VIRTUAL UNIVERSITY OF PAKISTAN

Development Economics

ECO501

Course Handouts

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ECO501 –DEVELOPMENT ECONOMICS

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Lesson 01

INTRODUCING ECONOMIC DEVELOPMENT: A GLOBAL PERSPECTIVE

WHAT IS DEVELOPMENT ECONOMICS?

Development Economics is a branch of economics that focuses on improving the economies of developing countries. Development economics considers how to promote economic growth in such countries by improving factors like health, education, working conditions, domestic and international policies and market conditions. It examines both macroeconomic and microeconomic factors relating to the structure of a developing economy and how that economy can create effective domestic and international growth.

KEY CONCEPTS IN ECONOMICS AND DEVELOPMENT STUDIES

Absolute poverty:
It is a situation of being unable to meet the minimum levels of income, food, clothing, healthcare, shelter, and other essentials.

Subsistence economy:
An economy in which production is mainly for personal consumption and the standard of living yields little more than basic necessities of life—food, shelter, and clothing.

Development:
It is the process of improving the quality of all human lives and capabilities by raising people's levels of living, self-esteem, and freedom.

Developing countries:
Countries of Asia, Africa, the Middle East, Latin America, Eastern Europe, and the former Soviet Union, that are presently characterized by low levels of living and other development deficits. Used in the development literature as a synonym for less developed countries.

THE NATURE OF DEVELOPMENT ECONOMICS

Development economics has an even greater scope. In addition to being concerned with the efficient allocation of existing scarce (or idle) productive resources and with their sustained growth over time, it must also deal with the economic, social, political, and institutional mechanisms, both public and private, necessary to bring about rapid (at least by historical standards) and large-scale improvements in levels of living for the peoples of Africa, Asia, Latin America, and the formerly socialist transition economies. Unlike the **more developed countries (MDCs)**, in the **less developed countries**, most commodity and resource markets are highly imperfect, consumers and producers have limited information, major structural changes are taking place in both the society and the economy, the potential for multiple equilibria rather than a single equilibrium is more common, and disequilibrium situations often prevail (prices do not equate supply and demand). Thus development economics, to a greater extent than traditional neoclassical economics or even political economy, must be concerned with the economic, cultural, and political requirements for effecting rapid structural and institutional transformations of entire societies in a manner that will most efficiently bring the fruits of economic progress to the broadest segments of their populations. Consequently, a larger government role and some degree of coordinated economic decision making directed toward transforming the economy are usually viewed as essential components of development economics.

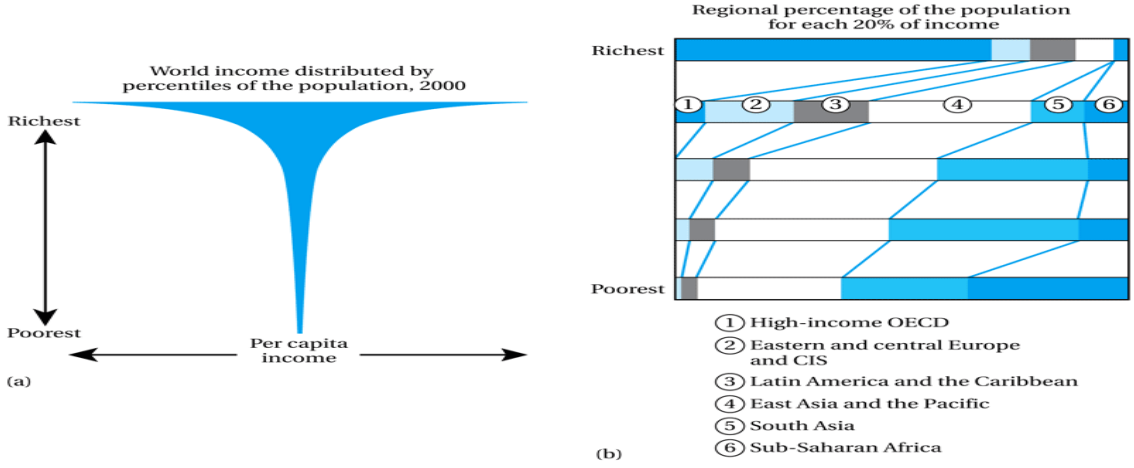
SOME IMPORTANT DEFINITIONS RELATED TO NATURE OF ECONOMICS

- **Traditional economics:**
  It is an approach to economics that emphasizes utility, profit maximization, market efficiency, and determination of equilibrium.
- **Political economy:**
  Political economy is an attempt to merge economic analysis with practical politics—to view economic activity in its political context.
- **Development economics:**
  It is the study of how economies are transformed from stagnation to growth and from low income to high-income status, and overcome problems of absolute poverty.
- **More developed countries (MDCs):**
  MDCs are now economically advanced capitalist countries of Western Europe, North America, Australia, New Zealand, and Japan.

WHY STUDY DEVELOPMENT ECONOMICS?

The ultimate purpose of any course in economics, including development economics, is to help students think systematically about economic problems and issues and formulate judgments and conclusions on the basis of relevant analytical principles and reliable statistical information. Because the problems of development are in many cases unique in the modern world and not often easily understood through the use of traditional economic theories, we may often need unconventional approaches to what may appear to be conventional economic problems. Traditional economic principles can play a useful role in enabling us to improve our understanding of development problems, but they should not blind us to the realities of local conditions in less developed countries.

WORLD INCOME DISTRIBUTION



Part (a) shows world income distribution by percentile. The huge share controlled by the top percentiles gives the graph its "champagne glass shape." Part (b) shows the regional shares of global income. For example, a large majority of people in the top 20% of the global income distribution live in the rich countries. Most of those in the bottom 60% live in sub-Saharan Africa and Asia. OECD is the Organization for Economic Cooperation and Development. CIS is the Commonwealth of Independent States.

THE IMPORTANT ROLE OF VALUES IN DEVELOPMENT ECONOMICS

Economics is a social science. It is concerned with human beings and the social systems by which they organize their activities to satisfy basic material needs (e.g., food, shelter, and clothing) and nonmaterial wants (e.g., education, knowledge, spiritual fulfillment). It is necessary to recognize from the outset that ethical or normative value premises about what is or is not desirable are central features of the economic discipline in general and of development economics in particular. The very concepts of economic development and modernization represent implicit as well as explicit value premises about desirable goals for achieving what Mahatma Gandhi once called the "realization of the human potential.

It follows that value premises, however carefully disguised, are an inherent component of both economic analysis and economic policy. Economics cannot be value-free in the same sense as, say, physics or chemistry. Thus, the validity of economic analysis and the correctness of economic prescriptions should always be evaluated in light of the underlying assumptions or value premises. However, where serious value conflicts and disagreements exist among decision makers, the possibility of a consensus about desirable goals or appropriate policies is considerably diminished. In either case, it is essential, especially in the field of development economics that one's value premises always be made clear.

ECONOMIES AS SOCIAL SYSTEMS: THE NEED TO GO BEYOND SIMPLE ECONOMICS

Economics and economic systems, especially in the developing world, must be viewed in a broader perspective than that postulated by traditional economics. They must be analyzed within the context of the overall **social system** of a country and, indeed, within an international, global context as well. By "social system," we mean the interdependent relationships between economic and non-economic factors. We can also define **Social system as** the organizational and institutional structure of a society, including its values, attitudes, power structure, and traditions where as values, institutions & attitudes define below.

- **Values:** Principles, standards, or qualities that a society or groups within it considers worthwhile or desirable.
- **Attitudes:** The states of mind or feelings of an individual, group, or society regarding issues such as material gain, hard work, saving for the future, and sharing wealth.
- **Institutions:** Norms, rules of conduct, and generally accepted ways of doing things. Economic institutions are humanly devised constraints that shape human interactions including both informal and formal "rules of the game" of economic life in the widely used framework of Douglass North.

WHAT DO WE MEAN BY DEVELOPMENT?

Because the term development may mean different things to different people, it is important that we have some working definition or core perspective on its meaning. Without such a perspective and some agreed measurement criteria, we would be unable to determine which country was actually developing and which was not.

I) TRADITIONAL ECONOMIC MEASURES

In strictly economic terms, **development** has traditionally meant achieving sustained rates of growth of **income per capita** to enable a nation to expand its output at a rate faster than the growth rate of its population.

Levels and rates of growth of "real" per capita **gross national income (GNI)** (monetary growth of GNI per capita minus the rate of inflation) are then used to **measure the overall economic well-being** of a population—how much of real goods and services is available to the average citizen for consumption and investment.

Economic development in the past has also been typically seen in terms of the planned alteration of the structure of production and employment so that agriculture's share of both declines and that of the manufacturing and service industries increases.

Development strategies have therefore usually focused on rapid industrialization, often at the expense of agriculture and rural development. With few exceptions, such as in development policy circles in the 1970s, development was until recently nearly always seen as an economic phenomenon in which rapid gains in overall and per capita GNI growth would either "trickle down" to the masses in the form of jobs and other economic opportunities or create the necessary conditions for the wider distribution of the economic and social benefits of growth. Problems of poverty, discrimination, unemployment, and income distribution were of secondary importance to "getting the growth job done." Indeed, the emphasis is often on increased output, measured by **gross domestic product (GDP)**.

Income Per Capita:
"Total gross national income of a country divided by total population."

Gross National Income (GNI):
"The total domestic and foreign output claimed by residents of a country. It comprises gross domestic product (GDP) plus factor incomes accruing to residents from abroad, less the income earned in the domestic economy accruing to persons abroad."

Gross Domestic Product (GDP):
"The total final output of goods and services produced by the country's economy, within the country's territory, by residents and nonresidents, regardless of its allocation between domestic and foreign claims."

II) THE NEW ECONOMIC VIEW OF DEVELOPMENT

"Leads to improvement in wellbeing, more broadly understood."

The experience of the 1950s and 1960s, when many developing nations did reach their economic growth targets but the levels of living of the masses of people remained for the most part unchanged, signaled that something was very wrong with this narrow definition of development. An increasing number of economists and policymakers clamored for more direct attacks on widespread absolute poverty, increasingly inequitable income distributions, and rising unemployment. In short, during the 1970s, economic development came to be redefined in terms of the reduction or elimination of poverty, inequality, and unemployment within the context of a growing economy. "Redistribution from growth" became a common slogan.

Development must therefore be conceived of as a **multidimensional process** involving major changes in social structures, popular attitudes, and national institutions, as well as the acceleration of economic growth, the reduction of inequality, and the eradication of poverty. Development, in its essence, must represent the whole gamut of change by which an entire social system, tuned to the diverse basic needs and evolving aspirations of individuals and

social groups within that system, moves away from a condition of life widely perceived as unsatisfactory toward a situation or condition of life regarded as materially and spiritually better.

III) AMARTYA SEN'S "CAPABILITY" APPROACH

Amartya Sen, the 1998 Nobel laureate in economics, argues that the **"capability to function"** is what really matters for status as a poor or non poor person. As Sen put it, "Economic growth cannot be sensibly treated as an end in itself. Development has to be more concerned with enhancing the lives we lead and the freedoms we enjoy."

In effect, Sen argues that poverty cannot be properly measured by income or even by utility as conventionally understood; what matters fundamentally is not the things a person has—or the feelings these provide—but what a person is, or can be, and does, or can do. What matters for well-being is not just the characteristics of commodities consumed, as in the utility approach, but what use the consumer can and does make of commodities. For example, a book is of little value to an illiterate person (except perhaps as cooking fuel or as a status symbol).

To make any sense of the concept of human well-being in general, and poverty in particular, we need to think beyond the availability of commodities and consider their use to address what Sen calls **functioning's**, that is, what a person does (or can do) with the commodities of given characteristics that they come to possess or control. Freedom of choice, or control of one's own life, is itself a central aspect of most understandings of well-being.

Sen identifies five sources of disparity between (measured) real incomes and actual advantages:

1. Personal heterogeneities, such as those connected with disability, illness, age, or gender.
2. Environmental diversities, such as heating and clothing requirements in the cold, infectious diseases in the tropics, or the impact of pollution.
3. Variations in social climate, such as the prevalence of crime and violence, and "social capital".
4. Distribution within the family: Economic statistics measure incomes received in a family because it is the basic unit of shared consumption.
5. Differences in relational perspectives.

Thus looking at real income levels or even the levels of consumption of specific commodities cannot suffice as a measure of well-being. One may have a lot of commodities, but these are of little value if they are not what consumer's desire. Indeed, the capacity to maintain valued social relationships and to network leads to what James Foster and Christopher Handy have termed **external capabilities**, which are "abilities to function that are conferred by direct connection or relationship with another person."

As Sen stresses, a person's own valuation of what kind of life would be worthwhile is not necessarily the same as what gives pleasure to that person. If we identify utility with happiness in a particular way, then very poor people can have very high utility. Sometimes even malnourished people either have a disposition that keeps them feeling rather blissful. The **functioning's of a person is an achievement**; it is what the person succeeds in doing with the commodities and characteristics at his or her command.

To clarify this point, in his acclaimed 2009 book The Idea of Justice Sen suggests that subjective well-being is a kind of psychological state of being—a functioning—that could be pursued alongside other functionings such as health and dignity.

Sen defines **capabilities** as:

"The freedom that a person has in terms of the choice of functionings, given his personal features (conversion of characteristics into functionings) and his command over commodities."

Some Important "Beings" and "Doings" in Capability to function are:

- Being able to live long
- Being well-nourished
- Being healthy
- Being literate
- Being well-clothed
- Being mobile
- Being able to take part in the life of the community
- Being happy – as a state of being - may be valued as a functioning

IV) THREE CORE VALUES OF DEVELOPMENT

Three basic components or core values serve as a conceptual basis and practical guideline for understanding the inner meaning of development. These core values—**sustenance**, **self-esteem**, and **freedom**—represent common goals sought by all individuals and societies. Let us therefore examine each in turn.

1- Sustenance: The ability to meet basic needs

"The basic goods and services, such as food, clothing, and shelter, that are necessary to sustain an average human being at the bare minimum level of living"
All people have certain basic needs without which life would be impossible. These life-sustaining basic human needs include food, shelter, health, and protection. When any of these is absent or in critically short supply, a condition of "absolute underdevelopment" exists. A basic function of all economic activity, therefore, is to provide as many people as possible with the means of overcoming the helplessness and misery arising from a lack of food, shelter, health, and protection. To this extent, we may claim that economic development is a necessary condition for the improvement in the quality of life that is development. Rising per capita incomes, the elimination of absolute poverty, greater employment opportunities, and lessening income inequalities therefore constitute the necessary but not the sufficient conditions for development.

2- Self-Esteem: To be a person

"The feeling of worthiness that a society enjoys when its social, political, and economic systems and institutions promote human values such as respect, dignity, integrity, and self determination."
A second universal component of the good life is self-esteem—a sense of worth and self-respect, of not being used as a tool by others for their own ends. All peoples and societies seek some basic form of self-esteem, although they may call it authenticity, identity, dignity, respect, honor, or recognition. However, with the proliferation of the "modernizing values" of developed

nations, many societies in developing countries that have had a profound sense of their own worth suffer from serious cultural confusion when they come in contact with economically and technologically advanced societies. This is because national prosperity has become an almost universal measure of worth. Due to the significance attached to material values in developed nations, worthiness and esteem are nowadays increasingly conferred only on countries that possess economic wealth and technological power—those that have "developed." As Denis Goulet put it, "Development is legitimized as a goal because it is an important, perhaps even an indispensable, way of gaining esteem."

3- Freedom from Servitude: To be able to choose

"A situation in which a society has at its disposal a variety of alternatives from which to satisfy its wants and individuals enjoy real choices according to their preferences."
A third and final universal value that we suggest should constitute the meaning of development is the concept of human freedom. Freedom here is to be understood in the sense of emancipation from alienating material conditions of life and from social servitude to nature, other people, misery, oppressive institutions, and dogmatic beliefs, especially that poverty is predestination. Freedom involves an expanded range of choices for societies and their members together with a minimization of external constraints in the pursuit of some social goal we call development.

THE CENTRAL ROLE OF WOMEN

Globally, women tend to be poorer than men. They are also more deprived in health and education and in freedoms in all its forms. Moreover, women have primary responsibility for child rearing, and the resources that they are able to bring to this task will determine whether the cycle of transmission of poverty from generation to generation will be broken. Children need better health and education, and studies from around the developing world confirm that mothers tend to spend a significantly higher fraction of income under their control for the benefit of their children than fathers do. Women also transmit values to the next generation. To make the biggest impact on development, then, a society must empower and invest in its women.

THE THREE OBJECTIVES OF DEVELOPMENT

We may conclude that development in all societies must have at least the following three objectives:

1) To increase the availability and widen the distribution of basic life-sustaining goods such as food, shelter, health, and protection.
2) To raise levels of living, including, in addition to higher incomes, the provision of more jobs, better education, and greater attention to cultural and human values.
3) To expand the range of economic and social choices available to individuals and nations by freeing them from servitude and dependence on each other.

THE MILLENNIUM DEVELOPMENT GOALS

In September 2000, the 189 member countries of the United Nations at that time adopted eight **Millennium Development Goals (MDGs)**, committing themselves to making substantial progress toward the eradication of poverty and achieving other human development goals by 2015.

Millennium Development Goals (MDGs) are a set of eight goals adopted by the United Nations in 2000: to eradicate extreme poverty and hunger; achieve universal primary education; promote gender equality and empower women; reduce child mortality; improve maternal health; combat HIV/AIDS, malaria, and other diseases; ensure environmental sustainability and develop a global partnership for development. The goals are assigned specific targets to be achieved by 2015.

Sector: A subset (part) of an economy, with four usages in economic development: technology (modern and traditional sectors); activity (industry or product sectors); trade (export sector); and sphere (private and public sectors).

TABLE 1.1 Millennium Development Goals and Targets for 2015

GOALS	TARGETS
1. Eradicate extreme poverty and hunger	• Reduce by half the proportion of people living on less than $1 a day • Reduce by half the proportion of people who suffer from hunger
2. Achieve universal primary education	• Ensure that all boys and girls complete a full course of primary schooling.
3. Promote gender equality and empower	• Eliminate gender disparity in primary and secondary education, women preferably by 2005, and at all levels by 2015
4. Reduce child mortality	• by two-thirds the mortality rate among children under 5
5. Improve maternal health	• Reduce by three-quarters the maternal mortality ratio
6. Combat HIV/AIDS, malaria, and other diseases	• Halt and begin to reverse the spread of HIV/AIDS. • Halt and begin to reverse the incidence of malaria and other major diseases
7. Ensure environmental sustainability	• Integrate the principles of sustainable development into country policies and programs; reverse loss of environmental resources. • Reduce by half the proportion of people without sustainable access to safe drinking water. • Achieve significant improvement in lives of at least 100 million slum dwellers by 2020
8. Develop a global partnership for development	• Develop further an open, rule-based, predictable, nondiscriminatory trading and financial system; includes a commitment to good governance, development, and poverty reduction—both nationally and internationally. • Address the special needs of the least developed countries; includes tariff and quota free access for least developed countries 'exports; enhanced program of

	debt relief for heavily indebted poor countries (HIPCs) and cancellation of official bilateral debt; and more generous official development assistance (ODA) for countries committed to poverty reduction. • Address the special needs of landlocked countries and small island developing states. • Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term. • In cooperation with developing countries, develop and implement strategies for decent and productive work for youth. • In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries. • In cooperation with the private sector, make available the benefits of new technologies, especially information and communications

CONCLUSIONS

- Development economics is a distinct yet very **important extension** of both traditional economics and political economy. While necessarily also concerned with efficient resource allocation and the steady growth of aggregate output over time, development economics focuses primarily on the economic, social, and institutional mechanisms needed to bring about rapid and large-scale improvements in standards of living for the masses of poor people in developing nations.
- Any realistic analysis of development problems necessitates the supplementation of strictly economic variables such as incomes, prices, and savings rates with **equally relevant non-economic institutional factors**, including the nature of land tenure arrangements; the influence of social and class stratifications; the structure of credit, education, and health systems; the organization and motivation of government bureaucracies; the machinery of public administrations; the nature of popular attitudes toward work, leisure, and self-improvement; and the values, roles, and attitudes of political and economic elites.
- **Achieving the Millennium Development Goals** will be an important milestone on the long journey to sustainable and just development. Unfortunately, many of the interim targets are unlikely to be achieved on schedule, nor do they include all of the critical objectives of development.
- Developing nations constitute these “many parts” of the global organism. The nature and character of their future development should therefore be a major concern of all nations irrespective of political, ideological, or economic orientation. There can no longer be two futures, one for the few rich and the other for the very many poor. In the words of a poet, **“There will be only one future—or none at all”**.

