

developing countries across the globe did make an effort to implement many of the recommended policies contained in the Washington Consensus. In Latin America in particular most countries succeeded in ending decade after decade of high rates of inflation. Exchange rates for the most part were no longer overvalued and import barriers were greatly reduced. Fiscal discipline was much improved, although this was not universal. Argentina, for example, tried to ensure stability by pegging its currency to the dollar from 1991 to 2002 in what amounted to a currency board arrangement (that is, allowing full convertibility between the peso and the dollar at a fixed rate of exchange), but the central government could not control the spending of local governments, and maintaining the currency peg became impossible.

The data in Table 5-1 compare Latin America's ability to control inflation and its rate of per capita GDP growth starting with the lost decade of the 1980s through to 2008 and the beginning of the global financial crisis and inflation. The data are for the region as a whole (including the Caribbean nations) and for several of its largest and most important countries. The rate of inflation is chosen not only because it is an important indicator in its own right of the quality of government economic management but because high rates of inflation are closely associated with government budgets that are out of control and with a wide variety of other undesirable interventions, many of which are designed to ameliorate the effects of inflation.

The data in Table 5-1 make clear what was meant by the lost decade of the 1980s. Per capita GDP growth in the region as a whole and in most of the major countries was low or negative. In per capita terms the region as a whole suffered a decline in income. The 1980s were also a period of hyperinflation, the kind of inflation in which prices change almost daily (see Chapter 12). During the 1990s, particularly during the later years, Latin America began to get control of inflation, and by the first decade of the next century the rate of annual price increase was in the single digits throughout the region.

TABLE 5-1 Economic Growth and Inflation in Latin America

REGION/COUNTRY	PER CAPITA GDP GROWTH (%)			INFLATION RATES (%)		
	1980-90	1991-2000	2001-08	1980-90	1991-2000	2001-08
Latin America and Caribbean	-0.4	1.6	2.3	14.6	17.5	6.1
Brazil	0.1	1.0	2.3	396.4	308.9	8.1
Mexico	0.3	1.8	1.3	60.7	16.3	7.8
Colombia	1.5	0.7	3.0	24.7	22.5	6.7
Argentina	-2.4	2.2	3.2	490.7	10.3	12.7
Venezuela	-2.4	0.0	2.7	22.1	40.1	25.0
Chile	2.5	4.8	3.1	20.9	8.5	5.7

GPD, gross domestic product.

Source: World Bank, "World Development Indicators," <http://databank.worldbank.org>.

TABLE 6-1 Size Distributions of Consumption or Income within Quintiles in Bangladesh, Mexico, and the United States, 2000s

QUINTILE	SHARE OF TOTAL CONSUMPTION OR INCOME		
	BANGLADESH	MEXICO	UNITED STATES
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 2004).

presenting the data makes it clear that, of the three nations, Bangladesh has the relatively most equal distribution because the quintile shares are closer to one another than is the case for either Mexico or the United States. (If the distribution were completely equal, each quintile would receive 20 percent of the total.) In Bangladesh, the top 20 percent receive 41 percent of total consumption, about 4.5 times the amount received by the poorest 20 percent. In Mexico and the United States, the ratio is much larger, roughly 15:1.³ Some of these differences are due to what precisely is being measured—consumption or income and whether on a per capita or household basis—but much of the difference is due to the underlying distribution within each nation.

The size distribution provides a means for introducing some other techniques commonly used to measure inequality, including some that reduce the entire distribution to a single number. Data from the size distribution can be used to draw a **Lorenz curve** (Figure 6-2), named after Max Lorenz, a statistician. Income recipients are arrayed from lowest to highest income along the horizontal axis. The curve itself shows the share of total income received by any cumulative percentage of recipients. Its shape indicates the degree of inequality in the income distribution. By definition, the curve must touch the 45-degree line at both the lower-left corner (0 percent of recipients must receive 0 percent of income) and the upper-right corner (100 percent of recipients must receive 100 percent of income). If everyone had the same income, the Lorenz curve would lie along the 45-degree line (perfect equality). If only one household received income and all other households had none, the curve

Unlike most low- and middle-income nations, the United States has a comprehensive system of taxation of household incomes and government transfer payments (such as Social Security). The data reported here are for money incomes before taxes and after cash transfer payments. Noncash transfers, such as food stamps and Medicare, are not accounted for. Once taxes and all government transfer payments are included, the distribution becomes somewhat more equal. The ratio of the shares of the top 20 to the bottom 20 falls to closer to 10:1 than the 15:1 reported in Table 6-1.

