, the gains from trade will be small and incomes will be low.

All of these factors indicate that more free economies will grow more rapidly and achieve higher income levels than those that are less free. The empirical evidence is supportive of this view.⁶ As income levels increase, one would expect poverty rates to decline. However, some have argued that the market forces that generate higher income levels will also lead to increased income inequality. If this is true, people with the lowest income levels may be left behind. Thus, it is important to investigate the relationship between economic freedom and poverty, the topic to which we now turn.

Economic Freedom and Poverty: An Empirical Analysis

Published annually, the *Economic Freedom of the World* (EFW) index is the most comprehensive measure of the compatibility of a nation's institutions and policies with economic freedom. The EFW index uses forty-two different components to measure the degree to which countries provide unbiased protection of property rights and enforcement of contracts, access to money of stable value, and rely on open markets rather than on government mandates and regulations to direct economic activity. The components of the index are placed on a zero–ten scale and aggregated into a summary rating, which generally ranges from a low of approximately three to a high of near nine. Higher ratings are indicative of institutions and policies more consistent with economic freedom. The index has been widely used in scholarly research and is available at five-year intervals for approximately one hundred countries during 1980–2005.

Because we seek to isolate the independent impact of economic freedom, it will be necessary to control for other factors that may influence the poverty rate. Jeffrey Sachs has argued that various geographic and locational factors influence income and growth and therefore they may also influence poverty rates. Following Sachs, we will integrate three geographic/locational variables into our analysis: (1) the share of a country's population that lives within one hundred kilometers of a coastline, (2) the share of a country's landmass in the tropics, and (3) the shortest air distance from a country to any one of three major markets: New York, Tokyo, or Amsterdam.⁷

Foreign aid may also influence development and poverty rates. Proponents of foreign aid argue that it can be used to provide physical and educational infrastructure that will help direct poor countries toward economic growth and human development. Critics of foreign aid charge that it often reinforces repressive regimes and inefficient policies.⁸ Our focus is not on this debate. Instead, our primary interest is to control for the potential impact of international assistance in order to better isolate the impact of economic freedom on poverty. The foreign aid variable is measured by the amount of Official Development Assistance received as a share of Gross National Income.⁹

Table 3.2 examines the impact of economic freedom, geography, location, and foreign aid on the 2005 level of poverty. The economic freedom variable is the average EFW rating during 1980–2005. The extreme poverty rate is the dependent variable in equations 1 and 2, while the moderate poverty rate is the dependent variable in equations 3 and 4. There is a strong and highly significant negative

Table 3.2 Determinants of the 2005 extreme and moderate poverty rates

Independent variable	Dependent variable			
	Extreme poverty rate, 2005		Moderate poverty rate, 2005	
	(1)	(2)	(3)	(4)
EFW, average 1980–2005 ^a	–6.88*** (2.45)	–11.40*** (2.80)	–11.18*** (3.26)	–16.48*** (3.57)
Coastal population (% within 100km)	–8.97 (5.79)	–16.81** (6.86)	–9.75 (7.72)	–18.48** (8.75)
Tropical location (% area in tropics)	9.52** (4.40)	20.03*** (4.70)	13.72** (5.87)	25.29*** (6.00)
Distance to major markets ^b	1.64* (0.85)	2.22** (0.99)	2.04* (1.14)	2.84** (1.27)
Foreign aid, average 1980–2005 ^c	1.95*** (0.32)		2.25*** (0.43)	
Intercept	40.56*** (13.14)	70.02*** (14.56)	71.77*** (17.52)	105.93*** (18.58)
R ² (adjusted)	0.70	0.55	0.68	0.56
Number of countries	74	76	74	76

Notes:

^aCountries with at least five of the six observations over the period 1980–2005 were included.

^bThe minimum air distance in thousands of kilometers from a country to any one of the following major markets: New York, Tokyo, or Amsterdam.

^cForeign Aid is Official Development Assistance as a share of GNI. Countries with foreign aid data in fifteen of the twenty-six years were included in this analysis.

*, **, and *** indicate statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively. Standard errors are given in parenthesis.

relationship between economic freedom and the 2005 poverty rate in all equations. This indicates that countries with higher levels of economic freedom during the quarter of a century prior to 2005 had lower rates of both extreme and moderate poverty in 2005.

The coefficient for the foreign aid variable is positive and highly significant in equations 1 and 3. This positive relationship is subject to alternative interpretations. It may indicate that international aid is channeled toward the poorest countries—those with the highest poverty rates. This would imply that the causal relationship is from high poverty rates to receipt of more aid. Alternatively, the positive coefficient is also consistent with the view that foreign aid adversely affects economic performance, and therefore leads to higher poverty rates.

Because of the problematic interpretation of the foreign aid variable and its possible impact on the other variables, we also ran the

regressions without the aid variable. Equations 2 and 4 present these results. When the foreign aid variable is omitted, the coefficient of the economic freedom variable increases. The economic freedom variable was significant at the 99 percent level in all of the equations in table 3.2. This indicates that countries with higher levels of economic freedom during 1980–2005 had lower poverty rates at the end of the period. Moreover, this was true after the effects of geography, location, and foreign aid are considered.

The variables for tropical location and air distance to major markets were significant with a positive sign in all equations. This implies that both were associated with higher poverty rates. The share of population residing within one hundred kilometers of a coastline was negative and significant in equations 2 and 4, but insignificant in the other two equations.

Table 3.2 indicates that countries with institutions and policies more consistent with economic freedom over an extended time frame have lower poverty rates. However, if one wants to know whether economic freedom makes a difference, the impact of changes in economic freedom on the poverty rate will be of far greater importance. Do countries that adopt institutions and policies more consistent with economic freedom achieve larger reductions in poverty than those with unchanged or declining levels of economic freedom? The next two tables address this question.