Lesson 02

COMPARATIVE ECONOMIC DEVELOPMENT

COMMON CHARACTERISTICS OF DEVELOPING COUNTRIES

These features in common are on average and with great diversity, in comparison with developed countries:

- Lower levels of living and productivity
- Lower levels of human capital
- Higher levels of inequality and absolute poverty
- Higher population growth rates
- Greater social fractionalization
- Larger rural population - rapid migration to cities
- Lower levels of industrialization and manufactured exports
- Adverse geography
- Underdeveloped financial and other markets
- Lingering colonial impacts such as poor institutions and often external dependence.

DEFINING THE DEVELOPING WORLD

The most common way to define the developing world is by per capita income. Several international agencies, including the Organization for Economic Cooperation and Development (OECD) and the United Nations, offer classifications of countries by their economic status, but the best-known system is that of World Bank.

- **World Bank:** An organization known as an "international financial institution" that provides development funds to developing countries in the form of interest-bearing loans, grants, and technical assistance.

In the World Bank's classification system, 210 economies with a population of at least 30,000 are ranked by their levels of gross national income (GNI) per capita. These economies are then classified as:

- Low income countries (LIC's) ($995 or less)
- Lower middle income (LMC'S) ($996 - $3,945)
- Upper middle income (UMC'S) ($3,946 - $12,195)
- High Income: OECD ($12,196 or more)
- High Income: non OECD ($12,196 or more)

KEY CONCEPTS

- **Low-income countries (LICs):** In the World Bank classification, countries with a gross national income per capita of less than $976 in 2008.
- **Middle-income countries:** In the World Bank classification, countries with a GNI per capita between $976 and $11,906 in 2008.
- **Newly industrializing countries (NICs):** Countries at a relatively advanced level of economic development with a substantial and dynamic industrial sector and with close links to the international trade, finance, and investment system.

- **Least developed countries:** A United Nations designation of countries with low income, low human capital, and high economic vulnerability.

With a number of important exceptions, the developing countries are those with low-, lower-middle, or upper-middle incomes. These countries are grouped by their geographic region in Table 2.1, making them easier to identify on the map in Figure 2.1. The most common cutoff points for these categories are those used by the World Bank: Low-income countries are defined as having a per capita gross national income in 2008 of $975 or less; lower-middle-income countries have incomes between $976 and $3,855; upper-middle-income countries have incomes between $3,856 and $11,906; and high-income countries have incomes of $11,907 or more. Comparisons of incomes for several countries are shown graphically in Figure 2.2.

TABLE 2.1 Classification of Economies by Region and Income, 2010

Country	Code	Class
East Asia and the Pacific		
American Samoa‡	ASM	UMC
Cambodia*	KHM	LIC
China	CHN	LMC
Fiji‡	FJI	UMC
Indonesia	IDN	LMC
Kiribati*‡	KIR	LMC
Korea, Dem. Rep. (North)	PRK	LIC
Lao PDR*†	LAO	LIC
Malaysia	MYS	UMC
Marshall Islands‡	MHL	LMC
Micronesia, Fed. Sts.‡	FSM	LMC
Mongolia†	MNG	LMC
Myanmar*	MMR	LIC
Palau‡	PLW	UMC
Papua New Guinea‡	PNG	LMC
Philippines	PHL	LMC
Samoa*‡	WSM	LMC
Solomon Islands*‡	SLB	LMC
Thailand	THA	LMC
Timor-Leste*‡	TLS	LMC
Tonga‡	TON	LMC
Vanuatu*‡	VUT	LMC
Vietnam	VNM	LIC
Europe and Central Asia		
Albania	ALB	LMC
Armenia†	ARM	LMC
Azerbaijan†	AZE	LMC
Belarus	BLR	UMC
Bosnia and Herzegovina	BIH	UMC
Bulgaria	BGR	UMC
Georgia	GEO	LMC
Kazakhstan†	KAZ	UMC
Kosovo	KSV	LMC
Kyrgyz Republic†	KGZ	LIC
Latvia	LVA	UMC
Lithuania	LTU	UMC
Macedonia, FYR†	MKD	UMC
Moldova†	MDA	LMC
Montenegro	MNE	UMC
Poland	POL	UMC
Romania	ROU	UMC
Russian Federation	RUS	UMC
Serbia	SRB	UMC
Tajikistan†	TJK	LIC
Turkey	TUR	UMC
Turkmenistan†	TKM	LMC
Ukraine	UKR	LMC
Uzbekistan†	UZB	LIC
Latin America and the Caribbean		
Argentina	ARG	UMC
Belize‡	BLZ	LMC
Bolivia†	BOL	LMC
Brazil	BRA	UMC
Chile	CHL	UMC
Colombia	COL	UMC
Costa Rica	CRI	UMC
Cuba‡	CUB	UMC
Dominica‡	DMA	UMC
Dominican Republic‡	DOM	UMC
Ecuador	ECU	LMC
El Salvador	SLV	LMC
Grenada‡	GRD	UMC
Guatemala	GTM	LMC
Guyana‡	GUY	LMC
Haiti*‡	HTI	LIC
Honduras	HND	LMC
Jamaica‡	JAM	UMC
Mexico	MEX	UMC
Nicaragua	NIC	LMC
Panama	PAN	UMC
Paraguay†	PRY	LMC
Peru	PER	UMC
St. Kitts and Nevis‡	KNA	UMC
St. Lucia‡	LCA	UMC
St. Vincent and the Grenadines‡	VCT	UMC
Suriname‡	SUR	UMC
Uruguay	URY	UMC
Venezuela, RB	VEN	UMC
Middle East and North Africa		
Algeria	DZA	UMC
Djibouti*	DJI	LMC
Egypt, Arab Rep.	EGY	LMC
Iran, Islamic Rep.	IRN	LMC
Iraq	IRQ	LMC
Jordan	JOR	LMC
Lebanon	LBN	UMC
Libya	LBY	UMC
Morocco	MAR	LMC
Syrian Arab Rep.	SYR	LMC
Tunisia	TUN	LMC
West Bank and Gaza	WBG	LMC
Yemen, Rep.*	YEM	LIC
South Asia		
Afghanistan*†	AFG	LIC
Bangladesh*	BGD	LIC
Bhutan*†	BTN	LMC
India	IND	LMC
Maldives*‡	MDV	LMC
Nepal*†	NPL	LIC
Pakistan	PAK	LMC
Sri Lanka	LKA	LMC
Sub-Saharan Africa		
Angola*	AGO	LMC
Benin*	BEN	LIC
Botswana†	BWA	UMC
Burkina Faso*†	BFA	LIC
Burundi*†	BDI	LIC
Cameroon	CMR	LMC
Cape Verde‡	CPV	LMC
Central African Rep.*†	CAF	LIC
Chad*†	TCD	LIC
Comoros*‡	COM	LIC
Congo, Dem. Rep.*	COD	LIC
Congo, Rep.	COG	LMC
Côte d'Ivoire	CIV	LMC
Eritrea*	ERI	LIC
Ethiopia*†	ETH	LIC
Gabon	GAB	UMC
Gambia, The*	GMB	LIC
Ghana	GHA	LIC
Guinea*	GIN	LIC
Guinea-Bissau*‡	GNB	LIC
Kenya	KEN	LIC
Lesotho*†	LSO	LMC
Liberia*	LBR	LIC
Madagascar*	MDG	LIC
Malawi*†	MWI	LIC
Mali*†	MLI	LIC
Mauritania*	MRT	LIC
Mauritius‡	MUS	UMC
Mayotte	MYT	UMC
Mozambique*	MOZ	LIC
Namibia	NAM	UMC
Niger*†	NER	LIC
Nigeria	NGA	LMC
Rwanda*†	RWA	LIC
Sao Tome and Principe*‡	STP	LMC
Senegal*	SEN	LIC
Seychelles‡	SYC	UMC
Sierra Leone*	SLE	LIC
Somalia*	SOM	LIC
South Africa	ZAF	UMC
Sudan*	SDN	LMC
Swaziland†	SWZ	LMC
Tanzania*	TZA	LIC
Togo*	TGO	LIC
Uganda*†	UGA	LIC
Zambia*†	ZMB	LIC
Zimbabwe†	ZWE	LIC

TABLE 2.1 *(Continued)*

Country	Code	Class	Country	Code	Class	Country	Code	Class
High-Income OECD Countries			Spain	ESP		Guam‡	GUM	
Australia	AUS		Sweden	SWE		Hong Kong, China	HKG	
Austria	AUT		Switzerland	CHE		Isle of Man	IMN	
Belgium	BEL		United Kingdom	GBR		Israel	ISR	
Canada	CAN		United States	USA		Kuwait	KWT	
Czech Rep.	CZE		**Other High-Income Economies**			Liechtenstein	LIE	
Denmark	DNK		Andorra	AND		Macao, China	MAC	
Finland	FIN		Antigua and Barbuda‡	ATG		Malta	MLT	
France	FRA		Aruba‡	ABW		Monaco	MCO	
Germany	DEU		Bahamas, The‡	BHS		Netherlands Antilles‡	ANT	
Greece	GRC		Bahrain‡	BHR		New Caledonia‡	NCL	
Hungary	HUN		Barbados‡	BRB		Northern Mariana Islands‡	MNP	
Iceland	ISL		Bermuda	BMU		Oman	OMN	
Ireland	IRL		Brunei Darussalam	BRN		Puerto Rico‡	PRI	
Italy	ITA		Cayman Islands	CYM		Qatar	QAT	
Japan	JPN		Channel Islands	CHI		San Marino	SMR	
Korea, Rep. (South)	KOR		Croatia	HRV		Saudi Arabia	SAU	
Luxembourg	LUX		Cyprus	CYP		Singapore‡	SGP	
Netherlands	NLD		Estonia	EST		Slovenia	SVN	
New Zealand	NZL		Equatorial Guinea*	GNQ		Taiwan, China	TWN	
Norway	NOR		Faeroe Islands	FRO		Trinidad and Tobago‡	TTO	
Portugal	PRT		French Polynesia‡	PYF		United Arab Emirates	ARE	
Slovak Republic	SVK		Greenland	GRL				

* least developed countries
† landlocked developing countries
‡ small island developing states

Source: Data from World Bank, *World Development Indicators*, 2010 (Washington, D.C.: World Bank, 2010) and WDI online; United Nations; and http://www.iso.org.



Figure 2.1 Nations of the World, Classified by GNI Per

BASIC INDICATORS OF DEVELOPMENT: REAL INCOME, HEALTH, AND EDUCATION

PURCHASING POWER PARITY

In accordance with the World Bank's income-based country classification scheme, **gross national income (GNI)** per capita, the most common measure of the overall level of economic activity, is often used as a summary index of the relative economic well-being of people in different nations. It is calculated as the total domestic and foreign **value added** claimed by a country's residents without making deductions for **depreciation** (or wearing out) of the domestic **capital stock**. **Gross domestic product (GDP)** measures the total value for final use of output produced by an economy, by both residents and nonresidents.

- **Gross national income (GNI)**: The total domestic and foreign output claimed by residents of a country, consisting of gross domestic product (GDP) plus factor incomes earned by foreign residents, minus income earned in the domestic economy by nonresidents.
- **Value added:** The portion of a product's final value that is added at each stage of production.
- **Depreciation (of the capital stock):** The wearing out of equipment, buildings, infrastructure, and other forms of capital, reflected in write-offs to the value of the capital stock.
- **Capital stock:** The total amount of physical goods existing at a particular time that have been produced for use in the production of other goods and services.
- **Gross domestic product (GDP):** The total final output of goods and services produced by the country's economy within the country's territory by residents and nonresidents, regardless of its allocation between domestic and foreign claims.

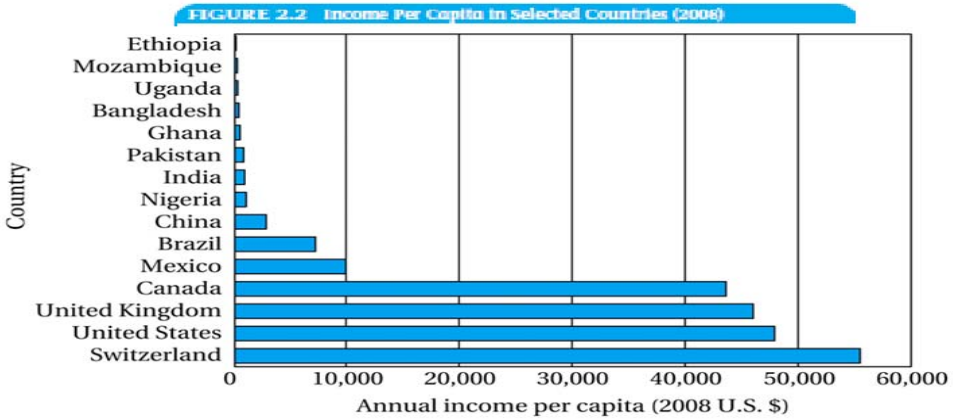
WHAT IS PPP?

- **Purchasing power parity** is defined as the number of units of a foreign country's currency required to purchase the identical quantity of goods and services in the local developing country market as $1 would buy in the United States.

Or

- Calculation of GNI using a common set of international prices for all goods and services, to provide more accurate comparisons of living standards.

Table 2.2 provides a comparison of exchange-rate and PPP GNI per capita for 26 countries, eight each from Africa, Asia, and Latin America, plus the United Kingdom and United States.
Table 2.3 broadens these comparisons to include regions and income groupings, as well as six illustrative country examples at ascending income levels, along with basic health and education indicators.



Country	GNI Per Capita (U.S. $) Exchange Rate	Purchasing Power Parity
Argentina	7,190	13,990
Bangladesh	520	1,450
Brazil	7,300	10,070
Burundi	140	380
Cameroon	1,150	2,170
Chile	9,370	13,240
China	2,940	6,010
Costa Rica	6,060	10,950
Ghana	630	1,320
Guatemala	2,680	4,690
India	1,040	2,930
Indonesia	1,880	3,590
Kenya	730	1,550
Malawi	280	810
Malaysia	7,250	13,730
Mexico	9,990	14,340
Nicaragua	1,080	2,620
Sierra Leone	320	770
South Korea	21,530	27,840
Sri Lanka	1,780	4,460
Thailand	3,670	7,760
Uganda	420	1,140
United Kingdom	46,040	36,240
United States	47,930	48,430
Venezuela	9,230	12,840
Zambia	950	1,230

Source: Data from World Bank, *World Development Indicators, 2010* (Washington, D.C.: World Bank, 2010) tab. 1.1.

Table 2.2 A Comparison of Per Capita GNI, 2008

Table 2.3 Commonality and Diversity: Some Basic Indicators

Country or Group	2008 Income Per Capita (U.S. $)	2008 PPP Per Capita (U.S. $)	2008 Life Expectancy (years)	Prevalence of Undernourishment[a] (%)	2007 Under-5 Mortality per 1,000 Live Births	2008 Crude Birth Rate	Adult Literacy[b] Male	Female
Income Group								
Low	523	1,354	59	30	118	32	76	63
Lower middle	2,073	4,589	68	15	64	20	87	73
Upper middle	7,852	12,208	71	6	23	17	95	92
High	39,687	37,665	80	5	7	12		
Country								
Dem. Rep. Congo (LIC)	150	280	48	75	199	45	78	56
India (LMC)	1,040	2,930	64	22	69	23	75	51
Egypt (LMC)	1,800	5,470	70	<5	25	25	75	58
Brazil (UMC)	7,300	10,070	72	6	22	16	90	90
Malaysia (UMC)	7,250	13,730	74	<5	6	20	99	94
United States (high-income)	47,930	48,430	78	<5	8	14		
Region								
East Asia and the Pacific	2,644	10,461	72	12	29	14	96	90
Latin America and the Caribbean	6,768	10,312	73	9	23	19	92	91
Middle East and North Africa	3,237	7,343	71	7	34	24	82	65
South Asia	963	2,695	64	22	76	24	73	50
Sub-Saharan Africa	1,077	1,949	52	28	144	38	74	57
Europe and Central Asia	7,350	11,953	70	6	22	14	99	97

HOLISTIC MEASURES OF LIVING LEVELS AND CAPABILITIES

I) THE TRADITIONAL HUMAN DEVELOPMENT INDEX

The most widely used measure of the comparative status of socioeconomic development is presented by the United Nations Development Program (UNDP) i.e. Human development Index (HDI).

Human Development Index (HDI): An index measuring national socioeconomic development, based on combining measures of education, health, and adjusted real income per capita.

The HDI attempts to rank all countries on a scale of 0 (lowest human development) to 1 (highest human development) based on three goals or end products of development.

1. Longevity as measured by **life expectancy** at birth.

$$\text{Life Expectancy Index} = \frac{\text{Current Life expectancy} - 25}{85 - 25}$$

2. Knowledge as measured by a weighted average of adult literacy (two-thirds) and gross school enrollment ratio (one third).

$$\text{Education Index} = \frac{2}{3}(\text{Adult literacy index}) + \frac{1}{3}(\text{Gross enrollment index})$$

3. Standard of living as measured by real per capita gross domestic product adjusted for the differing purchasing power parity of each country's currency to reflect cost of living and for the assumption of **diminishing marginal utility** of income.

$$\text{Income Index} = \left[\frac{\log(\text{current percapital income}) - \log 100}{\log(40000) - \log 100}\right]$$

Diminishing Marginal Utility: The concept that the subjective value of additional consumption lessens as total consumption becomes higher.

Using these three measures of development and applying a formula to data for 177 countries, the HDI ranks countries into four groups: low human development (0.0 to 0.499), medium human development (0.50 to 0.799), high human development (0.80 to 0.90), and very high human development (0.90 to 1.0).
In the final index, each of the three components receives equal, or one-third, weight. Thus

$$HDI = \frac{1}{3}(\text{income index}) + \frac{1}{3}(\text{life expectancy index}) + \frac{1}{3}(\text{education index})$$

ADVANTAGES OF HDI

- One major advantage of the HDI is that it does reveal that a country can do much better than might be expected at a low level of income and that substantial income gains can still accomplish relatively little in human development.
- The HDI points up that, disparities in income are greater than disparities in other indicators of development, at least health and education.

- The HDI reminds us that by development we clearly mean broad human development, not just higher income.

DRAWBACKS OF HDI

- Gross enrollment in many cases overstates the amount of schooling because in many countries a student who begins primary school is counted as enrolled without considering whether the student drops out at some stage.
- Equal (one third) weight is given to each of the three components, which clearly has some value judgment behind it, but it is difficult to determine what this is. Note that because the variables are measured in very different types of units, it is difficult even to say precisely what equal weights mean.
- Finally, there is no attention to the role of quality for example the quality of schooling counts, not just the number of years of enrollment.

Table 2.4 shows the 2009 Human Development Index (using 2007 data) for a sample of 24 developed and developing nations ranked from low to very human development (column 3) along with their respective real GDP per capita (column 4) and a measure of the differential between the GDP per capita rank and the HDI rank (column 5). A positive number shows by how much a country's relative ranking rises when HDI is used instead of GDP per capita, and a negative number shows the opposite. We see from Table 2.4 that the country with the lowest HDI (0.340) in 2007 was Niger, and the one with the highest (0.971) was Norway.