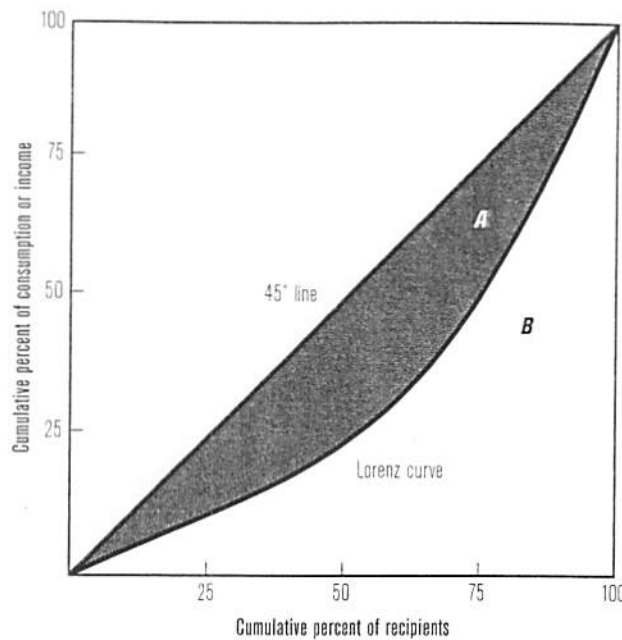


FIGURE 6-2 Lorenz Curve

would trace the bottom and right-hand borders of the diagram (perfect inequality). In all actual cases the Lorenz curve lies somewhere in between. The farther the Lorenz curve bends away from the 45-degree line of perfect equality (the larger the shaded area, A) the greater the inequality. When comparing Lorenz curves, either for the same country at different points of time or for different countries, it is possible for the separate curves to intersect. When this happens it is ambiguous if inequality has increased or decreased over time (or if one country has more inequality than the other).⁴

Single numbers can also be used to describe the distribution of income. One commonly used statistic is the ratio of the income share of the top 20 percent of households to the share received by the bottom 20 or 40 percent. The most frequently used statistic, the **Gini coefficient** (named after statistician Corrado Gini), can be derived from the Lorenz curve. This ratio is understood most easily as the value of area A divided by area A + B in Figure 6-2.⁵ The larger the share of the area between