Table 3.3 focuses on the reduction in poverty between 1980 and 2005. The dependent variable is the poverty rate in 1980 minus the rate in 2005. Thus, if a country's poverty rate declines, this figure will be positive. The reduction in the extreme poverty rate is the dependent variable in equations 1 and 2, while the reduction in the moderate poverty rate is the dependent variable in equations 3 and 4.

The independent variables in the model are the initial poverty rate, the 1980 EFW rating, and changes in EFW during various time intervals, along with the geographic, locational, and foreign aid variables. Changes in economic freedom during several time intervals are considered. In equations 1 and 3, the changes in economic freedom cover two time periods, 1980–1995 and 1995–2005. Equations 2 and 4 incorporate changes in economic freedom during three time intervals (1980–1990, 1990–2000, and 2000–2005) as independent variables.

The structure of equations 1 and 2 is the same as that of equations 3 and 4 except that the dependent variable for the first two equations is the extreme poverty rate while it is the moderate poverty rate for the last two equations. The 1980 economic freedom rating is positive and significant in all four of the equations. The coefficients

Table 3.3 Determinantes of the change in the extreme and moderate poverty rates, 1980–2005

Independent variable	Dependent variable			
	Reduction in extreme poverty, 1980–2005		Reduction in moderate poverty, 1980–2005	
	(1)	(2)	(3)	(4)
Initial poverty rate, 1980 ^a	0.50*** (0.06)	0.50*** (0.06)	0.35*** (0.06)	0.35*** (0.06)
EFW, 1980	3.54* (1.87)	4.04** (1.93)	5.37*** (2.08)	5.79*** (2.16)
Change in EFW, 1980–1995	5.44*** (1.88)		6.94*** (2.08)	
Change in EFW, 1995–2005	1.75 (2.39)		1.80 (2.67)	
Change in EFW, 1980–1990		6.52*** (2.30)		8.70*** (2.58)
Change in EFW, 1990–2000		5.07** (2.04)		5.56** (2.28)
Change in EFW, 2000–2005		0.31 (2.98)		1.12 (3.34)
Coastal population (% within 100 km)	1.24 (4.50)	1.82 (4.50)	1.77 (5.01)	2.94 (5.04)
Tropical location (% area in tropics)	–6.59** (3.16)	–6.67** (3.18)	–8.29** (3.51)	–8.32** (3.56)
Distance to major markets ^b	–1.42** (0.65)	–1.45** (0.65)	–1.25* (0.72)	–1.25* (0.73)
Foreign aid, average 1980–2005 ^c	–0.72*** (0.26)	–0.76*** (0.27)	–0.65** (0.29)	–0.69** (0.29)
Intercept	–13.20 (11.46)	–16.93 (11.78)	–24.10* (13.01)	–27.76** (13.45)
R ² (adjusted)	0.52	0.52	0.41	0.40
Number of countries	63	63	63	63

Notes:

^aThis is the extreme poverty rate in 1980 for equations 1 and 2 and the moderate poverty rate in 1980 for equations 3 and 4.

^bThe minimum air distance in thousands of kilometers from a country to any one of the following major markets: New York, Tokyo, or Amsterdam.

^cForeign Aid is Official Development Assistance as a share of GNI. Countries with foreign aid data in fifteen of the twenty-six years were included in this analysis.

*, **, and *** indicate statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively. Standard errors are given in parenthesis.

indicate that a one unit higher EFW rating at the beginning of the period reduced the extreme poverty rate by approximately 4 percentage points and the moderate poverty rate by more than 5 percentage points during 1980–2005.

Table 3.3 also indicates that increases in economic freedom reduce poverty rates. As equations 1 and 3 show, a one unit increase in EFW during 1980–1995 was associated with a 5.44 percentage point reduction in the extreme poverty rate and a 6.94 percentage point reduction in moderate poverty during 1980–2005. Equations 2 and 4 indicate that a one unit increase in EFW during 1980–1990 resulted in reductions of 6.52 percentage points in the extreme poverty rate and 8.70 percentage points in the moderate poverty rate during the twenty-five-year period. All of these changes in EFW are significant at the 99 percent level. As equations 2 and 4 indicate, increases in EFW during 1990–2000 also reduced both the extreme and moderate poverty rates. Changes in economic freedom in the latter time periods (1995–2005 and 2000–2005) are not significant in any of these four equations. This is an expected result because when a change in economic freedom takes place toward the end of a time interval, it will be too late for it to exert much impact on the poverty rate over the entire period. The R-squares for the equations of table 3.3 range from 40 to 52 percent, indicating that the model explains approximately half of the variation in cross-country reductions in poverty during 1980–2005.

Of the three geography variables used in the regressions of table 3.3, the tropical location and distance to major market variables are significant at the 90 percent level or higher. As the proponents of the geography theory argue, our analysis indicates that these two factors make it more difficult to achieve reductions in poverty rates. The variable for the share of the population residing within one hundred kilometers of a coastline was insignificant in all equations, indicating this factor does not exert an appreciable impact on the ability of countries to achieve poverty rate reductions.

Foreign aid as a share of income is negative and significant at the 95 percent level or higher in all equations. As we mentioned earlier the cause and effect of this relationship is difficult to determine. We cannot be sure whether the negative relationship reflects (a) the channeling of assistance to countries experiencing economic difficulties or (b) an adverse impact of foreign aid on economic growth and reductions in poverty.