Country	Relative Ranking	Human Development Index (HDI)	GDP Per Capita (PPP, U.S. $)	GDP Rank minus HDI Rank
Low Human Development				
Niger	182	0.340	627	−6
Afghanistan	181	0.352	1,054	−17
Dem. Rep. Congo	176	0.389	298	5
Ethiopia	171	0.414	779	0
Rwanda	167	0.460	866	1
Côte d'Ivoire	163	0.484	1,690	−17
Malawi	160	0.493	761	12
Medium Human Development				
Bangladesh	146	0.543	1,241	9
Pakistan	141	0.572	2,496	−9
India	134	0.612	2,753	−6
South Africa	129	0.683	9,757	−51
Nicaragua	124	0.699	2,570	6
Gabon	103	0.755	15,167	−49
China	92	0.772	5,383	10
Iran	88	0.782	10,955	−17
Thailand	87	0.783	8,135	−5
High Human Development				
Saudi Arabia	59	0.843	22,935	−19
Costa Rica	54	0.854	10,842	19
Cuba	51	0.863	6,876	44
Chile	44	0.878	13,880	15
Very High Human Development				
United Kingdom	21	0.947	35,130	−1
United States	13	0.956	45,592	−4
Canada	4	0.966	35,812	14
Norway	1	0.971	53,433	4

For the countries in Table 2.5 with GDP per capita near $2,000, the HDI ranges, from 0.511 to 0.710. Life expectancy ranges from 48 to 68. The literacy rate ranges from 56% to 99%. For countries listed in Table 2.5 with GDP per capita near $4,000, the HDI index ranges from 0.654 to 0.768. Life expectancy ranges from 65 to 74, and literacy rates range strikingly from 56% in Morocco to essentially universal literacy in Tonga. These dramatic differences show that the Human Development Index project is worthwhile. Ranking countries

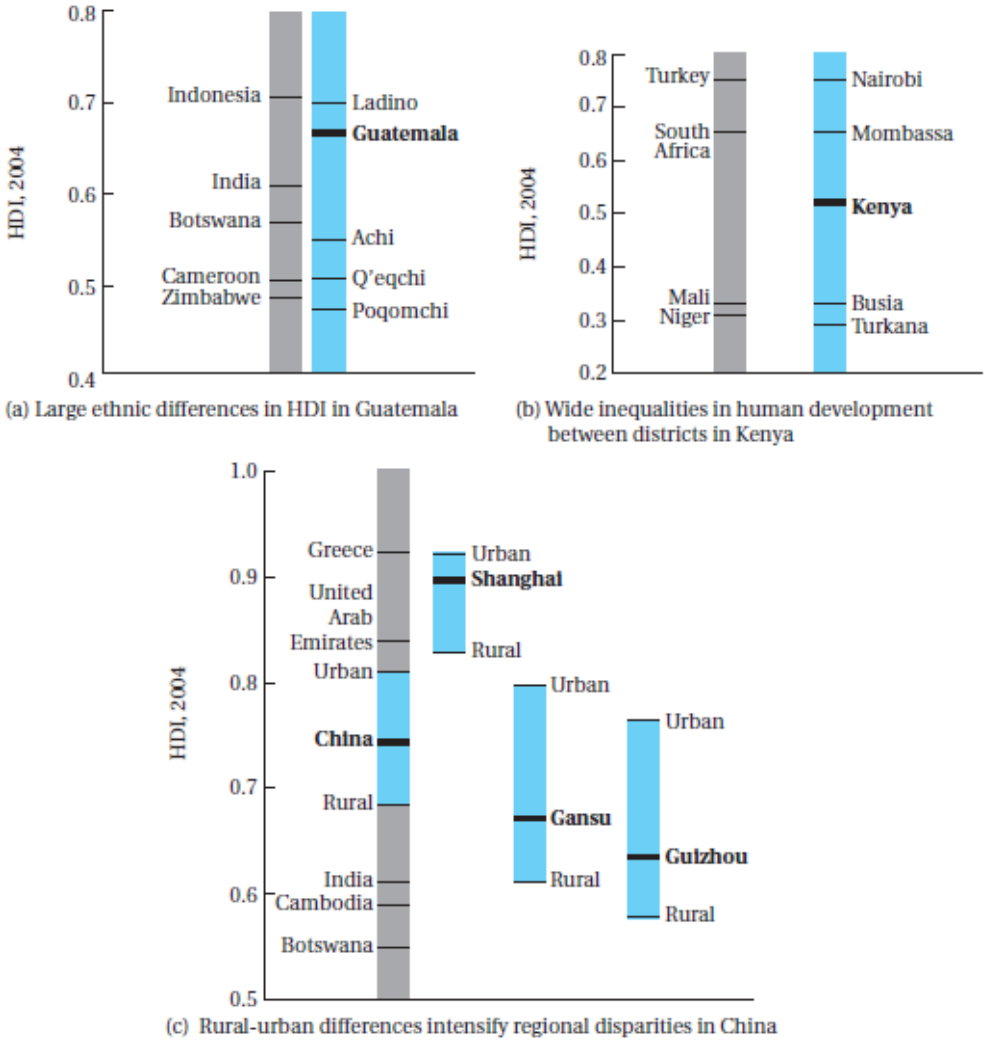
Tabl)

Country	GDP Per Capita (U.S. $)	HDI	HDI Rank	Life Expectancy (years)	Adult Literacy (%)	Combined Gross Enrollment Ratio
GDP Per Capita near PPP $1,000						
Madagascar	932	0.543	145	59.9	70.7	61.3
Haiti	1,140	0.532	149	61.0	62.1	52.1
Rwanda	866	0.460	167	49.7	64.9	52.2
Mali	1,083	0.371	178	48.1	26.2	46.9
Afghanistan	1,054	0.352	181	43.6	28.0	50.1
GDP Per Capita near PPP $1,500						
Kenya	1,542	0.541	147	53.6	73.6	59.6
Ghana	1,334	0.526	152	56.5	65.0	56.5
Côte d'Ivoire	1,690	0.484	163	56.8	48.7	37.5
Senegal	1,666	0.464	166	55.4	41.9	41.2
Chad	1,477	0.392	175	48.6	31.8	36.5
GDP Per Capita near PPP $2,000						
Kyrgyzstan	2,006	0.710	120	67.6	99.3	77.3
Laos	2,165	0.619	133	64.6	72.7	59.6
Cambodia	1,802	0.593	137	60.6	76.3	58.5
Sudan	2,086	0.531	150	57.9	60.9	39.9
Cameroon	2,128	0.523	153	50.9	67.9	52.3
Mauritania	1,927	0.520	154	56.6	55.8	50.6
Nigeria	1,969	0.511	158	47.7	72.0	53.0
GDP Per Capita near PPP $4,000						
Tonga	3,748	0.768	99	71.7	99.2	78.0
Sri Lanka	4,243	0.759	102	74.0	90.8	68.7
Honduras	3,796	0.732	112	72.0	83.6	74.8
Bolivia	4,206	0.729	113	65.4	90.7	86.0
Guatemala	4,562	0.704	122	70.1	73.2	70.5
Morocco	4,108	0.654	130	71.0	55.6	61.0

Table 2.5 2009 Human Development Index Variations for Similar Incomes (2007 Data)

only by income—or for that matter only by health or education—causes us to miss important differences in countries' development levels.
The HDI also ranges greatly for groups within countries. The impact of social exclusion can be seen vividly in Guatemala, where the Q'eqchi ethnic group had an HDI rank similar to Cameroon, and the Poqomchi ranked below Zimbabwe, as seen in Figure 2.3a. Regional differences across districts can be seen in Kenya, where the HDI of the capital area of Nairobi ranks as high as Turkey, but Kenya's Turkana district's HDI is lower than that of any country average, as shown in Figure 2.3b. Rural-urban differences are illustrated with the case of China, where as Figure 2.3c shows, urban Shanghai's HDI was nearly as high as that of Greece, while rural Gansu has an HDI on a par with India, and the HDI of rural Guizhou is below that of Cambodia. An earlier UN study found similarly that in South Africa whites enjoy a high HDI level while that for blacks was much lower.

II) THE NEW HUMAN DEVELOPMENT INDEX



(a) Large ethnic differences in HDI in Guatemala

(b) Wide inequalities in human development between districts in Kenya

(c) Rural-urban differences intensify regional disparities in China

Figure 2.3 Human Development Disparities within Selected Countries

In November 2010, the UNDP introduced its New Human Development Index (NHDI), intended to address some of the criticisms of the HDI.

WHAT IS NEW IN THE NEW HDI?

1. Calculating with a geometric mean:

- Probably most consequential: The index is now computed with a geometric mean, instead of an arithmetic mean.
- A geometric mean is also used to build up the overall education index from its two components.
- Traditional HDI added the three components and divided by 3.
- New HDI takes the cube root of the product of the three component indexes.
- The traditional HDI calculation assumed one component traded off against another as perfect substitutes, a strong assumption.
- The reformulation now allows for imperfect substitutability.

2. Other key changes:

- Gross national income per capita replaces gross domestic product per capita.
- Revised education components: now using the average actual educational attainment of the whole population, and the expected attainment of today's children.
- The maximum values in each dimension have been increased to the observed maximum rather than given a predefined cutoff.
- The lower goalpost for income has been reduced due to new evidence on lower possible income levels.

COMPUTING THE NHDI

The use of a geometric mean in the NHDI is very important. When using an arithmetic mean (adding up the component indexes and dividing by three) in the HDI, the effect is to assume perfect substitutability across income, health, and education.
So in the NHDI, instead of adding up the health, education, and income indexes and dividing by 3, the NHDI is calculated with the geometric mean:

$$NHDI = H^{\frac{1}{3}}E^{\frac{1}{3}}I^{\frac{1}{3}}$$

Where H stands for the health index, E stands for the education index, and I stands for the income index.

Table 2.6 The 2010 New Human Development Index (NHDI), 2008 Data

NHDI rank	NHDI Value	Life Expectancy at Birth (years)	Mean Years of Schooling (years)	Expected Years of Schooling (years)	GNI Per Capita (PPP 2008 $)	GNI Per Capita Rank Minus NHDI Rank	Non-income NHDI Value
Very High Human Development							
Norway (1)	0.938	81.0	12.6	17.3	58,810	2	0.954
United States (4)	0.902	79.6	12.4	15.7	47,094	5	0.917
Canada (8)	0.888	81.0	11.5	16.0	38,668	6	0.913
South Korea (12)	0.877	79.8	11.6	16.8	29,518	16	0.918
United Kingdom (26)	0.849	79.8	9.5	15.9	35,087	−6	0.860
Qatar (38)	0.803	76.0	7.3	12.7	79,426	−36	0.737
High Human Development							
Chile (45)	0.783	78.8	9.7	14.5	13,561	11	0.840
Costa Rica (62)	0.725	79.1	8.3	11.7	10,870	7	0.768
Brazil (73)	0.699	72.9	7.2	13.8	10,607	−3	0.728
Medium Human Development							
Dominican Rep. (88)	0.663	72.8	6.9	11.9	8,273	−9	0.695
China (89)	0.663	73.5	7.5	11.4	7,258	−4	0.707
Botswana (98)	0.633	55.5	8.9	12.4	13,204	−38	0.613
Indonesia (108)	0.600	71.5	5.7	12.7	3,957	2	0.663
South Africa (110)	0.597	52.0	8.2	13.4	9,812	−37	0.581
Tajikistan (112)	0.580	67.3	9.8	11.4	2,020	22	0.709
Vietnam (113)	0.572	74.9	5.5	10.4	2,995	7	0.646
Guatemala (116)	0.560	70.8	4.1	10.6	4,694	−13	0.583
India (119)	0.519	64.4	4.4	10.3	3,337	−6	0.549
Pakistan (125)	0.490	67.2	4.9	6.8	2,678	−4	0.523
Low Human Development							
Kenya (128)	0.470	55.6	7.0	9.6	1,628	10	0.541
Bangladesh (129)	0.469	66.9	4.8	8.1	1,587	12	0.543
Ghana (130)	0.467	57.1	7.1	9.7	1,385	14	0.556
Madagascar (135)	0.435	61.2	5.2	10.2	953	22	0.550
Papua New Guinea (137)	0.431	61.6	4.3	5.2	2,227	−10	0.447
Haiti (145)	0.404	61.7	4.9	6.8	949	13	0.493
Angola (146)	0.403	48.1	4.4	4.4	4,941	−47	0.353
Côte d'Ivoire (149)	0.397	58.4	3.3	6.3	1,625	−10	0.420
Afghanistan (155)	0.349	44.6	3.3	8.0	1,419	−12	0.358
Ethiopia (157)	0.328	56.1	1.5	8.3	992	−2	0.357
Dem. Rep. of Congo (168)	0.239	48.0	3.8	7.8	291	0	0.390
Zimbabwe (169)	0.140	47.0	7.2	9.2	176	0	0.472

Table 2.6 shows the 2010 values of the NHDI for a set of 31 countries. South Korea has achieved the status of a fully developed country, ranking between Japan and Switzerland. Countries such as Qatar, Guatemala, Côte d'Ivoire, Angola, and South Africa perform more poorly on the NHDI than would be predicted from their income level, while the reverse is true of South Korea, Chile, Bangladesh, Madagascar, and Ghana.

Lesson 03

COMPARATIVE ECONOMIC DEVELOPMENT (CONTINUED)

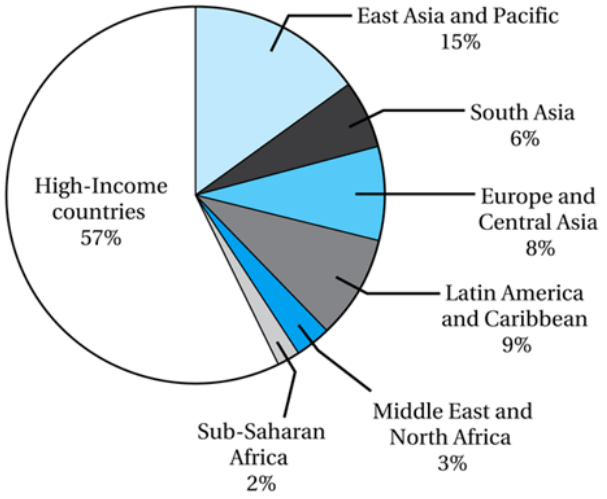
CHARACTERISTICS OF THE DEVELOPING WORLD: DIVERSITY WITHIN COMMONALITY

This section examines the ten major areas of "diversity within commonality" in the developing world.

1. LOWER LEVELS OF LIVING AND PRODUCTIVITY

There is a vast gulf in productivity between advanced economies such as the United States and developing nations, including India and the Democratic Republic of Congo but also a wide range among these and other developing countries. And as we have seen, all countries with averages below what is defined as high income are considered developing in most taxonomies. Even when adjusted for purchasing power parity and despite extraordinary recent growth in China and India, the low- and middle-income developing nations, with more than five-sixths (84%) of the world's people, received slightly more than two-fifths (41%) of the world's income in 2008, as seen in Figure 2.4.

Fig 2.4: Shares of Global Income, 2008



At very low income levels, in fact, a vicious circle may set in, whereby low-income leads to low investment in education and health as well as plant and equipment and infrastructure, which in turn leads to low productivity and economic stagnation. This is known as a poverty trap or what Nobel laureate Gunnar Myrdal called "circular and cumulative causation".

TABLE 2.7 The 12 Most and Least Populated Countries and Their Per Capita Income, 2008

Most Populous	Population (millions)	GNI Per Capita (U.S. $)	Least Populous[a]	Population (thousands)	GNI Per Capita (U.S. $)
1. China	1,325	2,940	1. Palau	20	8,630
2. India	1,140	1,040	2. St. Kitts and Nevis	49	10,870
3. United States	304	47,930	3. Marshall Islands	60	3,270
4. Indonesia	227	1,880	4. Dominica	73	4,750
5. Brazil	192	7,300	5. Antigua and Barbuda	87	13,200
6. Pakistan	166	950	6. Seychelles	87	10,220
7. Bangladesh	160	520	7. Kiribati	97	2,040
8. Nigeria	151	1,170	8. Tonga	104	2,690
9. Russian Federation	142	9,660	9. Grenada	104	5,880
10. Japan	128	38,130	10. St. Vincent and the Grenadines	109	5,050
11. Mexico	106	9,990	11. Micronesia	110	2,460
12. Philippines	90	1,890	12. São Tomé and Príncipe	160	1,030

The 12 most populous countries include representatives of all four categories: low-, lower-middle-, upper-middle-, and high-income countries (see Table 2.7). The 12 least populous on the list include primarily lower-middle and upper-middle-income countries, although the 12th least populous country, São Tomé and Príncipe, has a per capita income of just $1,030. And

four very small but high-income European countries that are UN members (Andorra, Monaco, Liechtenstein, and San Marino) would appear on the list if comparable World Bank income data were available.

2. LOWER LEVELS OF HUMAN CAPITAL (HEALTH, EDUCATION, SKILLS)

Human capital—health, education, and skills—is vital to economic growth and human development.
The under-5 mortality is 17 times higher in low-income countries than in high-income countries, although progress has been made since 1990, as shown graphically in Figure 2.5.

FIGURE 2.5 Under-5 Mortality Rates, 1990 and 2005

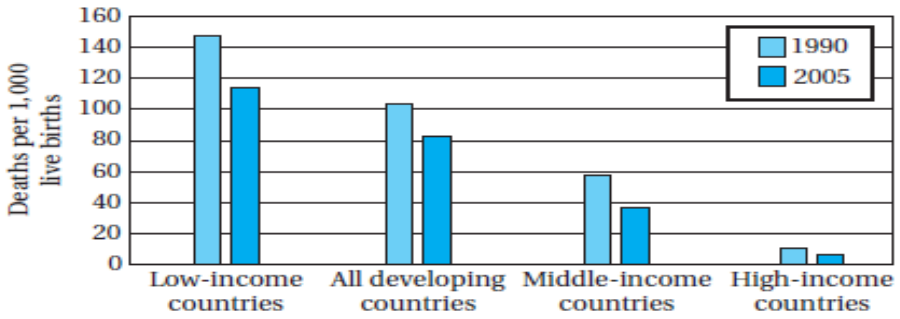


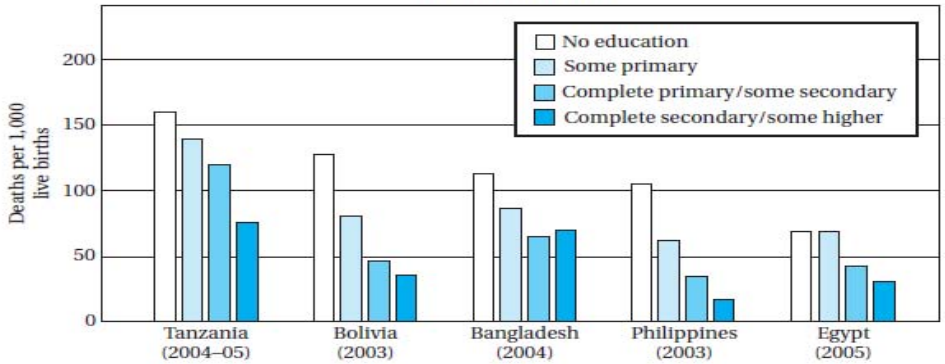
Table 2.8 shows primary enrollment rates (percentage of students of primary age enrolled in school) and the primary school pupil-to-teacher ratio for the four country income groups and for five major developing regions.

Moreover, there are strong synergies (complementarities) between progress in health and education. For example, under-5 mortality rates improve as mothers' education levels rise, as seen in the country examples in Figure 2.6.

TABLE 2.8 Primary School Enrollment and Pupil-Teacher Ratios, 2010

Region or Group	Net Primary School Enrollment (%)	Primary Pupil-Teacher Ratio
Income Group		
Low	80	45
Lower Middle	87	23[a]
Upper Middle	94	22
High	95	15
Region		
East Asia and Pacific	93[a]	19
Latin America and the Caribbean	94	25
Middle East and North Africa	91	24
South Asia	86	40[a]
Sub-Saharan Africa	73	49
Europe and Central Asia	92	16

FIGURE 2.6 Correlation between Under-5 Mortality and Mother's Education



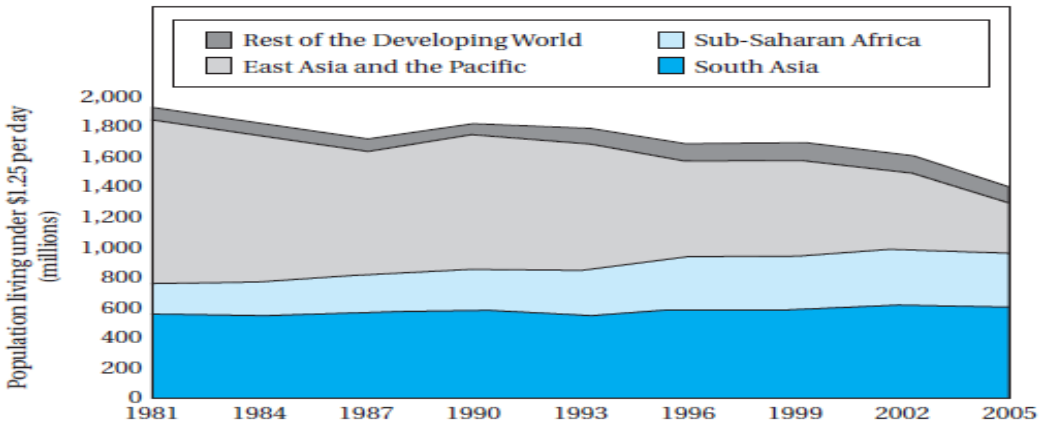
3. HIGHER LEVELS OF INEQUALITY AND ABSOLUTE POVERTY

Globally, the poorest 20% of people receive just 1.5% of world income. The lowest 20% now roughly corresponds to the approximately 1.4 billion people living in extreme poverty on less than $1.25 per day at purchasing power parity. Bringing the incomes of those living on less than $1.25 per day up to this minimal poverty line would require less than 2% of the incomes of the world's wealthiest 10%. Thus the scale of global inequality is immense.