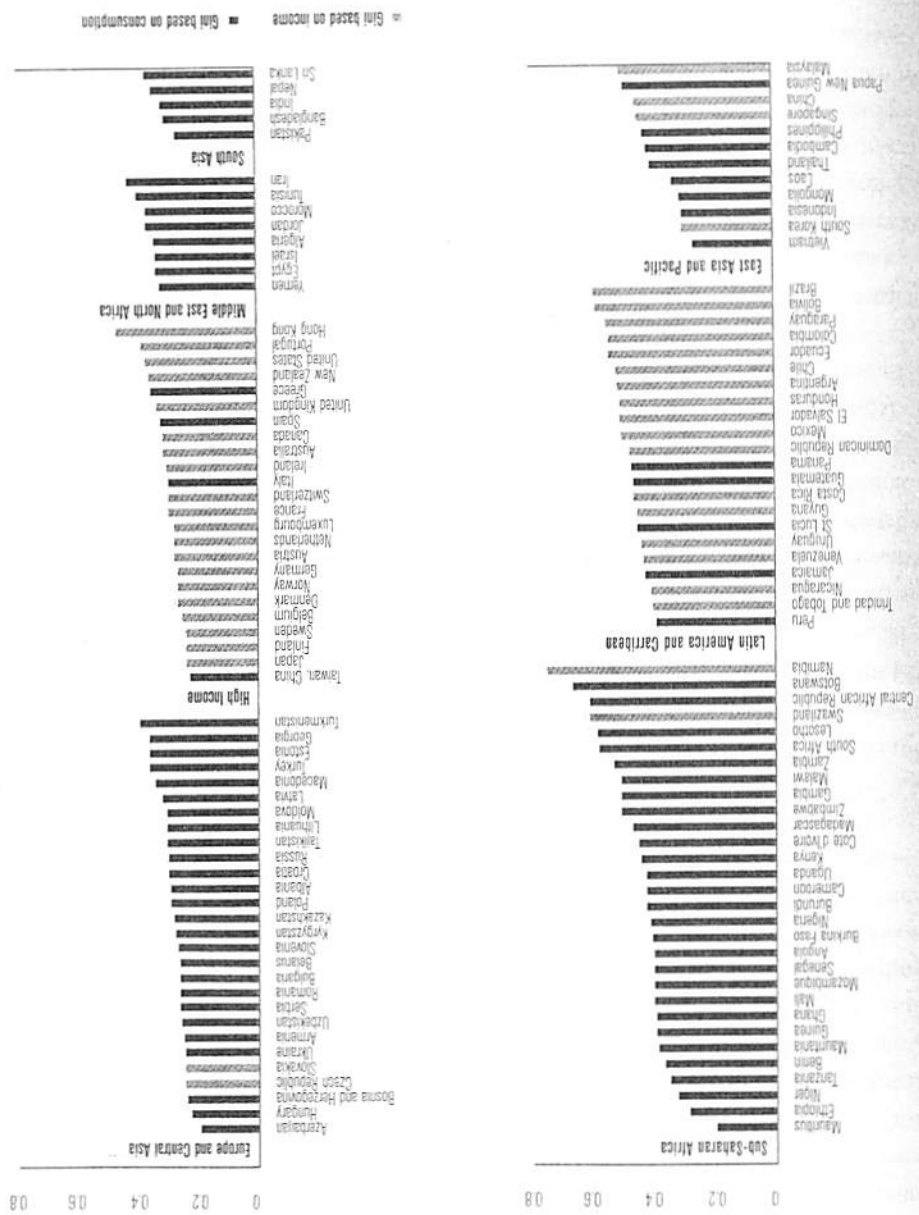
⁴To see the reason for this ambiguity, draw two Lorenz curves and label the point of intersection X. Below point X, there is relatively more equality along the Lorenz curve closer to the 45-degree line; but above point X, there is relatively more equality along the other Lorenz curve. Because both Lorenz curves have sections of greater equality, there is no way to decide, overall, if one represents a more equal distribution than the other.

⁵The Gini coefficient can be calculated using a relatively complex formula based on the absolute income differences across all observations in a population, which are then normalized by both the size and mean income of the population.

apparent is the variance in inequality both within and across regions. There is evidence of a tendency toward higher inequality, with the Gini coefficient generally above 0.40 and in some cases approaching 0.65, in Latin America and parts of Africa (especially southern Africa). Low inequality is characteristic of the transition economies of eastern Europe and central Asia, many of the high-income economies of the Organisation for Economic Co-Operation and Development

Sources: Figure 2.9 from The International Bank for Reconstruction and Development, The World Bank: World Development Report, 2006. Reprinted with permission.

FIGURE 6-3 Gini Coefficients by Country and Region



South Asia and in Latin America and the Middle East, TFR fell by half or more. Sub-Saharan Africa's demographic transition took longer to begin, but even in this poorest part of the world, TFR, now at 5.1 children per woman, has fallen by more than one child since 1987. Most demographers expect the decline in Africa's TFR to follow that of other regions and the rate to continue to fall.