Table 3.4 is similar to table 3.3 except the dependent variable is the reduction in the rate of poverty for 1990–2005. The independent

Table 3.4 Determinantes of the change in the extreme and moderate poverty rates, 1990–2005

Independent variable	Dependent variable			
	Reduction in extreme poverty, 1990–2005		Reduction in moderate poverty, 1990–2005	
	(1)	(2)	(3)	(4)
Initial poverty rate, 1990 ^a	0.46*** (0.06)	0.46*** (0.06)	0.35*** (0.05)	0.35*** (0.05)
EFW, 1980	3.69** (1.70)	3.96** (1.73)	5.40*** (1.89)	5.57*** (1.97)
Change in EFW, 1980–1995	4.24*** (1.63)		6.28*** (1.81)	
Change in EFW, 1995–2005	2.38 (2.11)		3.18 (2.36)	
Change in EFW, 1980–1990		5.00** (2.11)		7.38*** (2.38)
Change in EFW, 1990–2000		3.99** (1.72)		5.27*** (1.93)
Change in EFW, 2000–2005		1.63 (2.70)		3.48 (3.02)
Coastal population (% within 100 km)	3.13 (3.98)	3.26 (3.99)	3.40 (4.43)	3.94 (4.46)
Tropical location (% area in tropics)	–5.01* (3.01)	–4.95 (3.04)	–5.48 (3.37)	–5.22 (3.42)
Distance to major markets ^b	–0.97* (0.58)	–1.01* (0.59)	–1.10* (0.64)	–1.09* (0.66)
Foreign aid, average 1980–2005 ^c	–0.60** (0.25)	–0.61** (0.25)	–0.53** (0.27)	–0.55** (0.27)
Intercept	–20.19** (10.01)	–22.10** (10.29)	–31.90*** (11.58)	–33.76*** (11.98)
R ² (adjusted)	0.50	0.49	0.40	0.38
Number of countries	65	65	65	65

Notes:

^aThis is the extreme poverty rate in 1990 for equations 1 and 2 and the moderate poverty rate in 1990 for equations 3 and 4.

^bThe minimum air distance in thousands of kilometers from a country to any one of the following major markets: New York, Tokyo, or Amsterdam.

^cForeign Aid is Official Development Assistance as a share of GNI. Countries with foreign aid data in fifteen of the twenty-six years were included in this analysis.

*, **, and *** indicate statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively. Standard errors are given in parenthesis.

variables of these equations are: the 1990 poverty rate, 1980 EFW rating, changes in EFW for various periods, tropical location, distance to major markets, coastal population, and foreign aid as a share of income. The results are similar to those of table 3.3. The initial (1980) EFW rating was positive and significant at the 95 percent level or more in all equations. The change in economic freedom during the earlier period (1980–1995 in equations 1 and 3 and 1980–1990 in equations 2 and 4) was positive and significant at the 95 percent level or higher in all equations.¹⁰ As equations 2 and 4 indicate, increases in EFW during the middle period (1990s) also significantly reduced both the extreme and moderate poverty rates during 1990–2005. The R-squares indicate that the various models explain 38–50 percent of the variation in cross-country poverty rate reductions during 1990–2005.

The impact of the geographic/location variables changed slightly from that found in table 3.3. The distance to major markets variable was significant in all four equations, while the tropical location variable was only significant in the first equation. Once again, the foreign aid variable was negative and significant (90 percent level or higher) in all equations.¹¹

Summary and Conclusion

The recently released data of the World Bank on extreme poverty (\$1.25 per day) and moderate poverty (\$2 per day) make it possible to measure these poverty rates in 2005 international dollars during 1980–2005. Analysis of these data indicates that the extreme poverty rate of developing economies fell from 58.3 percent in 1980 to 25.1 in 2005. During the same twenty-five-year period, the moderate poverty rate in the less developed world declined from 75.3 to 45.6 percent. This progress was propelled by a huge reduction in both extreme and moderate poverty rates in China. However, except for sub-Saharan Africa, substantial progress was achieved throughout most of the developing world.

Economic freedom played a central role in this progress. Compared to those that were less free, countries with higher economic freedom ratings during 1980–2005 had lower rates of both extreme and moderate poverty in 2005. More importantly, countries with higher levels of economic freedom in 1980 and larger increases in economic freedom during the 1980s and 1990s achieved larger poverty rate reductions than economies that were less free. These relationships

were true even after adjustment for geographic and locational factors and foreign assistance as a share of income. The positive relations between the level and change in economic freedom and reductions in poverty were both statistically significant and robust across alternative specifications.¹²

Some fear that growth propelled by economic freedom will leave the poor behind. This was not the case during 1980–2005. During this quarter of a century, the developing countries that moved the most toward economic freedom achieved both strong economic growth and substantial reductions in poverty. This indicates that an institutional and policy environment consistent with economic freedom is an important ingredient for progress against poverty.

Appendix A: The World Bank's New Poverty Rate Dataset

The World Bank poverty rate data used in this chapter differ from the bank's earlier estimates in four major respects. First, the income figures used to derive the new poverty rate estimates are based on the purchasing power parity (PPP) figures of the 2005 International Comparison Program (ICP). The earlier poverty rate figures were based on the purchasing power parity estimates of a 1993 ICP survey.¹³ This survey did not include China and India, the world's two most populous countries. Moreover, critics charged that the estimating procedures underlying the 1993 PPP figures made inadequate allowance for cross-country differences in the quality of goods and services. As a result, the general level of prices in poor countries was understated and income levels overstated in the 1993 survey. This resulted in a downward bias in poverty rate estimates of poor countries based on the PPP figures of the 1993 survey. The 2005 ICP survey incorporated more countries, including China and India, and the methodology was redesigned to more accurately reflect the cross-country differences in the general level of prices.