But the enormous gap in per capita incomes between rich and poor nations is not the only manifestation of the huge global economic disparities. To appreciate the breadth and depth of deprivation in developing countries, it is also necessary to look at the gap between rich and poor within individual developing countries. Very high levels of inequality—extremes in the relative incomes of higher- and lower-income citizens—are found in many middle income countries, partly because Latin American countries historically tend to be both middle-income and highly unequal.

Absolute poverty: The situation of being unable or only barely able to meet the subsistence essentials of food, clothing, shelter, and basic health care.
Figure 2.7 shows that the number of people living on less than $1.25 per day has fallen from about 1.9 billion in 1981 to about 1.4 billion in 2005; this is despite a more than 40% increase in world population.

FIGURE 2.7 Number of People Living in Poverty by Region, 1981–2005



4. HIGHER POPULATION GROWTH RATES

Global population has skyrocketed since the beginning of the industrial era, from just under 1 billion in 1800 to 1.65 billion in 1900 and to over 6 billion by 2000. in recent decades, most population growth has been centered in the developing world. Compared with the developed countries, which often have birth rates near or even below replacement (zero population growth) levels, the low-income developing countries have very high birth rates. More than five sixths of all the people in the world now live in developing countries.

TABLE 2.9 Crude Birth Rates Around the World, 2009

45+	Afghanistan, Angola, Burkina Faso, Dem. Rep. of Congo, Niger, Somalia, Uganda, Zambia
40–44	Benin, Mali, Nigeria, Rwanda, Sierra Leone, Timor-Leste
35–39	Côte d'Ivoire, Ethiopia, Kenya, Madagascar, Senegal
30–34	Comoros, Ghana, Guatemala, Pakistan, Papua New Guinea, Sudan, Zimbabwe
25–29	Bolivia, Cambodia, Egypt, Paraguay, Philippines, Saudi Arabia
20–24	Algeria, Dominican Republic, India, Mexico, Peru, South Africa
15–19	Argentina, Brazil, Costa Rica, Sri Lanka, Vietnam
10–14	China, Cuba, Hungary, United Kingdom, United States
<10	Austria, Germany, Japan, South Korea, Serbia, Taiwan

The very wide range of **crude birth rates** around the world is illustrated in Table 2.9. As of 2010, the average rate of population growth was about 1.4% in the developing countries.

- **Crude birth rate:** The number of children born alive each year per 1,000 population.

A major implication of high birth rates is that the active labor force has to support proportionally almost twice as many children as it does in richer countries. By contrast, the proportion of people over the age of 65 is much greater in the developed nations. Both older people and children are often referred to as an **economic dependency burden.**

- **Dependency burden:** The proportion of the total population aged 0 to 15 and 65+, which is considered economically unproductive and therefore not counted in the labor force.

5. GREATER SOCIAL FRACTIONALIZATION

Low-income countries often have ethnic, linguistic, and other forms of social divisions, sometimes known as **fractionalization.** This is sometimes associated with civil strife and even violent conflict, which can lead developing societies to divert considerable energies to working for political accommodations if not national consolidation. It is one of a variety of governance challenges many developing nations face.

- **Fractionalization:** Significant ethnic, linguistic, and other social divisions within a country.

The greater the ethnic, linguistic, and religious diversity of a country, the more likely it is that there will be internal strife and political instability. Some of the most successful development experiences—South Korea, Taiwan, Singapore, and Hong Kong—have occurred in culturally homogeneous societies.

6. LARGER RURAL POPULATIONS BUT RAPID RURAL-TO-URBAN MIGRATION

One of the hallmarks of economic development is a shift from agriculture to manufacturing and services. In developing countries, a much higher share of the population lives in rural areas, as seen in Table 2.10. Although modernizing in many regions, rural areas are poorer and tend to suffer from missing markets, limited information, and social stratification. A massive population shift is also under way as hundreds of millions of people are moving from rural to urban areas, fueling rapid urbanization, with its own attendant problems.

TABLE 2.10 The Urban Population in Developed Countries and Developing Regions

Region	Population (millions, 2009)	Urban Share (%)
World	6,810	50
More developed countries	1,232	75
Less developed countries	5,578	44
Sub-Saharan Africa	836	35
Northern Africa	205	50
Latin America and the Caribbean	580	77
Western Asia	231	64
South-central Asia	1,726	31
Southeast Asia	597	43
East Asia	1,564	51
Eastern Europe	295	69

7. LOWER LEVELS OF INDUSTRIALIZATION AND MANUFACTURED EXPORTS

One of the most widely used terminologies for the original Group of Seven (G7) countries29 and other advanced economies such as smaller European countries and Australia is the “industrial countries.” Industrialization is associated with high productivity and incomes and has been a hallmark of modernization and national economic power. It is no accident that most developing-country governments have made industrialization a high national priority, with a number of prominent success stories in Asia. Table 2.11 shows the structure of employment of men and women and value-added in the agricultural, industrial, and service sectors. Along with lower industrialization, developing nations have tended to have a higher dependence on primary exports. Most developing countries have diversified away from agricultural and mineral exports to some degree.

TABLE 2.11 Share of the Population Employed in the Industrial Sector in Selected Countries, 2004–2008 (%)

	Agriculture			Industry			Services		
	Males	Females	Share of GDP (2008)	Males	Females	Share of GDP (2008)	Male	Female	Share of GDP (2008)
Africa									
Egypt	28	43	13	26	6	38	46	51	49
Ethiopia	12	6	44	27	17	13	61	77	42
Madagascar	82	83	25	5	2	17	13	16	57
Mauritius	10	8	4	36	26	29	54	66	67
South Africa	11	7	3	35	14	34	54	80	63
Asia									
Bangladesh	42	68	19	15	13	29	43	19	52
Indonesia	41	41	14	21	15	48	38	44	37
Malaysia	18	10	10	32	23	48	51	67	42
Pakistan	36	72	20	23	13	27	41	15	53
Philippines	44	24	15	18	11	32	39	65	53
South Korea	7	8	3	33	16	37	60	74	60
Thailand	43	40	12	22	19	44	35	41	44
Vietnam	56	60	22	21	14	40	23	26	38
Latin America									
Colombia	27	6	9	22	16	36	51	78	55
Costa Rica	18	5	7	28	13	29	54	82	64
Mexico	19	4	4	31	18	37	50	77	59

8. ADVERSE GEOGRAPHY

Many analysts argue that geography must play some role in problems of agriculture, public health, and comparative underdevelopment more generally. Landlocked economies, common in Africa, often have lower incomes than coastal economies.
The extreme case of favorable physical resource endowment is the oil-rich Persian Gulf states. At the other extreme are countries like Chad, Yemen, Haiti, and Bangladesh, where endowments of raw materials and minerals and even fertile land are relatively minimal.

- **Resource endowment:** A nation's supply of usable factors of production including mineral deposits, raw materials, and labor.

Clearly, geography is not destiny; high-income Singapore lies almost directly on the equator, and parts of southern India have exhibited enormous economic dynamism in recent years.

9. UNDERDEVELOPED FINANCIAL AND OTHER MARKETS

Imperfect markets and incomplete information are far more prevalent in developing countries, with the result that domestic markets, notably but not only financial markets, have worked less efficiently. In many developing countries, legal and institutional foundations for markets are extremely weak.
Some aspects of market underdevelopment are that they often lack (1) a legal system that enforces contracts and validates property rights; (2) a stable and trustworthy currency; (3) an infrastructure of roads and utilities that results in low transport and communication costs so as to facilitate interregional trade; (4)a well-developed and efficiently regulated system of banking and insurance, with broad access and with formal credit markets that select projects and allocate loan able funds on the basis of relative economic profitability and enforce rules of repayment; (5) substantial market information for consumers and producers about prices, quantities, and qualities of products and resources as well as the creditworthiness of potential borrowers; and (6) social norms that facilitate successful long-term business relationships.

- **Imperfect market:** A market in which the theoretical assumptions of perfect competition are violated by the existence of, for example, a small number of buyers and sellers, barriers to entry, and incomplete information.
- **Incomplete information:** The absence of information that producers and consumers need to make efficient decisions resulting in underperforming markets.
- **Infrastructure:** Facilities that enable economic activity and markets, such as transportation, communication and distribution networks, utilities, water, sewer, and energy supply systems.

10. COLONIAL LEGACY AND EXTERNAL DEPENDENCE

Colonial Legacy:
Most developing countries were once colonies of Europe or otherwise dominated by European or other foreign powers, and institutions created during the colonial period often had pernicious effects on development that in many cases have persisted to the present day. Despite important variations that proved consequential, colonial era institutions often favored extractors of wealth rather than creators of wealth, harming development then and now.

External Dependence:
Relatedly, developing countries have also been less well organized and influential in international relations, with sometimes adverse consequences for development. For example, agreements within the World Trade Organization (WTO) and its predecessors concerning matters such as agricultural subsidies in rich countries that harm developing country farmers and one-sided regulation of intellectual property rights have often been relatively unfavorable to the developing world.

HOW LOW-INCOME COUNTRIES TODAY DIFFER FROM DEVELOPED COUNTRIES IN THEIR EARLIER STAGES

EIGHT DIFFERENCES:

1. Physical and human resource endowments.
2. Per capita incomes and levels of GDP in relation to the rest of the world.
3. Climate.
4. Population size, distribution, and growth.
5. Historic role of international migration.
6. International trade benefits.
7. Basic scientific/technological research and development capabilities.
8. Efficacy of domestic institutions.

ARE LIVING STANDARDS OF DEVELOPING AND DEVELOPED NATIONS CONVERGING?

- **Divergence:** A tendency for per capita income (or output)to grow faster in higher income countries than in lower-income countries so that the income gap widens across countries over time(as was seen in the two centuries after industrialization began).

- **Convergence:** The tendency for per capita income (or output)to grow faster in lower income countries than in higher-income countries so that lower-income countries are "catching up" over time. When countries are hypothesized to converge not in all cases but other things being equal (particularly savings rates, labor force growth, and production technologies), then the term conditional convergence is used.

If the growth experience of developing and developed countries were similar, there are two important reasons to expect that developing countries would be "catching up" by growing faster on average than developed countries.

- Technology Transfer
- Rapid Capital Accumulation

Technology Transfer:

The first reason is due to technology transfer. Today's developing countries do not have to "reinvent the wheel"; for example, they do not have to use vacuum tubes before they can use semiconductors. Even if royalties must be paid, it is cheaper to replicate technology than to undertake original R&D, partly because one does not have to pay for mistakes and dead ends along the way. This should enable developing countries to "leapfrog" over some of the earlier stages of technological development, moving immediately to high productivity techniques of

production. As a result, they should be able to grow much faster than today's developed countries are growing now or were able to grow in the past.

Rapid Capital Accumulation:

Today's developed countries have high levels of physical and human capital; in a production function analysis, this would explain their high levels of output per person. But in traditional neoclassical analysis, the marginal product of capital and the profitability of investments would be lower in developed countries where capital intensity is higher, provided that the law of diminishing returns applies. That is, the impact of additional capital on output would be expected to be smaller in a developed country that already has a lot of capital in relation to the size of its workforce than in a developing country where capital is scarce.

Convergence in the world economy depends on two levels:

1. Relative Country Convergence
2. Absolute Country Convergence

1- Relative Country Convergence

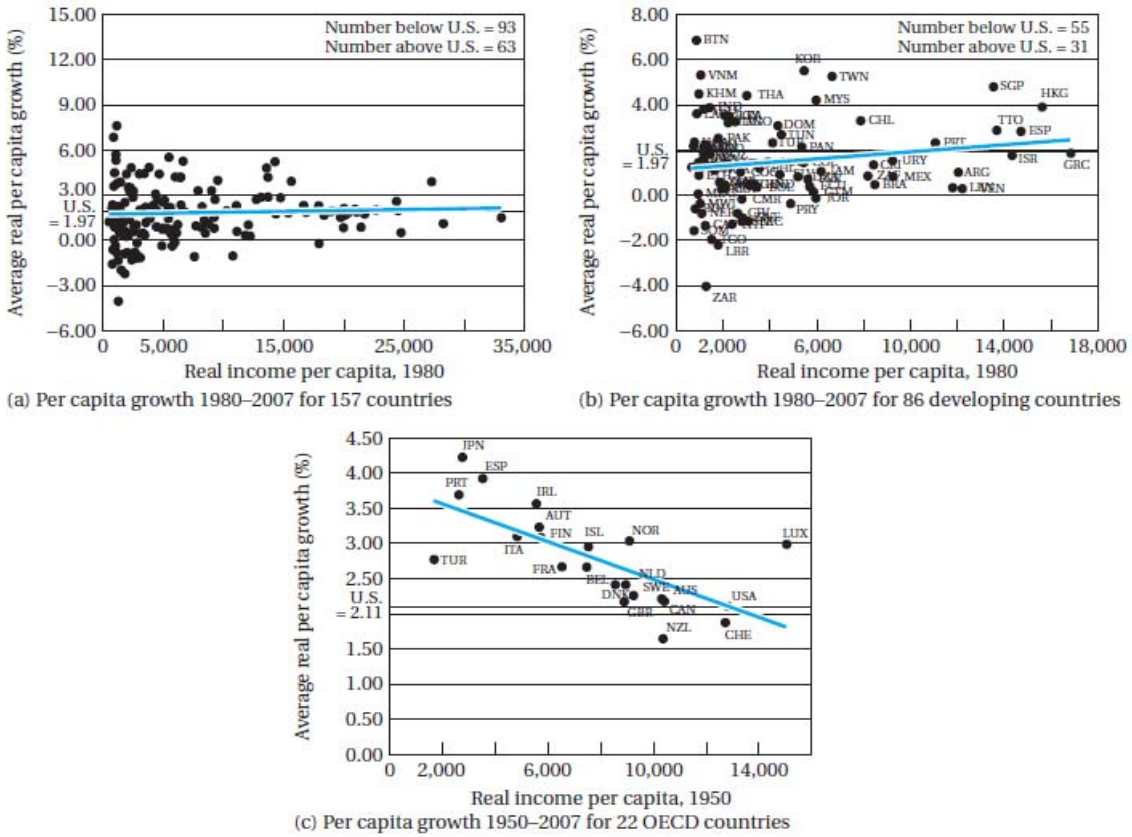
The most widely used approach is simply to examine whether poorer countries are growing faster than richer countries. As long as this is happening, poor countries would be on a path to eventually "catch up" to the income levels of rich countries. In the meantime the relative gap in incomes would be shrinking, as the income of richer countries would become a smaller multiple of income of poorer countries. This can be seen on a country-by country basis. Although China's average income was just 3% of that of the United States in 1980, it was estimated to have reached 14% of U.S. income by 2007. But in the same period, the income of the Dem. Rep. of Congo fell from about 5% of U.S. levels to just 1%. But globally, evidence for relative convergence is weak at best, even for the most recent decades.

Figure 2.8a illustrates that on the x-axis, income data are plotted from the initial year, in this case 1980; while on the y-axis, the average growth rate of real per capita income is plotted, in this case, over the subsequent 27 years to 2007. If there were unconditional convergence, there would be a tendency for the points plotted to show a clear negative relationship, with the initially lower-income countries growing faster. But as seen in Figure 2.8a there is no apparent tendency toward convergence across countries.

In Figure 2.8b, it is clear that divergence is occurring: middle-income countries are growing faster than low-income countries, so there is a growing gap among developing countries. Many nations, especially among the 49 least developed countries, remain in relative stagnation. Poor developing countries have not been catching up as a group.

In Figure 2.8c, growth of high-income OECD countries is examined separately for 1950–2007. The picture here is one of convergence, and we need to interpret it carefully. We might conclude that if developing countries closely followed the institutions and policies of these OECD

FIGURE 2.8 Relative Country Convergence: World, Developing Countries, and OECD



(a) Per capita growth 1980–2007 for 157 countries

(b) Per capita growth 1980–2007 for 86 developing countries

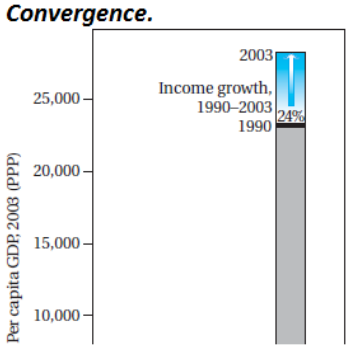
(c) Per capita growth 1950–2007 for 22 OECD countries

economies, they might converge as well. However, as noted earlier, there are many institutional and other differences between low- and high-income economies today, some of which may be very difficult to change.

2- Absolute Country Convergence

With the recent rapid growth in China, and the acceleration of growth in South Asia as well, these regions are currently on a path of relative country convergence. For example, in the 1990–2003 periods, while income grew 24% in high-income OECD countries, it grew 56% in South Asia and 196% in China. But due to their relatively low starting income levels, despite higher growth, income gains were still smaller in absolute amount than in the OECD, as illustrated in Figure 2.9. That is, even when the average income of a developing country is becoming a larger fraction of developed country average incomes, the difference in incomes can still continue to widen for some time before they finally begin to shrink. A process of absolute country convergence is a stronger standard than a process of relative country convergence.

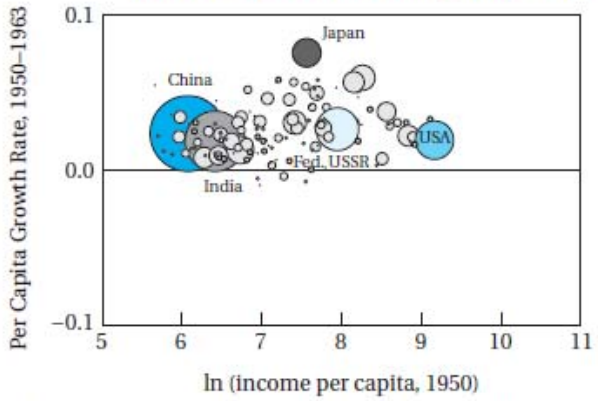
Fig 2.9 ***Growth Convergence Vs Absolute income Convergence.***



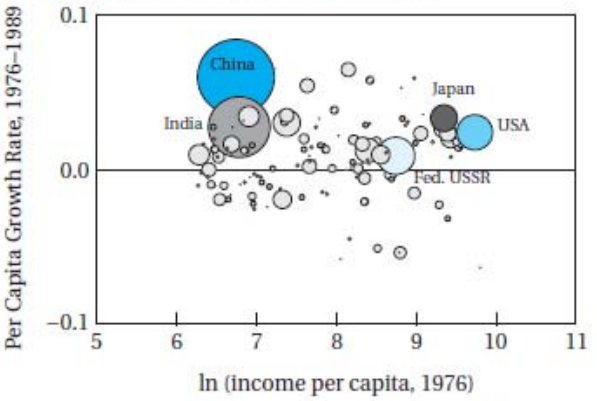
POPULATION-WEIGHTED RELATIVE COUNTRY CONVERGENCE

The high growth rate in China and India is particularly important because more than one-third of the world's people live in these two countries. A typical study of this type is depicted in Figure 2.10a–d. Instead of points representing the data for each country, bubble sizes are used to depict the relative size of countries 'populations. To get a sense of how the acceleration of growth in China and India, along with a few other countries, have changed the picture, the data are broken up into four time periods. Figures 2.10a and 2.10b reflect that there was relative per capita divergence from 1950 through 1976, but Figure 2.10d reflects relative per capita convergence since 1989 (and less unambiguously but plausibly from 1977 to 1989 as well—see Figure 2.10c).