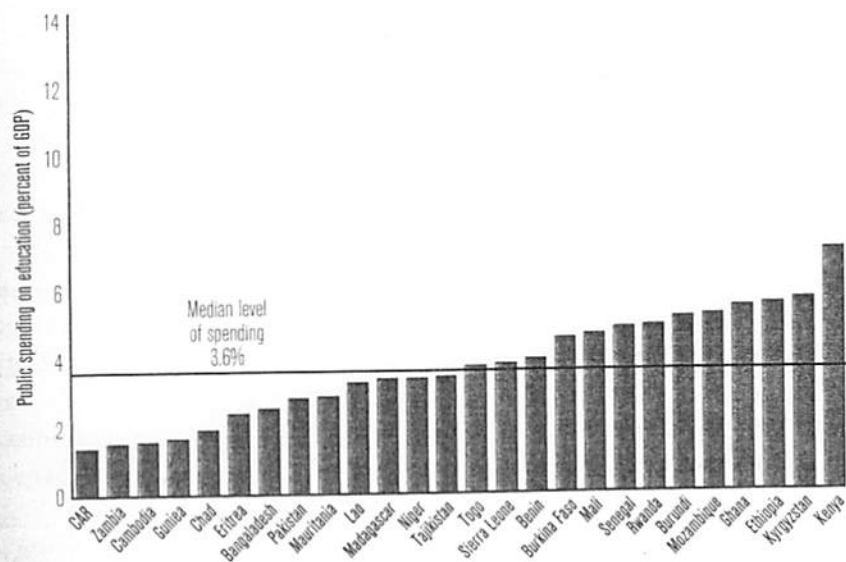
TABLE 7-1 Levels and Trends in the World Population, 2009

	TOTAL POPULATION		POPULATION GROWTH		
	NUMBER (MILLIONS)	PERCENT OF TOTAL	BIRTH RATE (PER 1,000)	DEATH RATE (PER 1,000)	NATURAL INCREASE (PERCENT)
World	6,775	100	20	8	1.2
<i>Income category</i>					
Low income	846	13	34	11	2.3
Middle income	4,813	71	19	8	1.1
High income	1,117	16	12	8	0.4
<i>Region</i>					
East Asia	1,944	29	14	7	0.7
South Asia	1,568	23	24	7	1.7
Sub-Saharan Africa	840	12	38	14	2.4
Latin America	572	8	18	6	1.2
Europe and Central Asia	404	6	15	11	0.4
Middle East and North Africa	331	5	24	6	1.8

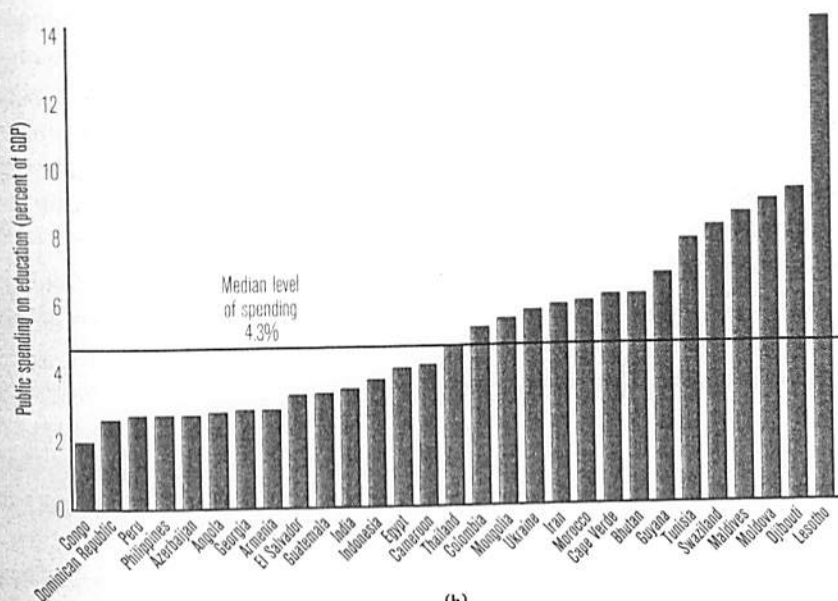
Source: World Bank, "World Development Indicators Online," <http://databank.worldbank.org>.

level in Australia, Canada, New Zealand, and the United States than in Europe and Japan. Total fertility rates in many of the high-income economies already have dropped below replacement levels. Women must have at least two children each during their childbearing years for the population to replace itself. Allowing for infant and child mortality, demographers estimate that the replacement level of total fertility is around 2.1. In countries such as Germany, Italy, and Japan, where the TFR is below the replacement level and immigration rates also are low, policy makers are concerned about a population implosion rather than a population explosion. These societies can anticipate smaller populations overall as well as an increasing number of elderly people becoming dependent on a shrinking labor force.