Second, statistical techniques were used to control for an "urban bias" that caused the earlier estimates to understate poverty rates. In less developed countries, it is often difficult to conduct surveys in rural areas. Consequently, many of the early surveys were conducted in urban areas, where incomes tend to be higher. As a result, many of the early surveys overstated income levels and understated poverty rates. The most recent estimates used statistical techniques to adjust the earlier estimates for this bias.

Third, the revised data include more countries and provide estimates for more years. The new data cover 115 countries, compared to only 97 in the earlier data set. There was also an increase in the number of years for which data were available. In total, the number of surveys used to construct the poverty data increased from 454 to 675.¹⁴

Fourth, measured in 2005 international dollars, the extreme and moderate poverty rates are now based on income thresholds of \$1.25 per day and \$2 per day, respectively. Previously, the extreme poverty rate (often referred to as the \$1 per day poverty rate) was the percentage of a country's population living on less than \$1.08 per day measured in 1993 international dollars. The extreme poverty rate in the new data set reflects the percentage of the population residing on less than \$1.25 per day measured in 2005 international dollars. Under the definition previously employed, the moderate poverty rate (often called the \$2 per day poverty rate) was the percentage of a country's population residing on less than \$2.15 per day measured in 1993 international dollars. The moderate poverty rate is now defined as the percentage of a country's population living on less than \$2 per day measured in 2005 international prices.

On balance, these modifications resulted in higher estimates for both the extreme and moderate poverty rates. While measurement of income in 2005 dollars rather than 1993 dollars tended to reduce the estimated poverty rates, the revised PPP methods and the correction for the urban bias generated higher estimates. For most countries, the latter two factors more than offset the former. Thus, the new revised extreme and moderate poverty rates are generally higher than the earlier figures. But, more importantly, there is good reason to expect that the more recent estimates are more accurate and they are certainly more comprehensive.

We examined the correlation between the old and newly revised estimates. Because the revisions were largely refinements that would affect the estimated poverty rate during a year and comparisons across countries rather than the changes in the trend over time, we expected the correlation between the new and old estimates to be high. This was indeed the case. There were 322 overlapping "same country same year" observations between the revised and earlier data sets. For the extreme poverty rate the correlation coefficient between the two data sets was 0.88. For the moderate poverty rate, the correlation coefficient was 0.92. These high correlations indicate that while the earlier estimates understated poverty rates, the understatements were similar across both countries and time periods.

Appendix B: Construction of Poverty Rates at Five-Year Intervals, 1980–2005

This appendix explains how the poverty rate data of the World Bank, *World Development Indicators*, were used to derive the extreme and moderate poverty rates for years ending in zero and five during 1980–2005 for a comprehensive set of countries. Appendix C, which follows, provides these estimates for the 128 countries for which these poverty rates could be derived.

The World Bank poverty rate figures are derived from surveys that are conducted irregularly and for different years in different countries. Statistical procedures were used to adjust the World Bank data and derive estimates at five-year intervals during 1980–2005. The following procedures were used to determine these poverty rates.

1. When the World Bank data were available for a year ending in zero or five for a country, these poverty rate figures were used.
2. If the World Bank did not provide the poverty rate figures for a country in a zero or five year, but there was a value in each of the adjacent years, the average of the adjacent years was used as the value for the missing year ending in zero or five. For example, the 2000 data for Brazil were unavailable, but the data were available in both 1999 and 2001. Brazil's extreme poverty rate was 11.2 in 1999 and 11.0 in 2001. Thus, the 2000 figure for Brazil's extreme poverty rate was merely the average of these two figures, 11.1.
3. If a country had a value for only one adjacent year, that value was used for the missing year ending in zero or five. Poverty rates seldom change much from one year to the next. Therefore the figure for an adjacent year will nearly always be a good estimate for the missing value. For example, Botswana had an extreme poverty rate of 31.2 in 1994 but no data were available for 1995, 1996, or 1997. Thus, the 1994 figure of 31.2 was used as the value for Botswana's extreme poverty rate in 1995.
4. If none of the aforementioned scenarios fit a country during a specific five-year period, but it still had poverty data in a five-year window centered on the year ending in zero or five, the value for that period became the average of all the values in the five-year window. For example, Ghana had an extreme poverty rate of 50.6 in 1988, 49.4 in 1989, no values for 1990 or 1991, and 51.1 in 1992. Therefore its extreme poverty rate for 1990 became the

average of the values over the five-year window centered on 1990 (i.e., 1988–1992), which was 50.3.

5. In cases where a gap of a decade existed after the aforementioned procedures were used, the real per capita GDP data were used to fill in the middle year in cases where the per capita income and poverty rates moved in opposite directions. This was the case for fifteen countries. Again, Ghana can be used to illustrate the procedure. Ghana had a poverty rate in 1990 and 2000, but was missing a value for 1995. The real per capita GDP data for Ghana were available for 1990, 1995, and 2000 and the pattern of these figures was used to adjust and predict the poverty rate value for the missing middle year (1995). Ghana had an extreme poverty rate of 50.3 in 1990 and 39.1 in 2000. Ghana's per capita GDP (measured in 2005 constant international dollars) increased from \$861 in 1990 to \$925 in 1995 and \$1,015 in 2000. Thus, there was an upward trend in per capita GDP and a downward trend in poverty over this period so the per capita GDP figures were used to estimate the missing poverty rate value. The formula used to generate these missing poverty values under these conditions was:

$$mvalue = valueb + (valuea - valueb) * (GDP - GDPb) / (GDPa - GDPb),$$

where the variable representations are as follows:

mvalue—missing poverty rate value;

valueb—the poverty rate for the five-year period before the missing value;

valuea—the poverty rate for the five-year period after the missing value;

GDP—the per capita RGDP for the same five-year period of the missing value;

GDPb—the per capita RGDP for the five-year period before the missing value;

GDPa—the per capita RGDP for the five-year period after the missing value.