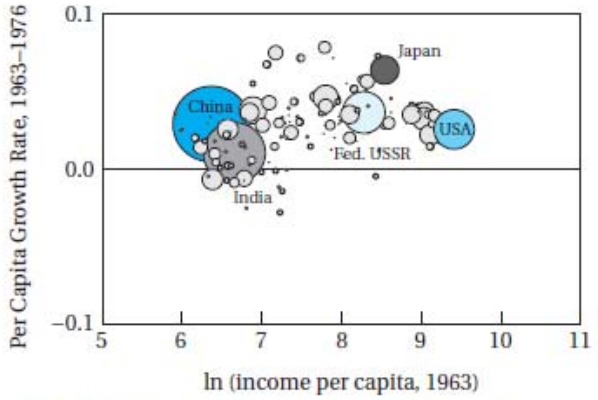
FIGURE 2.10 Country Size, Initial Income Level, and Economic Growth



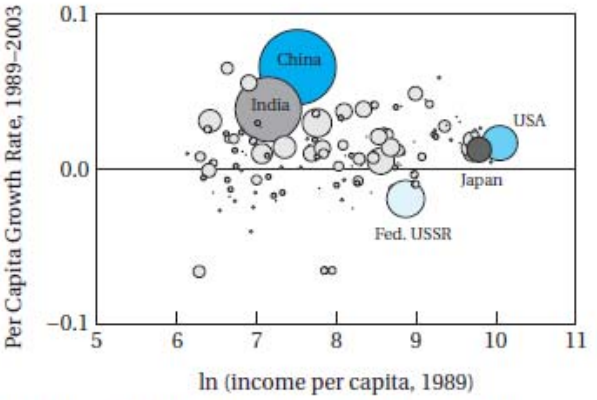
(a) Country size, initial income, and economic growth, 1950-1963, bubble size proportional to population in 1950



(c) Country size, initial income, and economic growth, 1976–1989, bubble size proportional to population in 1976



(b) Country size, initial income, and economic growth, 1963–1976, bubble size proportional to population in 1963



(d) Country size, initial income, and economic growth, 1989–2003, bubble size proportional to population in 1989

WORLD-AS-ONE-COUNTRY CONVERGENCE

A final—and very different—approach to the study of convergence is to think of the world as if it were one country. In the first such study, Branko Milonovic stitched together household data sets from around the world and concluded that global inequality rose significantly in the period 1988 to 1993.

Lesson 04

CLASSIC THEORIES OF ECONOMIC GROWTH AND DEVELOPMENT

CASE STUDY: DIVERGENT DEVELOPMENT: PAKISTAN AND BANGLADESH

INTRODUCTION

In 1971, Bangladesh declared independence from Pakistan. Previously, Bangladesh had been known as East Pakistan, and what is now Pakistan was called West Pakistan. The two countries are about 1,000 miles apart. Pakistan and Bangladesh had about the same population in 2009 (181 million in Pakistan, 162 million in Bangladesh). They are located in the South Asian region. Both are overwhelmingly Islamic and both remained a part of the colonial British Raj of India. Bangladesh was for a long time the global symbol of suffering, from the Bengal famine of 1943 to the 1971. And the 1974 post-independence famine.

GROWTH

- PPP-adjusted incomes remain higher in Pakistan ($2,590 in 2008) than in Bangladesh ($1,450), but PPP estimation is difficult and other recent estimates show a more narrowed gap.
- In Pakistan, per capita income grew at about 2.2% per year in the half-century from 1950 to 2000. As a result, per capita income tripled. But the growth rate declined decade by decade.
- Indications are that Pakistan has experienced much less pro-poor growth in comparison with Bangladesh. In Bangladesh, farm yields are up dramatically, and the economic growth rate now tops 4%.

POVERTY

- The World Bank currently estimates that 23% of the population lives below the $1.25 per-day poverty line in Pakistan, compared with 49% in Bangladesh
- Many factors have contributed to the relatively rapid decrease in extreme poverty in Bangladesh, including:
    - The early green revolution.
    - The impressive role of indigenous nongovernmental organizations (ngos) fighting poverty in rural areas.
    - Opportunities for women's employment in export industries.
    - Remittances from relatives working abroad.

EDUCATION AND LITERACY

- In both countries, the adult literacy rate is still a low 54%, but literacy has been growing more quickly in Bangladesh and with greater gender equity.
- Bangladesh today actually has a female-to-male primary and secondary enrollment ratio 1.07 to 1, while in Pakistan it is just 0.83.

HEALTH

- Life expectancy in both countries is 66; but in 1970 life expectancy was 54 in Pakistan and only 44 in Bangladesh.
- Today life expectancies are almost identical.
- Since 1990, the prevalence of child malnutrition in Bangladesh has fallen from two-thirds to less than half.
- In 1970, the under-five mortality rate in Bangladesh was 239 per 1,000 live births; the rate in Pakistan was 180 per 1,000 live births
- By 2008, in Bangladesh under-five mortality rate was 54 per 1,000, but that in Pakistan was 89 per 1,000.
- Under-5 mortality is 65% higher in Pakistan.

HUMAN DEVELOPMENT INDEX

- Bangladesh was 9 places higher than predicted by its lower income, and Pakistan 9 places lower than predicted by its income.
- This reflects the better health and education performance for Bangladesh for its income level.

POPULATION

- Bangladesh has made much greater progress than Pakistan in reducing fertility.
- In Bangladesh, fertility fell to 2.3 by 2008. But for Pakistan, fertility has fallen only to 4.0 (WDI data).

UNDERSTANDING THE DIVERGENCE

1. GEOGRAPHY

- To the degree that geography constrains development success, Bangladesh would seem to be at a considerable disadvantage.
- Theorists say that the countries with a multitude of social divisions, ethnic groups, and languages tend to have lower social development and growth rates
- Bangladesh is quite homogeneous (98% of the population is considered ethnic Bangla (Bengali) and speaks the Bangla language.
- Pakistan has a very high level of ethnic and language diversity.

2. GENDER EQUITY

- According to the Social Watch Report, 2004, Bangladesh scores in the “above average” (second highest) group in overall gender equity
- Pakistan is in the fourth and lowest category (“countries in worst situation”).
- In Pakistan, as of 2008, only 60% as many women as men were literate

3. AID

- Pakistan has received a great deal of aid. Since independence in 1947, it has been one of the top three aid-earning countries, behind India and Egypt.
- Bangladesh has also benefited considerably from aid.

4. GOVERNANCE AND THE ROLE OF THE MILITARY

– The military has always played a prominent role in Pakistan

5. CIVIL SOCIETY

– Ishrat Husain proposes that Pakistan has experienced an "elitist growth model," which he identifies as combining a powerful leader or succession of leaders operating without checks and balances, a bureaucratic class that unquestioningly implements the wishes of the leader, and a passive and subservient population.
– He argues that "failure of governance and the consistent domination of political power and state apparatus by a narrowly based elite seeking to advance private and family interests to the exclusion of the majority of the population lies at the root of the problem."

CONCLUSION

- The development levels of these two countries are not dramatically different.
- But this itself is the dramatic finding, given the wide disparity when the countries separated in 1971.

CLASSICAL THEORIES OF ECONOMIC GROWTH AND DEVELOPMENT

Classic Theories of Economic Development: Five Approaches

i. Classical Growth Theory
ii. Linear stages of growth model
iii. Theories and Patterns of structural change
iv. International-dependence revolution
v. Neoclassical, free market counterrevolution

CLASSICAL GROWTH THEORY

Adam Smith (1776) famous for two books the theory of moral sentiments (1759) and An Inquiry into the Nature and Causes of th Wealth of Nations (1776). He had a generally optimistic vision of growth and development process. Later classical economics tended to have a more gloomy vision. This led the historian Thomas Carlyle to call economics as 'dismal science'. Adam Smith recognized how specialization in industrial activities could lead to increasing returns and big increases in labour productivity, compared with specialization in agriculture. Other classical economists apart from Adam Smith include Thomas Malthus, David Ricardo, John Stuart Mill, They were pessimistic about the growth process because of the pressure of population on food supply and diminishing returns in agriculture. They argued this will reduce the profit in industry. Eventually a stationary stage would be reached .Karl Marx predicted the collapse of capitalism itself.

ROSTOW - STAGES OF GROWTH THEORY

The most influential and outspoken advocate of the **stages-of-growth model of development** was the American economic historian Walt W. Rostow. According to Rostow, the transition from

underdevelopment to development can be described in terms of a series of steps or stages through which all countries must proceed.
Stages-of-growth model of development: A theory of economic development, associated with the American economic historian Walt W. Rostow, according to which a country passes through sequential stages in achieving development.

Countries can be placed in one of five categories in terms of its stage of growth:

1. TRADITIONAL SOCIETY

This stage is characterized by:
- Subsistence economy – output not traded or recorded.
- Existence of barter.
- High levels of agriculture and labor intensive agriculture.

2. PRE-CONDITIONS

This stage is characterized by:
- Development of mining industries.
- Increase in capital use in agriculture.
- Necessity of external funding.
- Some growth in savings and investment.

3. TAKE OFF

This stage is characterized by:
- Increasing industrialization.
- Further growth in savings and investment.
- Some regional growth.
- Number employed in agriculture declines.

4. DRIVE TO MATURITY

This stage is characterized by:
- Growth becomes self-sustaining – wealth generation enables further investment in value adding industry and development.
- Industry more diversified.
- Increase in levels of technology utilized.

5. HIGH MASS CONSUMPTION

This stage is characterized by:
- High output levels.
- Mass consumption of consumer durables.
- High proportion of employment in service sector.

CRITICISMS

– Too simplistic.

- Necessity of a financial infrastructure to channel any savings that are made into investment.
- Will such investment yield growth? Not necessarily.
- Need for other infrastructure – human resources (education), roads, rail, and communications networks.
- Efficiency of use of investment – in palaces or productive activities?
- Rostow argued economies would learn from one another and reduce the time taken to develop – has this happened?

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Lesson 05

CLASSIC THEORIES OF ECONOMIC GROWTH AND DEVELOPMENT (CONTINUED1)

THE HARROD-DOMAR GROWTH MODEL

Def: "A functional economic relationship in which the growth rate of gross domestic product (g) depends directly on the national net savings rate (s) and inversely on the national capital-output ratio (c)."

Every economy must save a certain proportion of its national income, if only to replace worn-out or impaired capital goods (buildings, equipment, and materials).However, in order to grow, new investments representing net additions to the capital stock are necessary. If we assume that there is some direct economic relationship between the size of the total capital stock, K, and total GDP, Y—for example, if $3 of capital is always necessary to produce an annual$1 stream of GDP—it follows that any net additions to the capital stock in the form of new investment will bring about corresponding increases in the flow of national output, GDP.

Suppose that this relationship, known in economics as the capital-output ratio, is roughly 3 to 1. If we define the capital-output ratio as k and assume further that the national net savings ratio, s, is a fixed proportion of national output (e.g., 6%) and that total new investment is determined by the level of total savings, we can construct the following simple model of economic growth:

- **Capital-output ratio:** A ratio that shows the units of capital required to produce a unit of output over a given period of time.
- **Net savings ratio:** Savings expressed as a proportion of disposable income over some period of time.

1. Net saving (S) is some proportion, s, of national income (Y) such that we have the simple equation

$$S = sY \qquad (3.1)$$

2. Net investment (I) is defined as the change in the capital stock, K, and can be represented by K such that

$$I = \Delta K \qquad (3.2)$$

But because the total capital stock, K, bears a direct relationship to total national income or output, Y, as expressed by the capital-output ratio, c[3] it follows that

$$\frac{K}{Y} = c$$

Or

$$\frac{\Delta K}{\Delta Y} = c$$

or, finally,

$$\Delta K = c\Delta Y \qquad (3.3)$$

3. Finally, because net national savings, S, must equal net investment, I, we can write this equality as

$$S = I \qquad (3.4)$$

But from Equation 3.1 we know that S = sY, and from Equations 3.2 and 3.3 we know that:

$$I = \Delta K = c\Delta Y$$

It therefore follows that we can write the "identity" of saving equaling investment shown by Equation 3.4 as

$$S \equiv sY \equiv c\Delta Y \equiv I \equiv \Delta K \quad (3.5)$$

or simply as

$$sY \equiv c\Delta Y \quad (3.6)$$

Dividing both sides of Equation 3.6 first by Y and then by c, we obtain the following expression:

$$\frac{\Delta Y}{Y} = \frac{s}{c} \quad (3.7)$$

Note that the left-hand side of Equation 3.7, Y/Y, represents the rate of change or rate of growth of GDP.

Equation 3.7, which is a simplified version of the famous equation in the Harrod-Domar theory of economic growth, states simply that the rate of growth of GDP (Y/Y) is determined jointly by the net national savings ratio, s , and the national capital-output ratio, c. More specifically, it says that in the absence of government, the growth rate of national income will be directly or positively related to the savings ratio (i.e., the more an economy is able to save—and invest—out of a given GDP, the greater the growth of that GDP will be) and inversely or negatively related to the economy's capital-output ratio(i.e., the higher c is, the lower the rate of GDP growth will be).

Equation 3.7 is also often expressed in terms of gross savings, s^G, in which case the growth rate is given by:

$$\frac{\Delta Y}{Y} = \frac{S^G}{c} - \delta \quad (3.7')$$

Where δ is the rate of capital depreciation.

The economic logic of Equations 3.7 and 3.7' is very simple. To grow, economies must save and invest a certain proportion of their GDP. The more they can save and invest, the faster they can grow.

In addition to investment, two other components of economic growth are labor force growth and technological progress. In the context of the Harrod-Domar model, labor force growth is not described explicitly. This is because labor is assumed to be abundant in a developing-country context and can be hired as needed in a given proportion to capital investments (this assumption is not always valid). In a general way, technological progress can be expressed in the Harrod-Domar context as a decrease in the required capital-output ratio, giving more growth for a given level of investment, as follows from Equation 3.7 or 3.7'.

NECESSARY VERSUS SUFFICIENT CONDITIONS

- **Necessary Condition:** A condition that must be present, although it need not be in itself sufficient, for an event to occur. For example, capital formation may be a necessary condition for sustained economic growth (before growth in output can occur, there must

be tools to produce it). But for this growth to continue, social, institutional, and attitudinal changes may have to occur.

- **Sufficient Condition:** A condition that when present causes or guarantees that an event will or can occur; in economic models, a condition that logically requires that a statement must be true (or a result must hold) given other assumptions.

STRUCTURAL CHANGE MODELS

(I) STRUCTURAL CHANGE THEORY

"The hypothesis that underdevelopment is due to underutilization of resources arising from structural or institutional factors that have their origins in both domestic and international dualism. Development therefore requires more than just accelerated capital formation."

THE LEWIS THEORY OF DEVELOPMENT

BASIC MODEL

One of the best-known early theoretical models of development that focused on the **structural transformation** of a primarily subsistence economy was that formulated by Nobel laureate W. Arthur Lewis.

In the Lewis model, the underdeveloped economy consists of **two sectors**: a traditional, overpopulated rural subsistence sector characterized by zero marginal labor productivity—a situation that permits Lewis to classify this as **surplus labor** in the sense that it can be withdrawn from the traditional agricultural sector without any loss of output—and a high-productivity modern urban industrial sector into which labor from the subsistence sector is gradually transferred. The primary focus of the model is on both the process of labor transfer and the growth of output and employment in the modern sector.

Both labor transfer and modern-sector employment growth are brought about by output expansion in that sector. The speed with which this expansion occurs is determined by the rate of industrial investment and capital accumulation in the modern sector. Such investment is made possible by the excess of modern-sector profits over wages on the assumption that capitalists reinvest all their profits. Finally, Lewis assumed that the level of wages in the urban industrial sector was constant, determined as a given premium over a fixed average subsistence level of wages in the traditional agricultural sector. At the constant urban wage, the supply curve of rural labor to the modern sector is considered to be perfectly elastic.

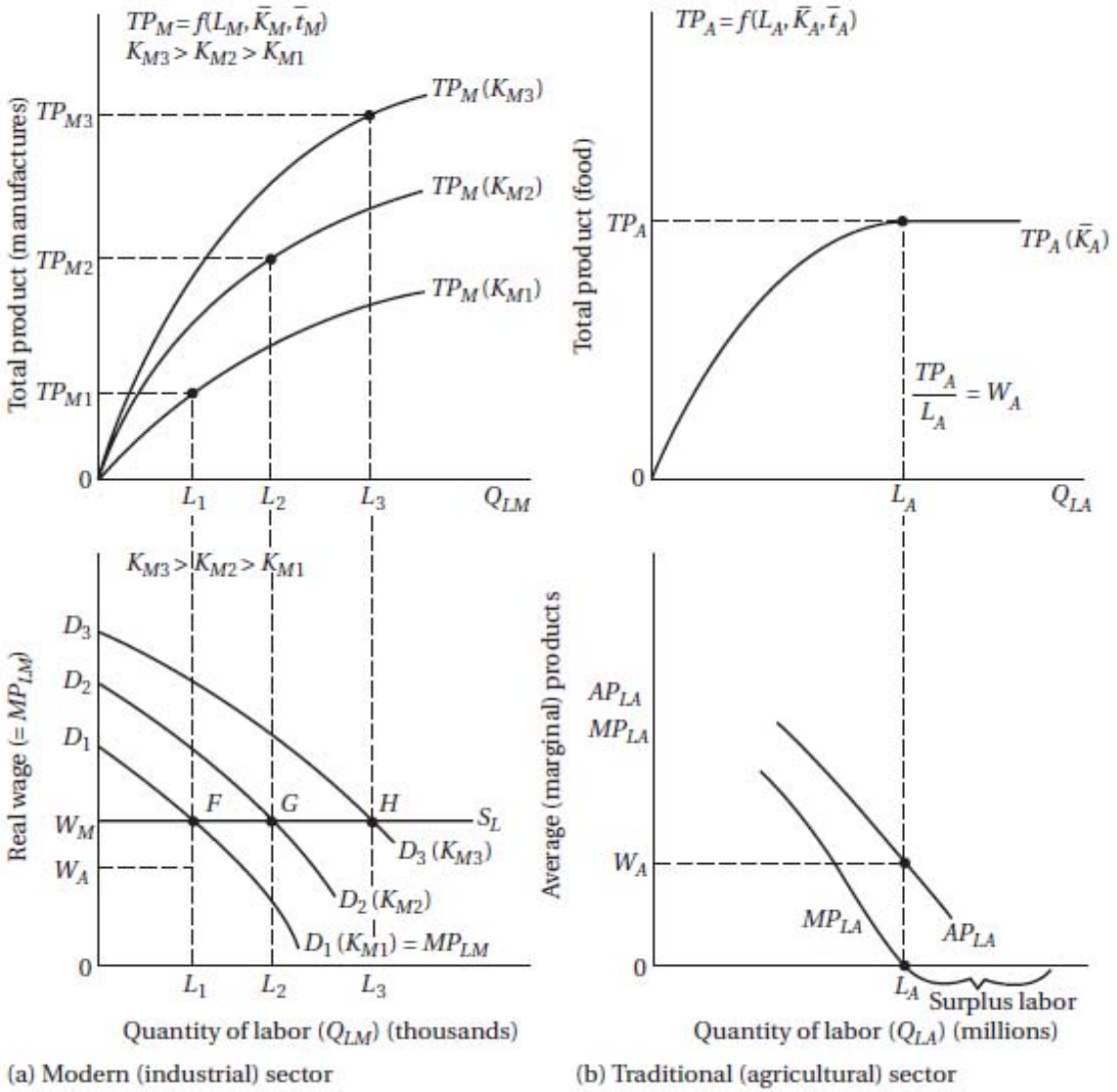
Note:

- **Structural transformation**: The process of transforming an economy in such a way that the contribution to national income by the manufacturing sector eventually surpasses the contribution by the agricultural sector. More generally, a major alteration in the industrial composition of any economy.

- **Lewis two-sector model:** A theory of development in which surplus labor from the traditional agricultural sector is transferred to the modern industrial sector, the growth of which absorbs the surplus labor, promotes industrialization, and stimulates sustained development.

- **Surplus labor:** The excess supply of labor over and above the quantity demanded at the going free-market wage rate. In the Lewis two-sector model of economic development, surplus labor refers to the portion of the rural labor force whose marginal productivity is zero or negative.

FIGURE 3.1 The Lewis Model of Modern-Sector Growth in a Two-Sector Surplus-Labor Economy



(a) Modern (industrial) sector (b) Traditional (agricultural) sector

We can illustrate the Lewis model of modern-sector growth in a two-sector economy by using Figure 3.1. Consider first the traditional agricultural sector portrayed in the two right-side diagrams of Figure 3.1b. The upper diagram shows how subsistence food production varies with increases in labor inputs. It is a typical agricultural **production function** in which the total output or product (TPA) of food is determined by changes in the amount of the only variable input, labor (LA), given a fixed quantity of capital, KA, and unchanging traditional technology, . In the lower-right diagram, we have the **average and marginal product of labor** curves, APLA and MPLA.