Below replacement level, TFR also characterizes eastern Europe and central Asia, where the rate of natural increase is only 0.4 percent. East Asia's TFR has dipped



(a)



(b)

FIGURE 8-7 Public Spending on Education, 2005-07

(a) Lower-income economies. (b) Lower-middle-income economies.

GDP, gross domestic product.

Source: World Bank, "World Development Indicators Online," <http://databank.worldbank.org>.

in the same period, also a high amount. But some nations save very little; Nepal saved about 10 percent of its GDP, whereas Ghana and Guatemala had domestic savings rates of 5 percent or less. High-income countries such as the United States and the United Kingdom had savings rates below 15 percent of GDP. Savings and investment data for a selection of countries are presented in Table 10-4.

How does a low-income country with a low savings rate increase that rate to contribute to a higher rate of growth in income? Can government policy have a major influence on a country's savings rate? Since the nineteenth century it has been assumed that higher incomes would raise the savings rate. In all countries the highest income earners in the population typically save far more than the lowest income earners. It would seem to follow that if a country's income increased, the average rate of savings of the country as a whole would rise along with income. But when economists set out to measure the change in savings rate over time, they quickly discovered

TABLE 10-4 Domestic Capital Formation (Investment) and Savings

	GROSS CAPITAL FORMATION (% OF GDP)		GROSS DOMESTIC SAVINGS (% OF GDP)	
	1975-1979	2005-2009	1975-1979	2005-2009
<i>Economy</i>				
Low income	14	23	7	10
Middle income	26	28	25	30
High income	24	20	24	20
<i>Region</i>				
East Asia and Pacific	30	38	30	44
Europe and Central Asia	n.a.	23	n.a.	24
Latin America and Caribbean	25	21	23	23
Middle East and North Africa	30	26*	24	32*
Sub-Saharan Africa	25	21	23	16
South Asia	18	33	16	28
<i>Country</i>				
Brazil	24	18	21	19
China	32	44	32	51
Egypt	31	20	16	16
Ghana	9	22	9	5
Guatemala	20	18	16	3
India	20	36	19	32
Indonesia	24	27	29	30
Mexico	24	25	23	23
Nepal	16	29	12	10
Russian Federation	n.a.	22	n.a.	32
South Africa	27	20	31	18
United Kingdom	20	17	20	14
United States	20	18	20	13

*Data from 2005-2007 only.

GDP, gross domestic product.

Source: World Bank, "World Development Indicators," <http://databank.worldbank.org>.

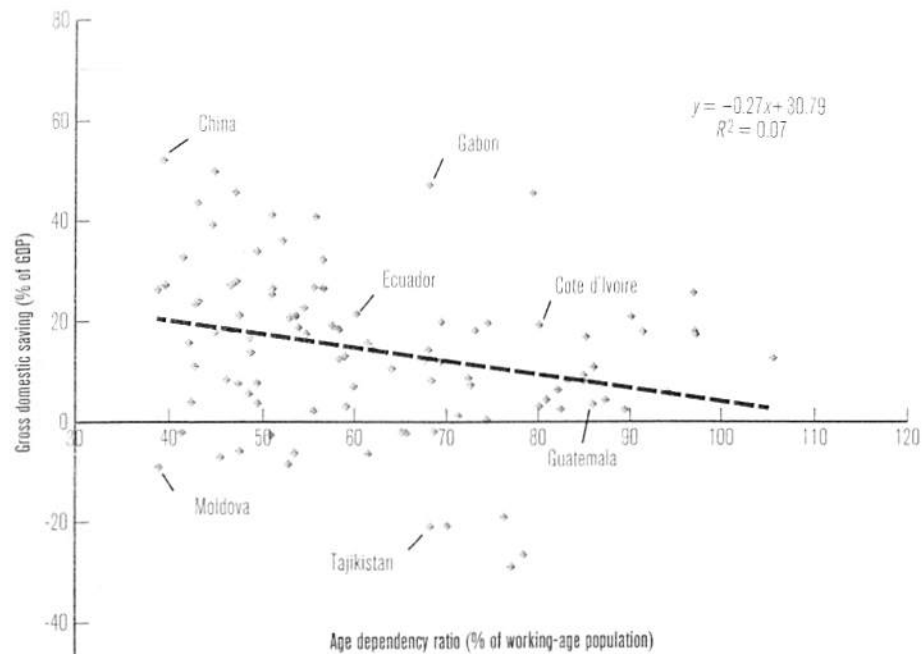


FIGURE 10-2 Gross Domestic Saving and the Age Dependency Ratio, 2009

GDP, gross domestic product.