6. The methodology described in the preceding five points was used to derive the extreme and moderate poverty rates for 374 country/year observations. At least one observation was present for 115 countries and at least three for 79 countries. The log of per capita real GDP and the under-five mortality rate are major determinants of both the extreme and moderate poverty rates. Using these 374

observations, the log of per capita real GDP and the under-five mortality rate was regressed against the extreme poverty rate. The R-square for this equation was 0.76. When the same equation was run with the moderate poverty rate as the dependent variable, the R-square was 0.80. These high R-square values indicate that taken together, the per capita real GDP and under-five mortality rate are excellent predictors of both the extreme and moderate poverty rates.

The per capita real GDP and under-five mortality data are available for countries and years beyond which the procedures of points (1) through (5) could be used to derive the poverty rates for years ending in zero or five during 1980–2005. Because the log of per capita real GDP and the under-five mortality rate are major determinants of the extreme and moderate poverty rates, these data can be used to estimate the poverty rates for a broader range of countries and years. The 374 observations were used to estimate the following regression:

$$\text{Poverty rate} = \log \text{ of real per capita GDP} + \text{under-five mortality rate} + \text{dummy for sub-Saharan Africa} + \text{dummy for outlier countries}.$$

A country was considered an outlier if its dummy variable was significant at the 90 percent level or more in this regression. The R-square for this equation was 0.90 when the extreme poverty rate was the dependent variable and 0.91 when the dependent variable was the moderate poverty rate. The country data for per capita real GDP and under-five mortality rate along with the dummies (if they applied) were then inserted into the regression equations for the missing years and used to estimate the country's extreme and moderate poverty rates for those years. This methodology was used to estimate a country's poverty rate when it could not be derived for a specific year by the procedures of (1) through (5) given earlier. In addition to the 115 countries for which data for at least one year were available from the World Bank, this regression procedure was also used to estimate the extreme and moderate poverty rates for another 13 countries with a population of more than one million.

The World Bank limits the poverty rate at 2 percent for countries whose poverty rate falls below this level. This convention was used for countries whose predicted poverty rates were below 2 percent. Similarly, countries whose predicted poverty rates were greater than 99 percent were limited to that figure.

In total, it was possible to derive the extreme and moderate poverty rate figures for 677 country-year observations among the 128 countries. Appendix C provides these estimates for the period 1980–2005 in five-year intervals. The values in bold in the table are the actual poverty rates as reported by the World Bank after adjustment by the procedures explained in the first five points mentioned earlier. The non-bold values were calculated by the regression methodology explained here.

Appendix C:
Extreme (\$1.25 Per Day) and
Moderate (\$2 Per Day) Poverty Rate by Country

	Percentage of population living on \$1.25 per day or less						Percentage of population living on \$2 per day or less					
	1980	1985	1990	1995	2000	2005	1980	1985	1990	1995	2000	2005
Albania				2.0	2.0	2.0				6.5	8.7	7.8
Algeria	25.2	18.1	6.6	6.8	10.9	8.5	31.7	25.1	23.8	23.6	20.4	16.8
Angola		63.5	61.9	61.2	54.3	44.2		69.5	67.9	71.3	70.2	52.0
Argentina	5.6	2.0	2.0	2.0	6.0	4.5	10.9	2.0	3.2	7.0	14.3	11.3
Armenia				17.5	16.5	10.6				38.9	47.7	43.4
Azerbaijan				15.6	6.3	2.0				39.3	27.1	2.0
Bangladesh	77.5	72.2	66.8	59.4	57.8	49.6	99.0	99.0	92.5	87.4	85.4	81.3
Belarus			2.0	2.3	2.0	2.0			2.0	11.1	2.0	2.0
Benin	65.2	62.6	61.3	57.3	53.4	47.3	81.6	79.0	79.1	75.6	71.3	75.3
Bhutan	56.1	48.7	39.9	33.7	28.5	26.2	76.8	68.5	56.7	49.0	42.6	49.5
Bolivia	37.0	34.5	4.0	18.9	23.8	19.6	46.7	46.7	17.2	29.9	34.9	30.3
Bosnia and Herzegovina				14.6	2.0	2.0				25.0	2.0	2.0
Botswana	42.0	35.6	31.9	31.2	32.3	23.1	65.1	54.7	50.2	49.4	46.0	36.3
Brazil	17.1	17.5	15.5	10.5	11.1	7.8	31.1	31.5	27.8	21.9	22.6	18.3
Bulgaria			2.0	2.0	2.6	2.0			2.0	2.2	7.8	2.4
Burkina Faso	74.7	71.0	68.3	71.2	70.0	56.5	94.8	90.9	88.7	85.8	87.6	81.2
Burundi	72.3	70.4	84.2	85.7	86.4	81.3	97.1	94.7	95.2	95.3	95.4	93.4
Cambodia				48.6	45.8	40.2				77.8	74.6	68.2
Cameroon	52.8	45.6	46.9	51.5	32.8	49.1	65.3	56.3	60.2	74.4	57.7	62.6
Cape Verde		38.3	36.0	33.1	20.6	27.9		55.9	53.4	49.7	40.2	42.6
Central African Republic	62.9	61.2	61.6	82.8	64.9	62.4	81.5	80.5	82.0	90.7	85.6	81.9
Chad	71.3	65.9	64.6	65.3	66.3	61.9	90.3	82.8	82.5	83.6	84.9	83.3
Chile	12.3	10.5	4.4	2.3	2.0	2.0	22.9	23.4	13.6	9.1	6.0	3.9
China	84.0	61.7	60.2	45.0	32.0	15.9	97.8	88.3	84.6	71.8	56.3	36.3
Colombia	13.7	12.3	9.5	11.2	16.8	15.7	24.4	23.1	19.4	23.3	29.1	27.1
Comoros	56.7	51.9	49.1	46.7	44.3	46.1	74.0	69.2	67.5	66.3	64.6	65.0
Congo, Dem. Rep.	69.0	68.4	69.1	73.2	74.1	59.2	88.8	88.8	91.0	99.0	99.0	79.5
Congo, Rep.	37.9	33.6	36.1	38.3	39.5	54.1	49.3	42.4	46.1	49.1	50.2	74.4