Lewis makes two assumptions about the traditional sector. First, there is surplus labor in the sense that MPLA is zero, and second, all rural workers share **equally** in the output so that the rural real wage is determined by the average and not the marginal product of labor.

The upper-left diagram of Figure 3.1a portrays the total product (production function) curves for the modern industrial sector. WA in the lower diagrams of Figures 3.1a and 3.1b represents the average level of real subsistence income in the traditional rural sector. WM in Figure 3.1a is therefore the real wage in the modern capitalist sector. At this wage, the supply of rural labor is assumed to be unlimited or perfectly elastic, as shown by the horizontal labor supply curve WMSL.

This process of modern-sector **self-sustaining growth** and employment expansion is assumed to continue until all surplus rural labor is absorbed in the new industrial sector. Thereafter, additional workers can be withdrawn from the agricultural sector only at a higher cost of lost food production because the declining labor-to-land ratio means that the marginal product of rural labor is no longer zero. This is known as the “Lewis turning point.” Thus the labor supply curve becomes positively sloped as modern-sector wages and employment continue to grow. The structural transformation of the economy will have taken place, with the balance of economic activity shifting from traditional rural agriculture to modern urban industry.

CRITICISM

- First, the model implicitly assumes that the rate of labor transfer and employment creation in the modern sector is proportional to the rate of modern sector capital accumulation.
- The second questionable assumption of the Lewis model is the notion that surplus labor exists in rural areas while there is full employment in the urban areas.
- The third dubious assumption is the notion of a competitive modern sector labor market that guarantees the continued existence of constant real urban wages up to the point where the supply of rural surplus labor is exhausted.
- A final concern with the Lewis model is its assumption of diminishing returns in the modern industrial sector.

(II) STRUCTURAL CHANGE AND PATTERNS OF DEVELOPMENT

Patterns-of-development Analysis: An attempt to identify characteristic features of the internal process of structural transformation that a “typical” developing economy undergoes as it generates and sustains modern economic growth and development.

The best-known model of structural change is the one based largely on the empirical work of Harvard economist **Hollis B. Chenery and his colleagues**, who examined patterns of

development for numerous developing countries during the postwar period. (This approach also built on research by Nobel laureate Simon Kuznets on modern economic growth of developed countries). Their empirical studies, both cross-sectional (among countries at a given point in time) and time-series (over long periods of time), of countries at different levels of per capita income led to the identification of several characteristic features of the development process.

These included the shift from agricultural to industrial production, the steady accumulation of physical and human capital, the change in consumer demands from emphasis on food and basic necessities to desires for diverse manufactured goods and services, the growth of cities and urban industries as people migrate from farms and small towns, and the decline in family size and overall population growth as children lose their economic value and parents substitute what is traditionally labeled child quality (education) for quantity, with population growth first increasing and then decreasing in the process of development. Proponents of this school often call for development specialists to "let the facts speak for themselves" rather than get bogged down in the arcane of theories such as the stages of growth. This is a valuable counterbalance to empty theorizing, but it also has its own limits.

CONCLUSIONS AND IMPLICATIONS

The structural changes that we have described are the "average" patterns of development Chenery and colleagues observed among countries in time-series and cross-sectional analyses. The major hypothesis of the structural-change model is that development is an identifiable process of growth and change whose main features are similar in all countries. However, as mentioned earlier, the model does recognize that differences can arise among countries in the pace and pattern of development, depending on their particular set of circumstances. Factors influencing the development process include a country's resource endowment and size, its government's policies and objectives, the availability of external capital and technology, and the international trade environment.

One limitation to keep in mind is that by emphasizing patterns rather than theory, this approach runs the risk of leading practitioners to draw the wrong conclusions about causality—in effect, to "put the cart before the horse." Observing developed-country patterns such as the decline of the share of the labor force in agriculture over time, many developing-country policymakers have been inclined to neglect that vital sector.

Empirical studies on the process of structural change lead to the conclusion that the pace and pattern of development can vary according to both domestic and international factors, many of which lie beyond the control of an individual developing nation. Yet despite this variation, structural-change economists argue that one can identify certain patterns occurring in almost all countries during the development process.

Lesson 06

CLASSIC THEORIES OF ECONOMIC GROWTH AND DEVELOPMENT (CONTINUED2)

THE NEOCLASSICAL COUNTERREVOLUTION: MARKET FUNDAMENTALISM: CHALLENGING THE STATIC MODEL

In the 1980s, the political ascendancy of conservative governments in the United States, Canada, Britain, and West Germany came with a **neoclassical counterrevolution** in economic theory and policy.
The central argument of the neoclassical counterrevolution is that underdevelopment results from poor resource allocation due to incorrect pricing policies and too much state intervention by overly active developing-nation governments. Rather, the leading writers of the counterrevolution school, including Lord Peter Bauer, Deepak Lal, and Ian Little, Harry Johnson, Bela Balassa, Jagdish Bhagwati, and Anne Krueger, argued that it is this very state intervention in economic activity that slows the pace of economic growth. The neo-liberals argue that by permitting competitive free markets to flourish, privatizing state-owned enterprises, promoting free trade and export expansion, welcoming investors from developed countries, and eliminating the plethora of government regulations and price distortions in factor, product, and financial markets, both economic efficiency and economic growth will be stimulated.

- **Free markets:** The system whereby prices of commodities or services freely rise or fall when the buyer's demand for them rises or falls or the seller's supply of them decreases or increases.

APPROACHES OF NEOCLASSICAL COUNTERREVOLUTION

The neoclassical counterrevolution can be divided into three component approaches: the free-market approach, the public-choice (or "new political economy") approach, and the "market-friendly" approach.

1. **Free-market analysis:** Theoretical analysis of the properties of an economic system operating with free markets, often under the assumption that an unregulated market performs better than one with government regulation.

2. **Public-choice theory (new political economy approach):** The theory that self-interest guides all individual behavior and that governments are inefficient and corrupt because people use government to pursue their own agendas.

3. **Market-friendly approach**: The notion historically promulgated by the World Bank that successful development policy requires governments to create an environment in which markets can operate efficiently and to intervene only selectively in the economy in areas where the market is inefficient.

- **Market failure:** A market's inability to deliver its theoretical benefits due to the existence of market imperfections such as monopoly power, lack of factor mobility, significant externalities, or lack of knowledge. Market failure often provides the justification for government intervention to alter the working of the free market.

COMPONENTS OF ECONOMIC GROWTH

Three components of economic growth are of prime importance:

1. Capital accumulation.
2. Growth in population and hence eventual growth in the labor force.
3. Technological progress—new ways of accomplishing tasks.

1- CAPITAL ACCUMULATION:

- **Capita Accumulation:** Increasing a country's stock of real capital (net investment in fixed assets). To increase the production of capital goods necessitates a reduction in the production of consumer goods.

Capital accumulation results when some proportion of present income is saved and invested in order to augment future output and income. New factories, machinery, equipment, and materials increase the physical **capital stock** of a nation and make it possible for expanded output levels to be achieved. These directly productive investments are supplemented by investments in what is known as social and **economic infrastructure**—roads, electricity, water and sanitation, communications, and the like—which facilitates and integrates economic activities. For example, investment by a farmer in a new tractor may increase the total output of the crops he can produce, but without adequate transport facilities to get this extra product to local commercial markets, his investment may not add anything to national food production.
There are less direct ways to invest in a nation's physical resources, like investing in land resources.

Investment in human resources can improve its quality and thereby have the same or even a more powerful effect on production as an increase in human numbers. The concept of investment in human resources and the creation of **human capital** is therefore analogous to that of improving the quality and thus the productivity of existing land resources through strategic investments.
All of these phenomena and many others are forms of investment that lead to capital accumulation. Capital accumulation may add new resources or upgrade the quality of existing resources, but its essential feature is that it involves a trade-off between present and future consumption—giving up a little now so that more can be had later, such as giving up current income to stay in school.

- **Capital stock:** The total amount of physical goods existing at a particular time that have been produced for use in the production of other goods and services.
- **Economic infrastructure:** The amount of physical and financial capital embodied in roads, railways, waterways, airways, and other transportation and communications plus other facilities such as water supplies, financial institutions, electricity, and public services such as health and education.
- **Human capital:** Productive investments embodied in human persons, including skills, location, and health.

2- POPULATION AND LABOR FORCE GROWTH:

Population growth, and the associated eventual increase in the labor force, has traditionally been considered a positive factor in stimulating economic growth. A larger labor force means

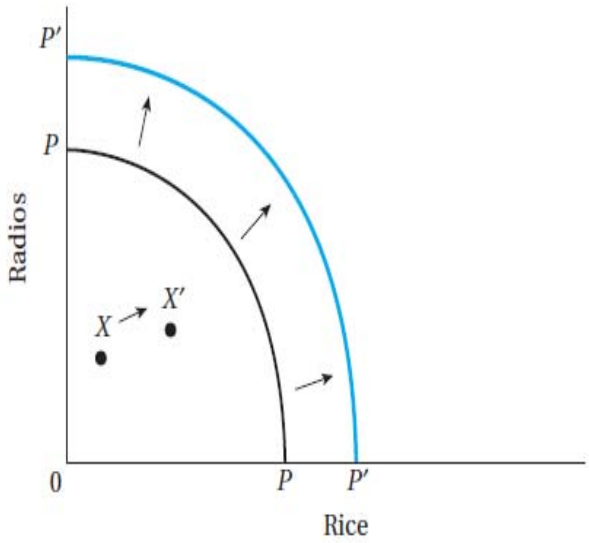
more productive workers, and a large overall population increases the potential size of domestic markets.

Given an initial understanding of these first two fundamental components of economic growth and disregarding for a moment the third (technology), let us see how they interact via the **production possibility curve** to expand society's potential total output of all goods. For a given technology and a given amount of physical and human resources, the production possibility curve portrays the maximum attainable output combinations of any two commodities— say, rice and radios—when all resources are fully and efficiently employed. Figure A3.1.1 shows two production possibility curves for rice and radios.

- **Production possibility curve:** A curve on a graph indicating alternative combinations of two commodities or categories of commodities (e.g., agricultural and manufactured goods) that can be produced when all the available factors of production are efficiently employed. Given available resources and technology, the curve sets the boundary between the attainable and the unobtainable.

Initial possibilities for the production of rice and radios are shown by the curve PP. Now suppose that without any change in technology, the quantity of physical and human resources were to double as a result of either investments that improved the quality of the existing resources or investment in new resources—land, capital, and, in the case of larger families, labor. FigureA3.1.1 shows that this doubling of total resources will cause the entire production possibility curve to shift uniformly outward from PP to P'P'. More radios and more rice can now be produced.

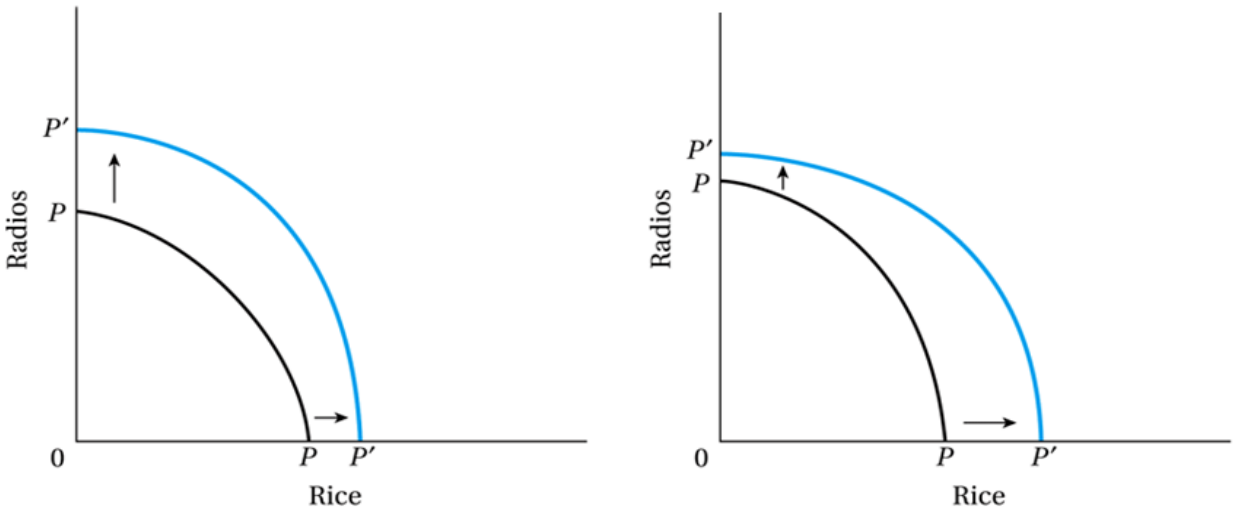
FIGURE A3.1.1 Effect of Increases in Physical and Human Resources on the Production Possibility Frontier



Now, instead of assuming the proportionate growth of all factors of production let us assume that, say, only capital or only land is increased in quality and quantity. Figure A3.1.2 shows that if radio manufacturing is a relatively large user of capital equipment and rice production is a relatively land intensive process, the shifts in society's production possibility curve will be more pronounced for radios when capital grows rapidly (Figure A3.1.2a) and for rice when the growth is in land quantity or quality (Figure A3.1.2b).

Figure A3.1.2

Effect of Growth of Capital Stock and Land on the Production Possibility Frontier



(a) Growth in capital stock (b) Growth in land resources

3- TECHNOLOGICAL PROGRESS

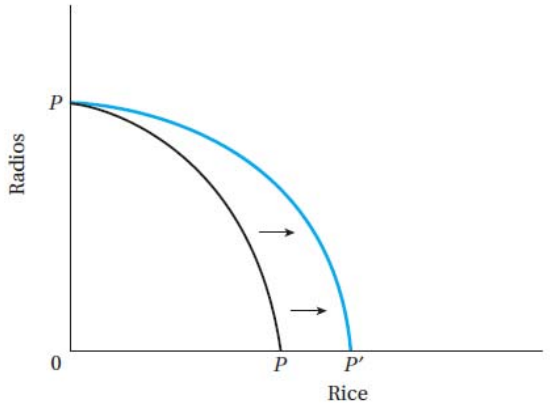
- **Technological progress:** Increased application of new scientific knowledge in the form of inventions and innovations with regard to both physical and human capital.

There are three basic classifications of technological progress: neutral, laborsaving, and capital-saving.

- **Neutral technological progress:** Higher output levels achieved with the same quantity or combination of all factor inputs.
- **Laborsaving technological progress:** The achievement of higher output using an unchanged quantity of labor inputs as a result of some invention (e.g., the computer) or innovation (such as assembly-line production).
- **Capital-saving technological progress:** Technological progress that results from some invention or innovation that facilitates the achievement of higher output levels using the same quantity of inputs of capital.

Technological progress may also be labor or capital-augmenting. **Labor augmenting technological progress** occurs when the quality or skills of the labor force are upgraded—for example, by the use of videotapes, televisions, and other electronic communications media for classroom instruction. Similarly, **capital-augmenting technological progress** results in the more productive use of existing capital goods—for example, the substitution of steel for wooden plows in agricultural production.

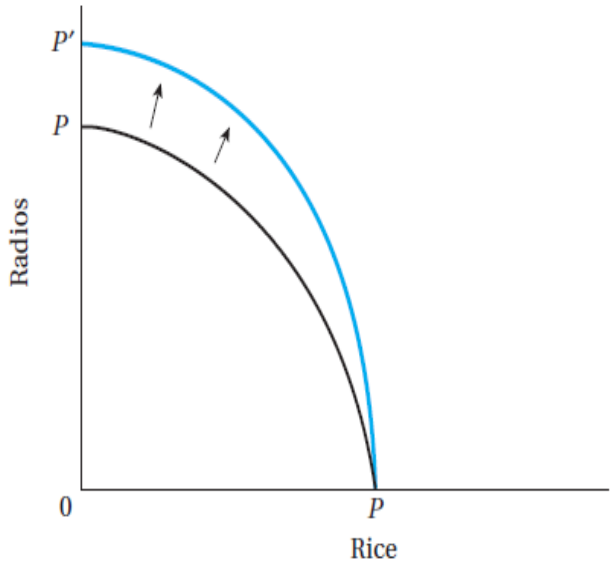
FIGURE A3.1.3 Effect of Technological Change in the Agricultural Sector on the Production Possibility Frontier



We can use our production possibility curve for rice and radios to examine two very specific examples of technological progress as it relates to output growth in developing countries. In terms of our production possibility analysis, the higher yielding varieties of hybrid rice could be depicted, as in Figure A3.1.3, by an outward shift of the curve along the rice axis with the intercept on the radio axis remaining essentially unchanged (i.e., the new rice seeds could not be directly used to increase radio production).

In terms of the technology of radio production, the invention of transistors has probably had as significant an impact on communications as the development of the steam engine had on transportation. FigureA3.1.4 shows that as in the case of higher-yielding rice seeds, the technology of the transistor can be said to have caused the production possibility curve to rotate outward along the vertical axis.

Figure A3.1.4 Effect of Technological Change in the Industrial Sector on the Production Possibility Frontier



THE SOLOW NEOCLASSICAL GROWTH MODEL

The Solow neoclassical growth model, for which Robert Solow of the Massachusetts Institute of Technology received the Nobel Prize, is probably the best known model of economic growth.

The Solow model allows for substitution between capital and labor. In the process, it assumes that there are diminishing returns to the use of these inputs.

The aggregate production function $Y = F(K, L)$ is assumed characterized by constant returns to scale. For example, in the special case known as the Cobb-Douglas production function, at any time t we have:

$$Y(t) = K([t)]^{\alpha}(A(t)L(t))^{1-\alpha} \qquad \text{(A 3.2.1)}$$

Where Y is gross domestic product, K is the stock of capital (which may include human capital as well as physical capital), L is labor, and A(t) represents the productivity of labor, which grows over time at an exogenous rate.

Because of constant returns to scale, if all inputs are increased by the same amount, say 10%, then output will increase by the same amount (10% in this case). More generally,

$$\gamma Y = F(\gamma K, \gamma L)$$

Where g is some positive amount (1.1 in the case of a 10% increase), because g can be any positive real number, a mathematical trick useful in analyzing the implications of the model is to set $g = \frac{1}{L}$ so that.:

$$\frac{Y}{L} = f\left(\frac{K}{L}, 1\right) or\ y = f(k) \qquad \text{(A3.2.2)}$$

Lowercase variables are expressed in per-worker terms in these equations. The concave shape of that is, increasing at a decreasing rate—reflects diminishing returns to capital per worker, as can be seen in Figure A3.2.1.2 In the Harrod-Domar model, this would instead be a straight, upward-sloping line.

This simplification allows us to deal with just one argument in the production function. For example, in the Cobb-Douglas case introduced in Equation A3.2.1,

$$y = Ak^{\alpha} \qquad \text{(A 3.2.3)}$$

This represents an alternative way to think about a production function, in which everything is measured in quantities per worker. Equation A3.2.3 states that output per worker is a function that depends on the amount of capital per worker. The more capital with which each worker has to work, the more output that worker can produce. The labor force grows at rate n per year, say, and labor productivity growth, the rate at which the value of A in the production function increases, occurs at rate l. The total capital stock grows when savings are greater than depreciation, but capital per worker grows when savings are also greater than what is needed to equip new workers with the same amount of capital as existing workers have.