Source: World Bank, "World Development Indicators," <http://databank.worldbank.org>.

tancy, elderly dependents made up a rapidly rising share of the population, but this did not occur until after these economies had experienced three or more decades of high savings, high investment, and rapid economic growth. China's one child policy has produced a similar phenomenon. The one child policy was instituted in the first part of the 1970s and had taken full effect by the time the economic reform began in 1978 that jump-started economic growth. Rapid growth thus benefited from and was sustained to an important degree by the dwindling share of dependent young people, which in turn made high rates of household savings possible. A rising share of elderly dependents in China is only now beginning to occur and will not have a major impact on the overall dependency ratio for another decade.

CORPORATE SAVING

Corporate saving is relatively small in most developing countries primarily because the corporate sector generally is small. For a variety of reasons, there are fewer pressures and incentives in developing countries for doing business in the corporate form (as opposed to operating as an unincorporated business). The principal reasons for

countries in sub-Saharan Africa, South Asia, and Central America) that had borrowed predominantly from other governments and the international financial institutions, the debt crisis lingered unresolved into the new century.

Debt ratios improved substantially for Latin American countries from the 1980s to the 1990s and were much lower by 2005 compared to their previous high levels (Table 13-4). In most cases, improvements continued through 2009, albeit at a slower pace. Latin American debtors worked out of insolvency through debt relief agreements that involved a combination of several forms of debt restructuring and reorganization:

- *Refinancing*, involving making new loans to repay the old. In a refinancing, the amount of debt owed does not change, but the terms for repayments are eased, usually through longer repayment periods and perhaps lower interest rates.
- *Rescheduling*, closely related to refinancing, in which the original loans stay on the books, but the schedule of payments is altered to allow longer repayment periods and possibly lower interest rates.
- *Reduction*, in which the amount actually owed is reduced (that is, forgiven), either partly (a write-down) or completely (a write-off).
- *Buybacks*, whereby the debtor buys the loan from the creditor, usually for a percentage of the face value of the debt. Creditors might prefer getting an ensured payment today for part of the debt rather than taking the risk of less payment later.

TABLE 13-4 Debt Ratios, Developing Countries, 1980-2009 (percent)

	MAXIMUM OF 1980-97	2005	2009
<i>All developing countries</i>			
Long-term debt to GNP	43	26	22
Long-term debt to exports	203	75	75
Total debt service to exports	33	13	11
<i>Latin American countries</i>			
Long-term debt to GNP	60	29	24
Long-term debt to exports	343	111	111
Total debt service to exports	48	24	18
<i>Selected countries: total debt service to exports</i>			
Argentina	83	19	17
Bolivia	63	16	14
Brazil	82	46	23
Chile	71	15	23
Mexico	51	22	13

GNP, gross national product.

Sources: World Bank, *Global Development Finance 2004* (Washington, DC: World Bank, 2004); and World Bank, *Global Development Finance 2011* (Washington, DC: World Bank, 2011).

TABLE 14-1 Major Official Development Aid Recipients (2009)

RANK	COUNTRY	TOTAL ODA (MILLIONS OF CURRENT US\$)
1	Afghanistan	6,235
2	Ethiopia	3,820
3	Vietnam	3,744
4	West Bank and Gaza	3,026
5	Tanzania	2,934
6	Iraq	2,791
7	Pakistan	2,781
8	India	2,502
9	Côte d'Ivoire	2,369
10	Congo, Dem. Rep.	2,354