Continued

	Percentage of population living on \$1.25 per day or less						Percentage of population living on \$2 per day or less					
	1980	1985	1990	1995	2000	2005	1980	1985	1990	1995	2000	2005
Costa Rica	21.4	10.4	9.2	7.5	4.4	2.4	35.7	21.5	18.7	16.4	11.5	8.6
Cote d'Ivoire	16.9	9.5	13.8	21.1	23.7	15.5	34.9	23.9	35.1	47.9	47.9	38.9
Croatia			2.0	2.0	2.0	2.0			2.0	2.0	2.0	2.0
Czech Republic			2.0	2.0	2.0	2.0			2.0	2.0	2.0	2.0
Djibouti			11.7	4.8	18.8	8.8			24.4	15.1	41.2	26.1
Dominican Republic	24.4	16.4	8.4	5.9	4.4	5.0	37.9	30.4	20.8	15.7	12.4	15.1
Ecuador	20.2	12.2	14.0	15.9	14.9	9.8	28.6	22.3	24.0	28.2	27.7	20.4
Egypt, Arab Rep.	25.5	14.8	4.5	2.5	2.0	2.0	46.2	35.3	27.6	26.3	19.3	18.4
El Salvador	26.1	22.2	15.9	12.7	12.8	11.0	36.1	34.7	24.7	25.2	22.2	20.5
Eritrea				54.2	51.1	48.7				76.6	75.1	74.0
Estonia			2.0	2.0	2.0	2.0			2.0	2.0	2.6	2.0
Ethiopia	66.2	71.9	70.7	60.5	55.6	39.0	89.9	95.2	93.4	84.6	86.4	77.5
Gabon						4.8						19.6
Gambia, The	65.7	59.3	55.8	56.0	66.7	34.3	82.4	77.2	74.3	75.3	82.0	56.7
Georgia				4.5	11.9	13.4				13.1	28.7	30.4
Ghana	56.4	56.9	50.3	45.7	39.1	30.0	75.9	78.4	78.1	72.0	63.3	53.6
Guatemala	39.1	52.5	39.3	25.6	13.1	11.7	51.6	70.4	55.8	40.6	26.8	24.3
Guinea	77.8	74.5	92.6	36.8	61.6	70.1	94.1	91.7	98.4	63.8	79.6	87.2
Guinea-Bissau			41.3	52.1	48.8	45.7			58.5	75.7	77.9	72.1
Guyana	12.8	13.3	12.9	5.8	7.7	3.9	21.9	24.5	25.1	15.0	16.8	12.6
Haiti	48.2	44.2	41.5	43.2	54.9	34.7	61.7	60.1	58.9	63.9	72.1	57.8
Honduras	27.9	24.4	43.5	21.9	14.4	22.2	42.3	40.1	61.6	37.3	26.8	34.8
Hungary		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0
India	65.9	55.5	53.6	49.4	46.5	41.6	89.0	84.8	83.8	81.7	79.4	75.6
Indonesia	39.1	34.7	29.2	22.2	19.5	16.0	59.0	53.6	46.5	37.6	35.8	31.2
Iran, Islamic Rep.	14.6	4.2	3.9	2.0	2.0	2.0	20.3	13.8	13.1	8.2	8.3	8.0
Jamaica	6.9	6.4	2.0	2.9	2.0	2.0	14.8	15.0	8.3	11.5	7.5	5.8
Jordan	6.4	2.0	2.8	2.0	2.0	2.0	12.3	2.0	14.9	11.5	11.0	7.2
Kazakhstan			2.0	4.6	3.6	3.1			2.0	18.1	15.0	17.2
Kenya	28.2	26.4	38.4	24.1	29.2	19.7	49.7	48.9	59.3	48.2	51.2	39.9
Korea, Rep.	8.3		2.0	2.0	2.0	2.0	20.0		5.5	2.0	2.0	2.0
Kuwait	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0
Kyrgyz Republic			2.0	18.6	27.1	21.8			2.0	30.1	56.4	51.9
Lao PDR		53.3	55.7	49.3	44.0	28.6		74.1	84.8	79.9	76.8	47.4
Latvia			2.0	2.0	2.0	2.0			2.0	2.9	3.0	2.0
Lebanon			11.2	6.6	5.8	4.2			22.2	14.1	13.0	10.3
Lesotho	55.9	44.4	49.0	47.6	47.1	43.4	78.2	62.2	70.3	61.1	66.0	62.2
Liberia	64.9	64.3	72.0	81.5	66.3	83.7	76.3	78.4	95.5	99.0	92.0	94.8
Lithuania			2.0	2.7	2.0	2.0			2.0	8.6	2.0	2.0
Macedonia, FYR				7.5	2.9	2.0				17.1	10.2	3.2
Madagascar	85.9	80.1	79.3	72.5	79.3	67.8	94.3	93.2	92.7	88.4	90.9	89.6
Malawi	94.8	93.0	89.4	87.3	83.1	73.9	99.0	99.0	99.0	99.0	93.5	90.4