The Solow equation (Equation A3.2.4) gives the growth of the capital-labor ratio, k (known as capital deepening), and shows that the growth of k depends on savings $sf(k)$, after allowing for the amount of capital required to service depreciation, Δk , and after capital widening, that is, providing the existing amount of capital per worker to net new workers joining the labor force, nk . That is,

$$\Delta k = sf(k) - (\delta + n)k$$

For simplicity, we are assuming for now that A remains constant. In this case, there will be a state in which output and capital per worker are no longer changing, known as the steady state. To find this steady state, set $\Delta k = 0$:

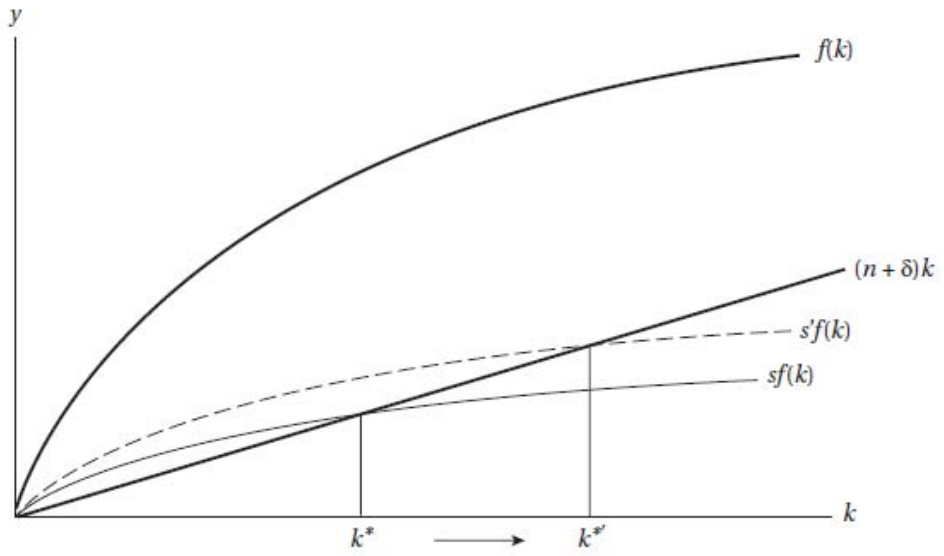
$$sf(k^*) = (\delta + n)k^*$$

The notation k* means the level of capital per worker when the economy is in its steady state. That this equilibrium is stable can be seen from Figure A3.2.1. The capital per worker k* represents the steady state. If k is higher or lower than k*, the economy will return to it; thus k* is a stable equilibrium. This stability is seen in the diagram by noting that to the left of k*, $k < k^*$. Looking at the diagram, we see that in this case, $(n + \delta)k$ < sf(k). But now looking at the Solow equation (Equation A3.2.4), we see that when $(n + \delta)k$ < sf(k), k < 0. As a result, k in the economy is growing toward the equilibrium point k*. By similar reasoning to the right of k*, $(n + \delta)k$ < sf(k), and as a result, k < 0 (again refer to Equation A3.2.4), and capital per worker is actually shrinking toward the equilibrium k*.

It is instructive to consider what happens in the Solow neoclassical growth model if we increase the rate of savings, s. A temporary increase in the rate of output growth is realized as we increase k by raising the rate of savings. We return to the original steady-state growth rate later, though at a higher level of output per worker in each later year.

The key implication is that unlike in the Harrod-Domar (AK) analysis, in the Solow model an increase in s will not increase growth in the long run; it will only increase the equilibrium k*. That is, after the economy has time to adjust, the capital-labor ratio increases, and so does the output-labor ratio, but not the rate of growth. The effect is shown in Figure A3.2.2, in which savings is raised to s. In contrast, in the Harrod-Domar model, an increase in s raises the growth rate. (This is because in the Harrod-Domar model sf(k) becomes a straight line from the origin that does not cross $(n + \delta)k$; and so, as we assume that sf(k) lies above $(n + \delta)k$, growth continues at the now higher Harrod-Domar rate—a result that was represented, for example, in the comparison of Equations 3.8 and 3.9.)

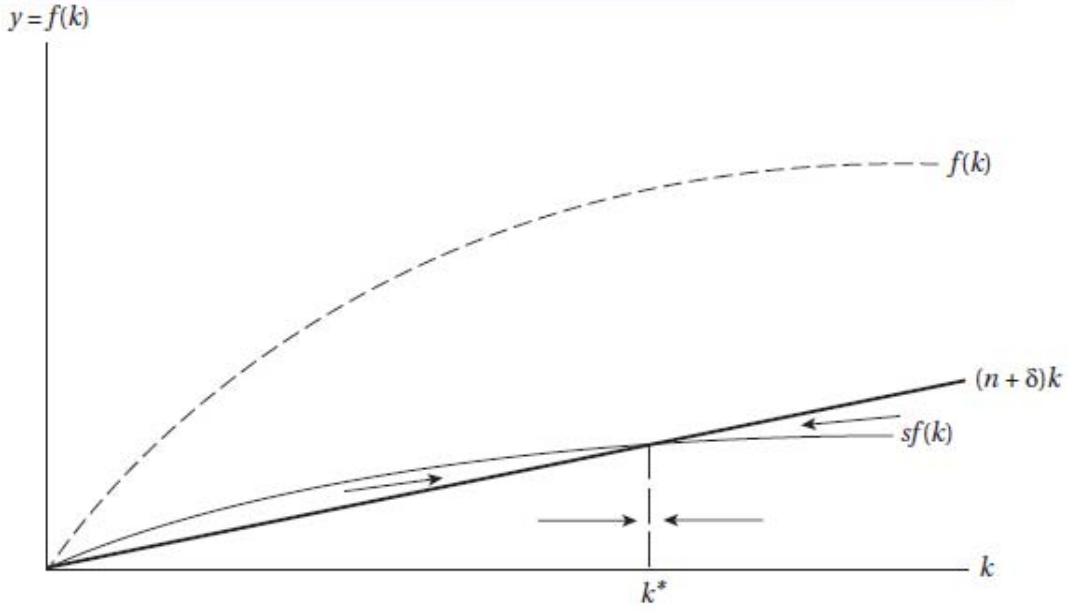
FIGURE A3.2.2 The Long-Run Effect of Changing the Savings Rate in the Solow Model



Note carefully that in the Solow model, an increase in s does raise equilibrium output per person—which is certainly a valuable contribution to development—just not the equilibrium rate of growth. And the growth rate does increase temporarily as the economy kicks up toward the higher equilibrium capital per worker. Moreover, simulations based on cross-national data suggest that if s is increased, the economy may not return even halfway to its steady state for decades. That is, for practical purposes of policymaking in developing countries, even if the Solow model is an accurate depiction of the economy, an increase in savings may substantially increase the growth rate for many decades to come.

Finally, it is possible that the rate of savings (and hence investment) is positively related to the rate of technological progress itself, so that the growth of A depends on s. This could be the case if investment uses newer-vintage capital and hence is more productive, if investment represents innovation in that it solves problems faced by the firm, and if other firms see what the investing firm has done and imitate it ("learning by watching"), generating externalities.

FIGURE A3.2.1 Equilibrium in the Solow Growth Model



Lesson 07

POVERTY, INEQUALITY AND ECONOMIC DEVELOPMENT

DISTRIBUTION AND DEVELOPMENT: SEVEN CRITICAL QUESTIONS

- 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?
- Do the poor benefit from growth?
- Are high levels of inequality always bad?
- What policies can reduce poverty?

MEASURING INEQUALITY AND POVERTY

In this section, we define the dimensions of the income distribution and poverty problems and identify some similar elements that characterize the problem in many developing nations.

MEASURING INEQUALITY

Economists usually distinguish between two principal measures of income distribution for both analytical and quantitative purposes:

- The personal or size distribution of income.
- The functional or distributive factor share distribution of income.

SIZE DISTRIBUTIONS

The **personal or size distribution of income** is the measure most commonly used by economists. It simply deals with individual persons or households and the total incomes they receive. The way in which that income was received is not considered. What matters is how much each earns irrespective of whether the income was derived solely from employment or came also from other sources such as interest, profits, rents, gifts, or inheritance.
Economists and statisticians therefore like to arrange all individuals by ascending personal

TABLE 5.1 Typical Size Distribution of Personal Income in a Developing Country by Income Shares—Quintiles and Deciles

Individuals	Personal Income (money units)	Share of Total Income (%)	
		Quintiles	Deciles
1	0.8		
2	1.0		1.8
3	1.4		
4	1.8	5	3.2
5	1.9		
6	2.0		3.9
7	2.4		
8	2.7	9	5.1
9	2.8		
10	3.0		5.8
11	3.4		
12	3.8	13	7.2
13	4.2		
14	4.8		9.0
15	5.9		
16	7.1	22	13.0
17	10.5		
18	12.0		22.5
19	13.5		
20	15.0	51	28.5
Total (national income)	100.0	100	100.0

incomes and then divide the total population into distinct groups, or sizes. A common method is to divide the population into successive quintiles (fifths) or deciles (tenths) according to ascending income levels and then determine what proportion of the total national income is received by each income group. For example, Table 5.1 shows a hypothetical but fairly typical distribution of income for a developing country.

A common measure of income inequality that can be derived from column3 is the ratio of the incomes received by the top 20% and bottom 40% of the population. This ratio, sometimes called a Kuznets ratio after Nobel laureate Simon Kuznets, has often been used as a measure of the degree of inequality between high- and low-income groups in a country. In our example, this inequality ratio is equal to 51 divided by 14, or approximately 3.64. In Table 5.1, we see that the top 5% of the population (the twentieth individual) receives 15% of the income, a higher share than the combined shares of the lowest 40%.

- **Personal distribution of income (size distribution of income):** The distribution of income according to size class of persons—for example, the share of total income accruing to the poorest specific percentage or the richest specific percentage of a population without regard to the sources of that income.
- **Quintile:** A 20% proportion of any numerical quantity. A population divided into quintiles would be divided into five groups of equal size.
- **Decile:** A 10% portion of any numerical quantity; a population divided into deciles would be divided into ten equal numerical groups.
- **Income inequality:** The disproportionate distribution of total national income among households.

LORENZ CURVES

Another common way to analyze personal income statistics is to construct what is known as a Lorenz curve i.e.

- **Lorenz curve:** A graph depicting the variance of the size distribution of income from perfect equality.

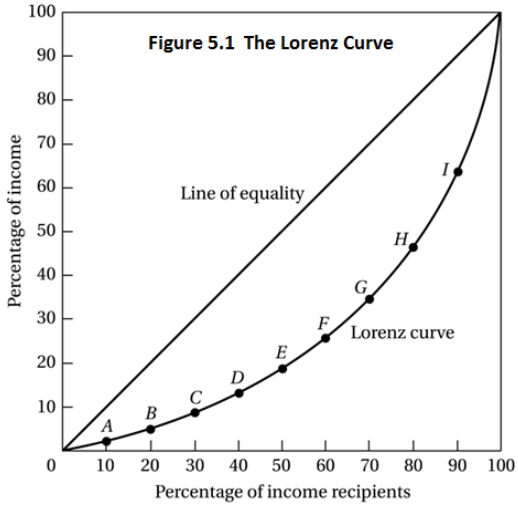


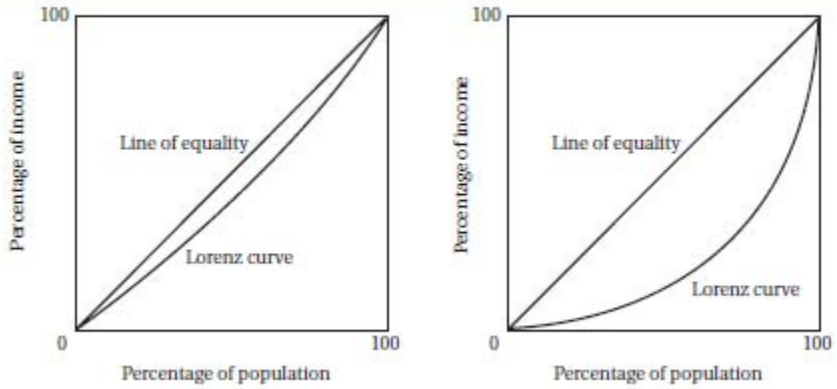
Figure 5.1 shows how it is done. The numbers of income recipients are plotted on the horizontal axis, not in absolute terms but in cumulative percentages. For example, at point 20, we have the lowest (poorest) 20% of the population; at point 60, we have the bottom60%; and at the end of the axis, all 100% of the population has been accounted for. The vertical axis shows the share of total income received by each percentage of population. It is also cumulative up to 100%, meaning that both axes are the same length. The entire figure is enclosed in a square, and a diagonal line is drawn from the lower left corner (the origin) of the square to the upper right corner. At every point on that diagonal, the percentage of income received is exactly equal to the percentage of income recipients In other words, the diagonal line in Figure 5.1 is representative of “perfect equality” in size distribution of income. The Lorenz curve shows the actual quantitative relationship between

the percentage of income recipients and the percentage of the total income they did in fact receive during, say, a given year.

The more the Lorenz line curves away from the diagonal (line of perfect equality), the greater the degree of inequality represented. The extreme case of perfect inequality (i.e., a situation in which one person receives all of the national income while everybody else receives nothing) would be represented by the congruence of the Lorenz curve with the bottom horizontal and right hand vertical axes. Because no country exhibits either perfect equality or perfect inequality in its distribution of income, the Lorenz curves for different countries will lie somewhere to the right of the diagonal in Figure 5.1. The greater the degree of inequality, the greater the bend and the closer to the bottom horizontal axis the Lorenz curve will be. Two representative distributions are shown in Figure 5.2, one for a relatively equal distribution (Figure 5.2a) and the other for a more unequal distribution (Figure 5.2b).

GINI COEFFICIENTS AND AGGREGATE MEASURES OF INEQUALITY

FIGURE 5.2 The Greater the Curvature of the Lorenz Line, the Greater the Relative Degree of Inequality



Def: An aggregate numerical measure of income inequality ranging from 0 (perfect equality) to 1(perfect inequality). It is measured graphically by dividing the area between the perfect equality line and the Lorenz curve by the total area lying to the right of the equality line in a Lorenz diagram. The higher the value of the coefficient, the higher the inequality of income distribution; the lower it is, the more equal the distribution of income.

In Figure 5.3, this is the ratio of the shaded area A to the total area of the triangle BCD. This ratio is known as the Gini concentration ratio or Gini coefficient, named after the Italian statistician who first formulated it in 1912.

Four possible Lorenz curves such as might be found in international data are drawn in Figure 5.4. In the "Lorenz criterion" of income distribution, whenever one Lorenz curve lies above another Lorenz curve, the economy corresponding to the upper Lorenz curve is more equal than that of the lower curve. Thus economy A may unambiguously be said to be more equal than economy D. Whenever two Lorenz curves cross, such as curves B and C, the Lorenz criterion states that we "need more information" or additional assumptions before we can determine which of the underlying economies is more equal. But others might start with the assumption

FIGURE 5.3 Estimating the Gini Coefficient

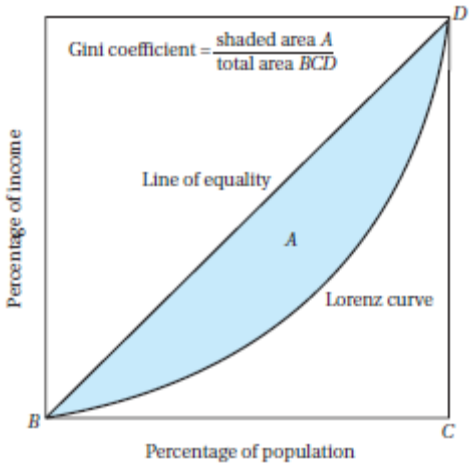
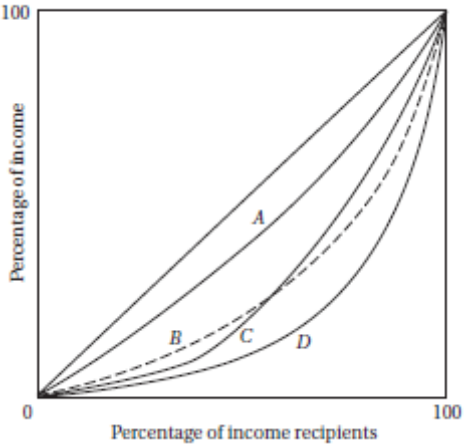


FIGURE 5.4 Four Possible Lorenz Curves



that an economy with a stronger middle class is inherently more equal, and those observers might select economy C.

One could also use an aggregate measure such as the Gini coefficient to decide the matter. As it turns out, the Gini coefficient is among a class of measures that satisfy four highly desirable properties: the anonymity, scale independence, population independence, and transfer principles. Note, finally, that we can also use Lorenz curves to study inequality in the distribution of land, in education and health, and in other assets.

FUNCTIONAL DISTRIBUTIONS

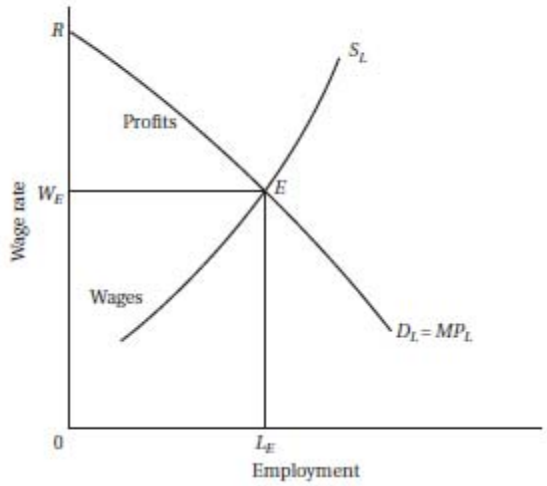
The second common measure of income distribution used by economists, the functional or factor share distribution of income, attempts to explain the share of total national income that each of the factors of production (land, labor, and capital) receives.

- **Functional distribution of income (factor share distribution of income):** The distribution of income to factors of production without regard to the ownership of the factors.
- **Factors of production:** Resources or inputs required to produce a good or a service, such as land, labor, and capital.

Figure 5.5 provides a simple diagrammatic illustration of the traditional theory of functional income distribution. We assume that there are only two factors of production: capital, which is a fixed (given) factor, and labor, which is the only variable factor. Under competitive market assumptions, the demand for labor will be determined by labor's marginal product (i.e., additional workers will be hired up to the point where the value of their marginal product equals their real wage). But in accordance with the principle of diminishing marginal products, this demand for labor will be a declining function of the numbers employed. Such a negatively

sloped labor demand curve is shown by line DL in Figure 5.5. With a traditional neoclassical upward-sloping labor supply curve SL, the equilibrium wage will be equal to WE and the equilibrium level of employment will be LE. Total national output (which equals total national income) will be represented by the area 0RELE.5 This national income will be distributed in two shares: 0WEELE going to workers in the form of wages and WERE remaining as capitalist profits (the return to owners of capital).Hence in a competitive market economy with constant-returns-to-scale production functions (a doubling of all inputs doubles output), factor prices are determined by factor supply and demand curves, and factor shares always combine to exhaust the total national product. Income is distributed by function—laborers are paid wages, owners of land receive rents, and capitalists obtain profits. It is a neat and logical theory in that each and every factor gets paid only in accordance with what it contributes to national output, no more and no less. In fact, as you may recall from Chapter 3, this model of income distribution is at the core of the Lewis theory of modern-sector growth based on the reinvestment of rising capitalist profits.

FIGURE 5.5 Functional Income Distribution in a Market Economy: An Illustration



MEASURING ABSOLUTE POVERTY

Absolute poverty: The situation of being unable or only barely able to meet the subsistence essentials of food, clothing, and shelter.

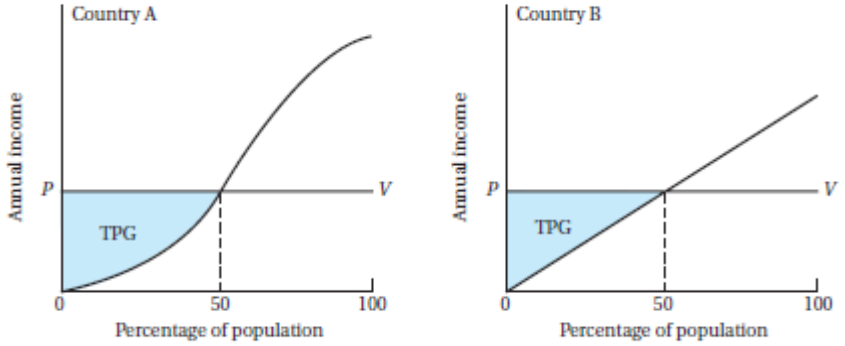
HEADCOUNT INDEX

Absolute poverty is sometimes measured by the number, or "headcount," H, of those whose incomes fall below the absolute poverty line, Yp. When the headcount is taken as a fraction of the total population, N, we define the headcount index, H/N. Headcount index is the proportion of a country's population living below the poverty line.

TOTAL POVERTY GAP (TPG)

Economists therefore attempt to calculate a total poverty gap (TPG) that measures the total amount of income necessary to raise everyone who is below the poverty line up to that line. Figure 5.6 illustrates how we could measure the total poverty gap as the shaded area between poverty line, PV, and the annual income profile of the population.