RANK	COUNTRY	ODA (PERCENT OF GNI)
1	Liberia	70
2	Afghanistan	45
3	Solomon Islands	44
4	Tuvalu	43
5	Burundi	42
6	Micronesia, Fed. Sts.	41
7	Marshall Islands	32
8	Palau	28
9	Sierra Leone	24
10	Congo, Dem. Rep.	22

RANK	COUNTRY	ODA PER CAPITA (MILLIONS OF CURRENT US\$)
1	Mayotte	2,751
2	Tuvalu	1,785
3	Palau	1,737
4	Marshall Islands	1,101
5	Micronesia, Fed. Sts.	1,093
6	West Bank and Gaza	748
7	Dominica	533
8	Grenada	463
9	Vanuatu	442
10	Kosovo	437

GNI, gross national income; ODA, official development assistance.

Source: World Bank, "World Development Indicators," <http://databank.worldbank.org>.

Generally speaking, aid is an important type of capital flow for low-income countries, but not most middle-income countries. Aid flows averaged 9.3 percent of GNI in low-income countries in 2009 but just 0.1 percent of GNI in upper-middle-income countries. As discussed in Chapter 10, in the 1990s private capital flows grew sharply in middle-income countries, more than compensating for a fall in aid. In low-income countries, private capital rose much more slowly and remained significantly smaller than aid.