Continued

	Percentage of population living on \$1.25 per day or less						Percentage of population living on \$2 per day or less					
	1980	1985	1990	1995	2000	2005	1980	1985	1990	1995	2000	2005
Malaysia	12.7	2.8	2.0	2.1	2.0	2.0	24.2	12.1	11.1	11.0	9.6	7.8
Mali	81.5	79.2	75.0	86.1	61.2	51.4	97.1	97.7	93.6	93.9	82.0	77.1
Mauritania	35.7	41.3	32.4	33.1	21.2	30.2	58.0	64.6	56.2	58.4	44.1	53.8
Mauritius	25.3	22.0	18.1	15.8	13.4	11.2	37.0	32.6	26.2	22.3	18.2	14.8
Mexico	11.1	12.8	6.1	5.2	4.8	2.4	15.1	28.5	16.0	16.1	13.7	5.9
Moldova			16.1	15.1	30.6	8.1			44.6	36.8	56.8	28.9
Mongolia		32.4	29.3	18.8	24.8	22.4		48.8	45.3	43.5	53.6	49.0
Morocco	18.5	8.4	2.5	5.2	6.5	2.5	34.0	28.6	15.9	21.9	24.4	14.0
Mozambique	77.9	78.3	73.2	81.3	78.8	74.7	99.0	99.0	98.7	92.9	91.8	90.0
Myanmar	53.4	50.1	53.3	49.1	44.9	40.3	84.1	80.0	84.7	79.0	72.4	64.7
Namibia	33.0	33.2	33.3	49.1	34.2	29.1	41.2	42.8	43.9	62.2	43.2	37.4
Nepal	83.0	78.1	74.0	68.4	59.9	55.1	99.0	93.4	91.1	88.1	81.4	77.6
Nicaragua	30.1	26.5	26.5	32.5	20.6	15.8	44.4	42.5	45.3	49.2	38.0	31.8
Niger	82.8	85.0	72.8	78.2	74.5	65.9	97.9	99.0	91.1	91.5	96.1	85.6
Nigeria	63.2	53.9	65.2	58.9	61.5	64.4	75.2	76.9	78.8	78.1	75.8	83.9
Oman	15.1	3.8	2.0	2.0	2.0	2.0	19.6	5.6	3.4	2.0	2.0	2.0
Pakistan	54.9	66.5	64.7	36.0	32.5	22.6	89.1	89.1	88.2	73.5	70.2	60.3
Panama	7.0	8.8	16.9	11.5	11.5	9.3	17.8	17.3	26.8	19.7	20.0	17.9
Papua New Guinea	33.7	32.5	31.6	35.8	27.3	26.4	50.8	50.4	50.5	57.4	45.5	45.2
Paraguay	17.1	16.1	5.9	12.7	17.1	9.3	29.5	29.3	19.4	21.8	27.3	18.4
Peru	14.8	2.0	2.0	7.2	12.6	8.2	20.3	5.2	5.2	18.4	24.4	19.4
Philippines	31.7	34.9	30.6	24.9	22.5	22.3	54.5	61.9	56.1	48.2	44.8	44.4
Poland		2.0	2.0	3.1	2.0	2.0		2.0	2.0	9.9	2.0	2.0
Romania			2.0	5.0	3.7	2.0			2.0	23.2	17.2	3.4
Russian Federation			2.0	3.2	2.1	2.0			3.9	7.9	7.1	2.0
Rwanda	67.8	63.3	67.0	68.4	76.6	63.9	87.2	88.4	87.9	91.1	90.3	84.2
Saudi Arabia	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Senegal	62.7	56.0	65.8	54.1	44.2	33.5	77.1	71.7	81.5	79.4	71.3	60.3
Sierra Leone	62.5	59.6	62.8	61.2	62.5	53.4	76.9	75.2	75.0	80.4	84.2	76.1
Singapore	2.0		2.0		2.0	2.0	2.0		2.0		2.0	2.0
Slovak Republic			2.0	2.0	2.0	2.0			2.0	2.0	2.3	2.0
Slovenia		2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0
South Africa	25.8	23.9	22.4	21.4	26.2	21.7	41.5	40.6	39.7	39.9	42.9	38.3
Sri Lanka	25.2	20.0	15.0	16.3	14.0	12.5	46.3	51.6	49.5	46.7	39.7	27.3
St. Lucia	13.4	11.5	5.8	20.9	3.5	2.9	26.6	24.7	14.8	40.6	11.4	9.9
Sudan	53.2	53.5	51.7	49.7	47.0	44.3	72.3	73.9	71.4	68.5	64.4	60.3
Suriname	12.6	13.6	13.4	13.1	15.5	7.8	20.9	23.5	23.9	24.1	27.2	16.9
Swaziland	78.4	73.5	66.9	78.6	62.9	66.3	96.6	91.5	82.2	89.3	81.0	80.7
Syrian Arab Republic	21.7	19.2	16.9	13.1	12.2	10.9	35.3	33.8	32.8	27.2	26.6	24.7
Taiwan	6.6	3.0	2.0	2.0	2.0	2.0	18.3	12.0	4.0	2.0	2.0	2.0
Tajikistan				39.5	44.5	21.5				61.7	78.5	50.8
Tanzania			72.6	81.9	88.5	74.4			91.3	95.7	96.6	86.8
Thailand	21.9	19.4	11.3	2.0	2.0	2.0	44.0	41.4	33.2	17.4	17.5	11.5
Timor-Leste					52.9	41.9					77.5	67.7
Togo	59.4	58.7	57.6	57.2	53.9	38.7	77.1	78.6	78.2	79.1	76.1	69.3