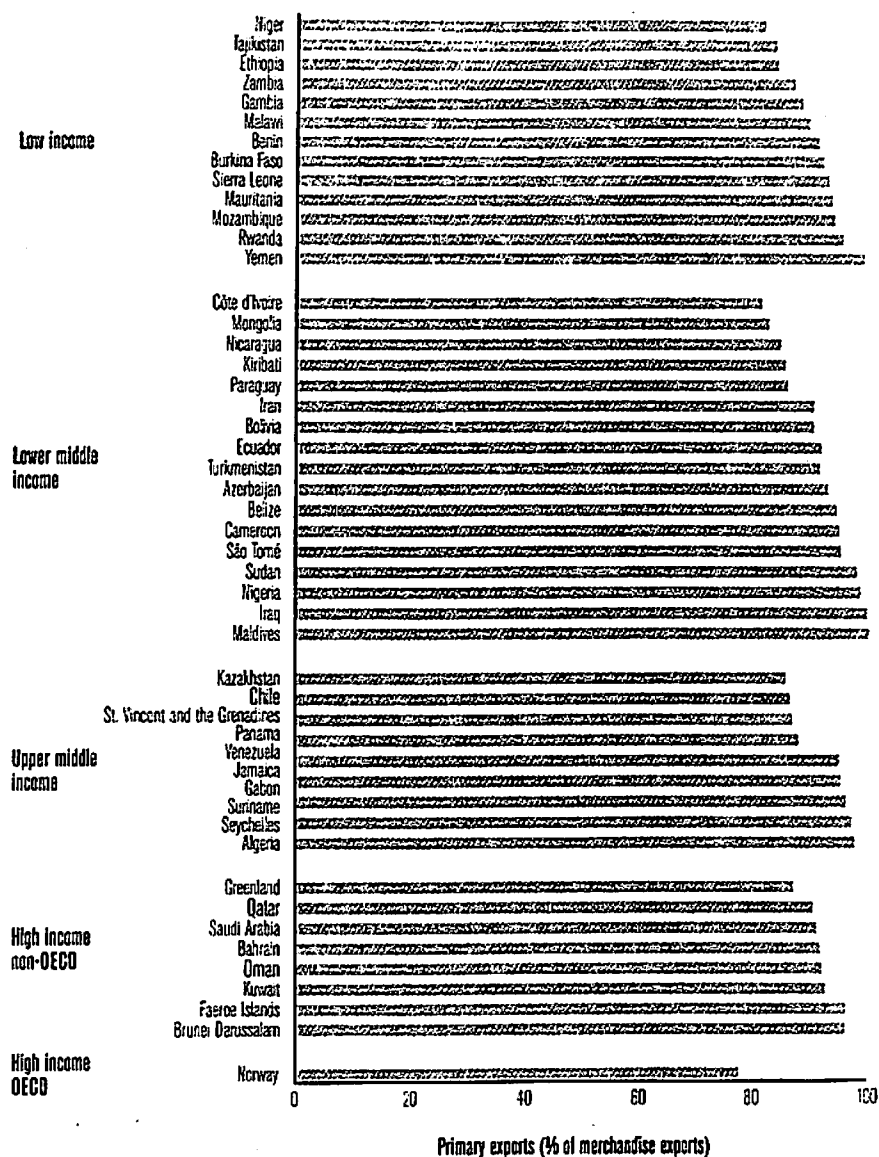


FIGURE 18-7 The Importance of Trade in Primary Products

OECD, Organization for Economic Co-Operation and Development. Included are countries where primary products account for 75 percent or more of all merchandise trade.

Source: World Bank, "World Development Indicators," <http://databank.worldbank.org>.

but significant demand abroad. Copper deposits in Chile and Zambia, coltan in the Congo (a mineral used in making the electronics for cellphones), and palm oil grown throughout Southeast Asia offer further examples.

Referring to Figure 18-6, we can substitute resource-intensive primary products on the *x*-axis and manufactures on the *y*-axis. Without trade, a nation will produce

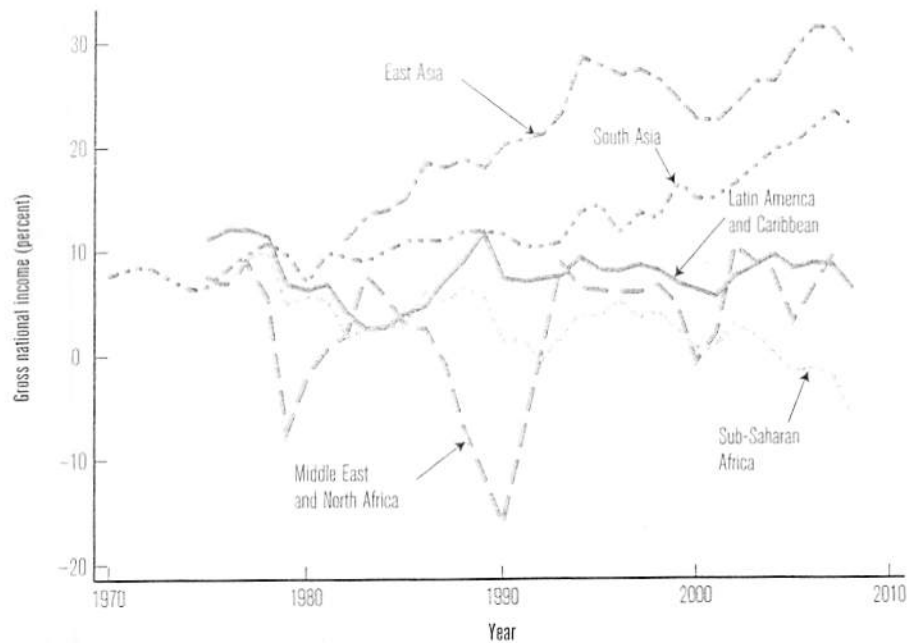


FIGURE 20-2 Adjusted Net Saving for Developing Regions, 1970-2008

Data exclude particulate emission damage.

Source: World Bank, "World Development Indicators," <http://databank.worldbank.org>.

analysis of ANS as an indicator of sustainability to incorporate the effects of population growth, illustrating these concepts with the case of Ghana, where ANS was positive while ANS per capita was negative.

To summarize, the concept of sustainable development has been defined in numerous ways; yet the most popular definition, that of the Brundtland Commission, highlights the requirement that consumption by today's generation must be accompanied by sufficient conservation of resources so as not to reduce the consumption potential of future generations. Knowing whether we are meeting this standard requires clear definitions and specific metrics. Economists' efforts to measure the sustainability of development have focused on net saving as an indicator of whether resource use by the current generation is expanding or contracting the potential creation of wealth by future generations. Experience to date is mixed. While some countries and regions have succeeded in rapidly expanding the potential wealth of future generations, others have been consuming rather than investing their resource base. These latter regions thus appear to be following unsustainable development trajectories. In many cases, the unsustainable depletion of natural resources and environmental damage through pollution are a result of market failure. The following section defines and illustrates this concept.