Continued

	Percentage of population living on \$1.25 per day or less						Percentage of population living on \$2 per day or less					
	1980	1985	1990	1995	2000	2005	1980	1985	1990	1995	2000	2005
Trinidad and Tobago	2.0	2.9	3.1	3.9	2.0	2.0	4.2	7.1	11.1	9.1	5.1	2.0
Tunisia	25.2	8.7	5.9	6.5	2.6	7.1	37.5	25.1	19.0	20.4	12.8	16.7
Turkey	16.9	2.0	2.1	2.1	2.0	2.7	25.7	7.7	13.8	9.8	9.6	9.0
Turkmenistan			14.4	63.5	24.8	15.4			50.2	85.7	49.6	26.8
Uganda		65.9	69.3	64.4	58.9	51.5		89.9	87.3	85.9	81.2	75.6
Ukraine			2.0	2.0	2.0	2.0			8.4	8.4	8.4	2.0
United Arab Emirates	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Uruguay	9.1	8.7	2.0	2.0	2.0	2.0	16.9	18.8	2.0	3.0	2.3	4.5
Uzbekistan			2.0	28.9	37.2	46.3			2.0	49.9	64.6	76.7
Venezuela, RB	6.2	6.5	2.9	8.7	14.0	10.0	16.4	17.9	9.2	19.5	23.9	19.8
Vietnam		54.7	53.5	63.7	44.9	22.8		85.9	83.8	85.7	73.5	50.5
Yemen, Rep.			4.5	15.5	12.9	17.5			15.4	36.7	36.3	46.6
Zambia	52.6	53.3	62.8	63.7	55.4	64.3	68.0	70.0	76.2	80.8	74.8	81.5

Source: Derived from the World Bank, *World Development Indicators*, 2009. The original data are from Chen and Ravallion, 2008. See appendix B for details.

Notes

1. Berggren, "Benefits of Economic Freedom"; Cole, "Contribution of Economic Freedom"; de Haan and Strum, "Relationship Between Economic Freedom and Economic Growth"; Gwartney et al., "Economic Freedom and the Environment for Growth"; Shleifer, "Age of Milton Friedman."
2. Chen and Ravallion, "Poorer Than We Thought."
3. The number of developing countries for which data were available ranged from 87 in 1980 to 128 in 2005. The poverty rate data were available for 84 countries continuously (for years ending in five or zero) during 1980–2005. These 84 countries comprised 88 percent of the developing world population in 2005 and an even higher percentage in the earlier years. The extreme poverty rate of these 84 countries fell from 59 percent in 1980 to 46 in 1990 and 26.3 in 2005. Thus, the extreme poverty rates (and changes in those rates) for the set of countries with data throughout the period were quite similar to those presented in figure 3.1 for all developing countries with data during the specified year.
4. When only the 84 countries with data available for all years are considered, the moderate poverty rate fell from 76.1 percent in 1980 to 68.1 in 1990 and 48.3 in 2005. This is a reduction in the moderate poverty rate of 27.8 percentage points, which is slightly less than the reduction based on all countries with data during a specific year.

5. Rabushka, "Definition of Economic Freedom"; Jones and Stockman, "Concept of Economic Freedom."
6. See the citations in note 1, as well as Dawson, "Institutions, Investment, and Growth" and "Freedom-Growth Relationship"; Gwartney, "Institutions, Economic Freedom, and Cross-Country Differences"; Gwartney et al., "Impact of Investment on Growth"; and Scully, "Trade-Off Between Equity and Growth."
7. The variable for the tropics is a percentage of a country's landmass that lies between the tropic of Capricorn and the tropic of Cancer. Sachs and others argue that tropical location is a barrier to development because the climatic conditions in this region reduce worker productivity and lead to a higher incidence of diseases such as malaria. See Sachs, "Tropical Underdevelopment"; Gallup, Sachs, and Mellinger, "Geography and Environment"; and Diamond, *Guns, Germs, and Steel*, for additional details on this view.
8. Easterly, *White Man's Burden*; Djankov et al., "Does Foreign Aid Help?"; Rajan and Subramanian, "Aid and Growth."
9. Official Development Assistance (ODA) as a share of Gross National Income is commonly used in the foreign aid literature as the measure of a country's reliance on foreign aid. ODA excludes all military assistance and it is primarily grant based aid.
10. Adoption of institutions and policies more consistent with economic freedom will influence long-run growth. Thus, the positive impact of increases in economic freedom during the 1980s on future (1990–2005) reductions in the poverty rate is an expected result.
11. The model of table 3.4 was also run with the foreign aid variable equal to the average aid level as a share of income during the 1980s. If foreign aid helps improve a country's infrastructure and thereby enhances long-run growth and progress against poverty, one would expect that the coefficient for the foreign aid variable would be positive in this specification. This was not the case. Foreign aid as a share of income during the 1980s was negative and significant as a determinant of poverty rate reductions during 1990–2005 in all of the equations parallel to those of table 3.4.
12. In an earlier study using the World Bank's 2004 poverty rate figures, Norton and Gwartney, "Economic Freedom and World Poverty," also found that countries with more economic freedom and larger increases in economic freedom achieved more progress against poverty than those that were less free. As previously discussed, the prior World Bank estimates for poverty rates were both less comprehensive and less reliable than the data used in this study.
13. Chen and Ravallion, "How Have the World's Poorest Fared Since the Early 1980s?"
14. See note 3.

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