FIGURE 5.6 Measuring the Total Poverty Gap



(a) A relatively large poverty gap (b) A relatively small poverty gap

The sum of the difference between the poverty line and actual income levels of all people living below that line.

Even though in both country A and country B, 50% of the population falls below the same poverty line, the TPG in country A is greater than in country B. Therefore, it will take more of an effort to eliminate absolute poverty in country A.

The TPG—the extent to which the incomes of the poor lie below the poverty line—is found by adding up the amounts by which each poor person's income, Yi, falls below the absolute poverty line, , as follows:

$$TPG = \sum_{i=1}^{H} (Y_p - Y_i)$$

AVERAGE POVERTY GAP (APG)

$$APG = \frac{TPG}{N}$$

- Where N is number of persons in the economy
- TPG is total poverty gap
- Note: normalized poverty gap, NPG = APG/Yp

AVERAGE INCOME SHORTFALL (AIS)

$$AIS = \frac{TPG}{H}$$

- Where H is number of poor persons
- TPG is total poverty gap
- Note: Normalized income shortfall, NIS = AIS/Yp

FOSTER-GREER-THORBECKE (FGT) INDEX

A class of measures of the level of absolute poverty

The Pα index is given by

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

Where Yi is the income of the ith poor person, Yp is the poverty line, and N is the population. Depending on the value of α, the Pα index takes on different forms. If α= 0, the numerator is equal to H, and we get the headcount ratio, H/N. If α= 1, we get the normalized poverty gap. If α= 2, the impact on measured poverty of a gain in income by a poor person increases in proportion to the distance of the person from the poverty line.

If α = 2, the resulting measure, P_2, can be rewritten as:

$$P_2 = \left(\frac{H}{N}\right)[NIS^2 + (1 - NIS)^2(CV_p)^2]$$

Lesson 08

POVERTY, INEQUALITY AND ECONOMIC DEVELOPMENT (CONTINUED1)

MULTIDIMENSIONAL POVERTY INDEX

Def: A poverty measure that identifies the poor using dual cutoffs for levels and numbers of deprivations, and then multiplies the percentage of people living in poverty times the percent of weighted indicators for which poor households are deprived on average.

- Identification of poverty status through a dual cutoff:
- First, cutoff levels within each dimension (analogous to falling below a poverty line for example $1.25 per day for income poverty).
- Second, cutoff in the number of dimensions in which a person must be deprived (below a line) to be deemed multi dimensionally poor.
- MPI focuses on deprivations in health, education, and standard of living; and each receives equal (that is one-third of the overall total) weight.

MPI INDICATORS

- **Health:** Two indicators with equal weight - whether any child has died in the family, and whether any adult or child in the family is malnourished –weighted equally (each counts as one-sixth toward the maximum deprivation in the MPI)
- **Education:** Two indicators with equal weight - whether no household member completed 5 years of schooling, and whether any school-aged child is out of school for grades 1 through 8 (each counts one-sixth toward the MPI).
- Standard of Living, equal weight on 6 deprivations (each counts as 1/18 toward the

TABLE 5.2 MPI Rankings and Poverty Headcounts for Selected Countries

			Multidimensional Poverty			Income Poverty			
						$1.25 a Day (proportion of poor)		$2 a Day (proportion of poor)	
Country	Year	MPI Value	MPI Rank	H_M (proportion of poor)	A (average intensity of deprivations)	Value	Rank	Value	Rank
Kazakhstan	2006	0.002	7	0.006	0.369	0.031	23	0.172	29
Thailand	2005	0.006	16	0.016	0.385	0.020	1	0.115	20
Ecuador	2003	0.009	24	0.022	0.416	0.047	26	0.128	23
Mexico	2006	0.015	29	0.040	0.389	0.020	1	0.048	16
Brazil	2003	0.039	39	0.085	0.460	0.052	29	0.127	21
Colombia	2005	0.041	40	0.092	0.441	0.160	42	0.279	35
Dominican Republic	2000	0.048	42	0.111	0.433	0.050	28	0.151	27
China	2003	0.056	44	0.125	0.449	0.159	41	0.363	41
Viet Nam	2002	0.075	50	0.143	0.525	0.215	50	0.484	51
Indonesia	2007	0.095	53	0.208	0.459	0.075	31	0.490	52
Ghana	2008	0.140	57	0.301	0.464	0.300	57	0.536	56
Zimbabwe	2006	0.174	60	0.385	0.452				
Bolivia	2003	0.175	61	0.363	0.483	0.196	46	0.303	38
Nicaragua	2001	0.211	64	0.407	0.519	0.158	40	0.318	40
Lao	2006	0.267	68	0.472	0.565	0.440	46	0.768	73
Pakistan	2007	0.275	70	0.510	0.540	0.226	53	0.603	59
Yemen	2006	0.283	71	0.525	0.539	0.175	43	0.466	49
Bangladesh	2007	0.291	73	0.578	0.504	0.496	71	0.813	80
India	2005	0.296	74	0.554	0.535	0.416	64	0.756	70
Kenya	2003	0.302	76	0.604	0.500	0.197	47	0.399	43
Haiti	2006	0.306	77	0.573	0.533	0.549	76	0.721	67
Côte d'Ivoire	2005	0.320	78	0.522	0.614	0.233	55	0.468	50
Nepal	2006	0.350	82	0.647	0.540	0.551	77	0.776	76
Tanzania	2008	0.367	84	0.653	0.563	0.885	93	0.966	93
DR Congo	2007	0.393	88	0.732	0.537	0.592	79	0.795	77
Madagascar	2004	0.413	91	0.705	0.585	0.678	86	0.896	87
Angola	2001	0.452	93	0.774	0.584	0.543	89	0.900	88
Ethiopia	2005	0.582	103	0.900	0.647	0.390	62	0.775	75
Niger	2006	0.642	104	0.927	0.693	0.659	85	0.856	85

maximum): lack of electricity; insufficiently safe drinking water; inadequate sanitation; inadequate flooring; unimproved cooking fuel; lack of more than one of 5 assets – telephone, radio, TV, bicycle, and motorbike.

INTERACTION OF THE DEPRIVATIONS?

- Building the index from household measures up to the aggregate measure (rather than using already-aggregated statistics), MPI approach takes account of multiplied or interactive harm (complementarity) done when multiple deprivations are experienced by the same individual or family
- The MPI approach assumes an individual's lack of capability in one area can only to a degree be made up by other capabilities – capabilities are treated as substitutes up to a point but then as complements.

COMPUTING THE MPI

- The MPI for the country (or region or group) is then computed.
- A convenient way to express the resulting value is H*A, i.e., the product of the headcount ratio H (the percent of people living in multidimensional poverty), and the average intensity of deprivation A.
- The adjusted headcount ratio HA is readily calculated.
- HA satisfies some desirable properties.
- Dimensional monotonicity: If a person already identified as poor becomes deprived in another indicator she is measured as even poorer - not the case using a simple headcount ratio.

MULTIDIMENSIONAL POVERTY TELLS A DIFFERENT STORY THAN INCOME POVERTY

- The results showed that knowing income poverty is not enough if our concern is with multidimensional poverty.
- Multi dimensionally, Bangladesh is substantially less poor - but Pakistan substantially poorer - than would be predicted by income poverty.
- Ethiopia is far more multi dimensionally poor, and Tanzania much less so, than predicted by income poverty.
- Most Latin American countries e.g. Brazil rank worse on multidimensional poverty than on income poverty; but Colombia's income and MPI poverty ranks are about same.

LIMITATIONS

As mentioned, data are from the household rather than the individual level (such as whether any child of school age is out of school or whether any family member is undernourished).It does not fully distinguish between past and present conditions (because its measure is whether a child has ever died). It does not distinguish differences within households. Education considers only inputs such as enrolling or attending for five years, not outputs such as being able to read. And the choice of basic assets is questionable.

WHAT'S SO BAD ABOUT EXTREME INEQUALITY?

Throughout this chapter, we are assuming that social welfare depends positively on the level of income per capita but negatively on poverty and negatively on the level of inequality, as these

terms have just been defined. The problem of absolute poverty is obvious. No civilized people can feel satisfied with a state of affairs in which their fellow humans exist in conditions of such absolute human misery, which is probably why every major religion has emphasized the importance of working to alleviate poverty and is at least one of the reasons why international development assistance has the nearly universal support of every democratic nation. Why should we be concerned with inequality among those above the poverty line?

There are three major answers to this question.

- Extreme income inequality leads to economic inefficiency.
- Extreme income disparities undermine social stability and solidarity. High inequality facilitates rent seeking, including actions such as excessive lobbying, large political donations, bribery and cronyism.
- Extreme inequality is generally viewed as unfair i.e. it may also lead the poor to support populist policies that can be self defeating.

For all these reasons, for this part of the analysis we will write welfare, W, as
W = W(Y, I, P)

Where Y is income per capita and enters our welfare function positively, I is inequality and enters negatively, and P is absolute poverty and also enters negatively. These three components have distinct significance, and we need to consider all three elements to achieve an overall assessment of welfare in developing countries.

DUALISTIC DEVELOPMENT AND SHIFTING LORENZ CURVES

SOME STYLIZED TYPOLOGIES

Gary Fields used Lorenz curves to analyze three limiting cases of dualistic development.

1. The **modern-sector enlargement growth typology**, in which the two-sector economy develops by enlarging the size of its modern sector while maintaining constant wages in both sectors.
2. The **modern-sector enrichment growth typology,** in which the economy grows but such growth is limited to a fixed number of people in the modern sector, with both the numbers of workers and their wages held constant in the traditional sector.
3. The **traditional-sector enrichment growth typology,** in which all of the benefits of growth are divided among traditional-sector workers, with little or no growth occurring in the modern sector.

Using these three special cases and Lorenz curves, Fields demonstrated the validity of the following propositions.

1. In the traditional-sector enrichment typology, growth results in higher income, a more equal relative distribution of income, and less poverty. Traditional sector enrichment growth causes the Lorenz curve to shift uniformly upward and closer toward the line of equality, as depicted in Figure 5.7.
2. In the modern-sector enrichment growth typology, growth results in higher incomes, a less equal relative distribution of income, and no change in poverty. Modern-sector enrichment growth causes the Lorenz curve to shift downward and farther from the line of equality, as shown in Figure 5.8.
3. Finally, in the case of Lewis-type modern-sector enlargement growth, absolute incomes rise and absolute poverty is reduced, but the Lorenz curves will always cross, indicating that we cannot make any unambiguous statement about changes in relative inequality: It may improve or worsen. Fields shows that if, in fact, this style of growth experience is predominant, inequality is likely first to worsen in the early stages of development and then to improve. The crossing of the Lorenz curves is demonstrated in Figure 5.9.

FIGURE 5.7 Improved Income Distribution under the Traditional-Sector Enrichment Growth Typology

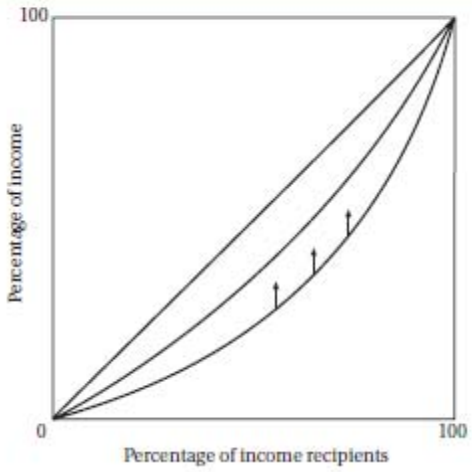


FIGURE 5.9 Crossing Lorenz Curves in the Modern-Sector Enlargement Growth Typology

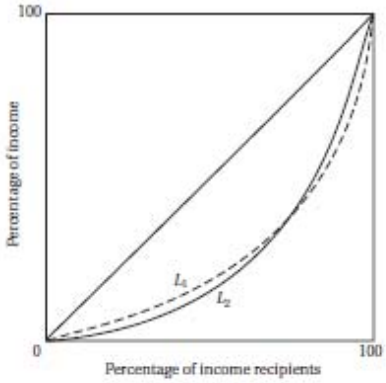
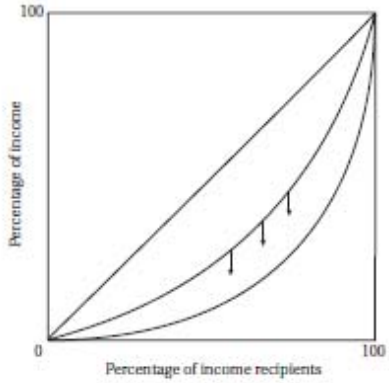


FIGURE 5.8 Worsened Income Distribution under the Modern-Sector Enrichment Growth Typology



These three typologies offer different predictions about what will happen to inequality in the course of economic growth. With modern-sector enrichment, inequality would rise steadily, while under traditional-sector enrichment, inequality would fall steadily. Under modern-sector enlargement, inequality would first rise and then fall.

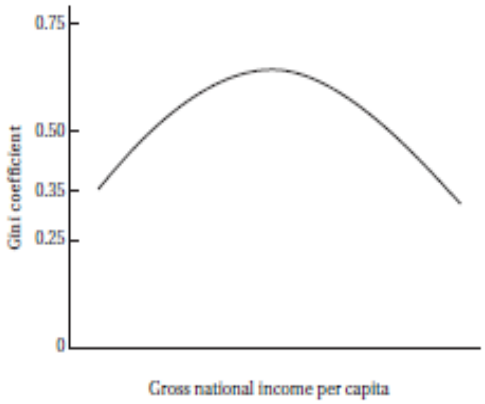
These observations tell us that we have to qualify our conclusion that a rise in inequality is inherently bad. In some cases, inequality may increase on a temporary basis due to causes that will eventually make everyone better off and ultimately lower inequality. However, with modern-sector enrichment growth, the increase in inequality is not later reversed, and the poor do not escape their poverty.

KUZNETS'S INVERTED U HYPOTHESIS

A graph reflecting the relationship between a country's income per capita and its equality of income distribution.

Kuznets suggested that in the early stages of economic growth, the distribution of income will tend to worsen; only at later stages it will improve. This observation came to be characterized by the "inverted-U" Kuznets curve because a longitudinal (time-series) plot of changes in the distribution of income as measured, for example, by the Gini coefficient seemed, when per capita GNI expanded, to trace out an inverted U-shaped curve in some of the cases Kuznets studied, as illustrated in Fig 5.10.

FIGURE 5.10 The "Inverted-U" Kuznets Curve



EVIDENCE ON THE INVERTED-U HYPOTHESIS

Let us look at data collected from 16 countries on the percentage shares in total national income going to different percentile groups (see Table 5.3). Though methods of collection, degree of coverage, and specific definitions of personal income may vary from country to country, the figures recorded in Table 5.3 give a first approximation of the magnitude of income inequality in developing countries.

TABLE 5.3 Selected Income Distribution Estimates

		Quintile						
Country	Lowest 10%	1st	2nd	3rd	4th	5th	Highest 10%	Year
Bangladesh	4.3	9.4	12.6	16.1	21.1	40.8	26.6	2005
Brazil	1.1	3.0	6.9	11.8	19.6	58.7	43.0	2007
China	2.4	5.7	9.8	14.7	22.0	47.8	31.4	2005
Colombia	0.8	2.3	6.0	11.0	19.1	61.6	45.9	2006
Costa Rica	1.6	4.4	8.5	12.7	19.7	54.6	38.6	2007
Guatemala	1.3	3.4	7.2	12.0	19.5	57.8	42.4	2006
Honduras	0.7	2.5	6.7	12.1	20.4	58.4	42.2	2006
India	3.6	8.1	11.3	14.9	20.4	45.3	31.1	2005
Jamaica	2.1	5.2	9.0	13.8	20.9	51.2	35.6	2004
Namibia	0.6	1.5	2.8	5.5	12.0	78.3	65.0	1993
Pakistan	3.9	9.1	12.8	16.3	21.3	40.5	26.5	2005
Peru	1.3	3.6	7.8	13.0	20.8	54.8	38.4	2007
Philippines	2.4	5.6	9.1	13.7	21.2	50.4	33.9	2006
South Africa	1.3	3.1	5.6	9.9	18.8	62.7	44.9	2000
Tanzania	3.1	7.3	11.8	16.3	22.3	42.3	27.0	2001
Zambia	1.3	3.6	7.8	12.8	20.6	55.2	38.9	2005
Japan	4.8	10.6	14.2	17.6	22.0	35.7	21.7	1993
United States	1.9	5.4	10.7	15.7	22.4	45.8	29.9	2000

Consider now the relationship, if any, between levels of per capita income and degree of inequality. Are higher incomes associated with greater or lesser inequality, or can no definitive statement be made? Table 5.4 provides data on income distribution in relation to per capita GNI for a sampling of countries, arranged from lowest to highest in terms of per capita income. What clearly emerges from Table 5.4 is that per capita incomes are not necessarily related to inequality.

Gary Fields and George Jakubson examined this question. Figure 5.11 on page 228, plots a combination of data from the 35 countries in Fields and Jakubson's data set, where reliable estimates of the Gini coefficient have been available for various developing countries at different points in time. The inverted-U relationship, tracing the triangles, is a computer-generated parabola that best fits the data under standard statistical criteria.

So the question is what happens over time? In Figure 5.12 selected countries from the data in Figure 5.11 have been isolated. As can be seen, the data from Brazil, which have the label 1 in the diagram, do plainly show an inverted-U pattern. But when these separate experiences are merged into one picture, the eyes (and the computer) misleadingly trace an inverted U in the data taken as a whole. This reinforces the great importance of understanding what gives rise to the statistical patterns in the data rather than taking them at face value.

As a result, the dominating influence of the "Latin America effect" has been strongly supported. In fact, there is no particular tendency for inequality to change in the process of economic development. Inequality seems to be a rather stable part of a country's socioeconomic makeup but inequality can be gradually reduced through well-implemented policies to promote pro-poor growth over time.

FIGURE 5.11 Kuznets Curve with Latin American Countries Identified

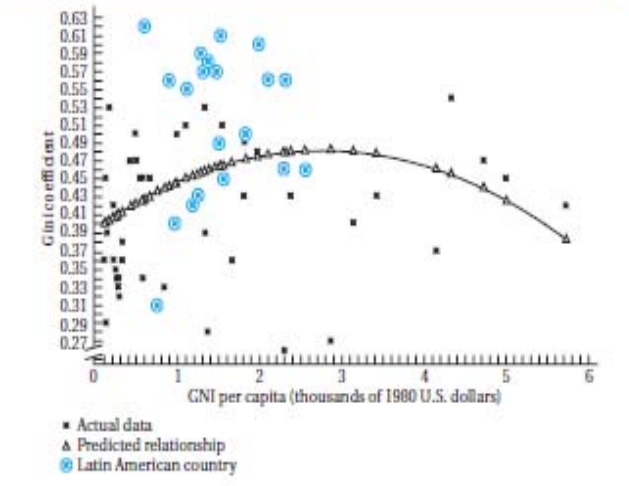
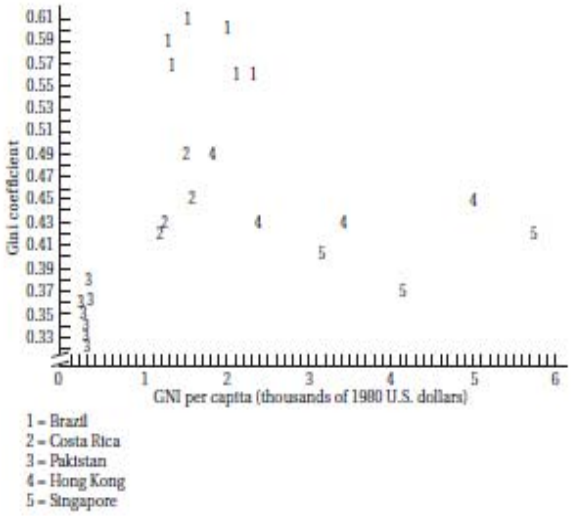


FIGURE 5.12 Plot of Inequality Data for Selected Countries



Lesson 09

POVERTY, INEQUALITY AND ECONOMIC DEVELOPMENT (CONTINUED2)

GROWTH, POVERTY AND INEQUALITY

Let us look now briefly at the relationship, if any, between economic growth and inequality. It is not just the rate but also the character of economic growth that determines the degree to which that growth is or is not reflected in improved living standards for the poor. Clearly, it is not necessary for inequality to increase for higher growth to be sustained.

The distributive implications of economic growth as reflected in such factors as participation in the growth process and asset ownership.

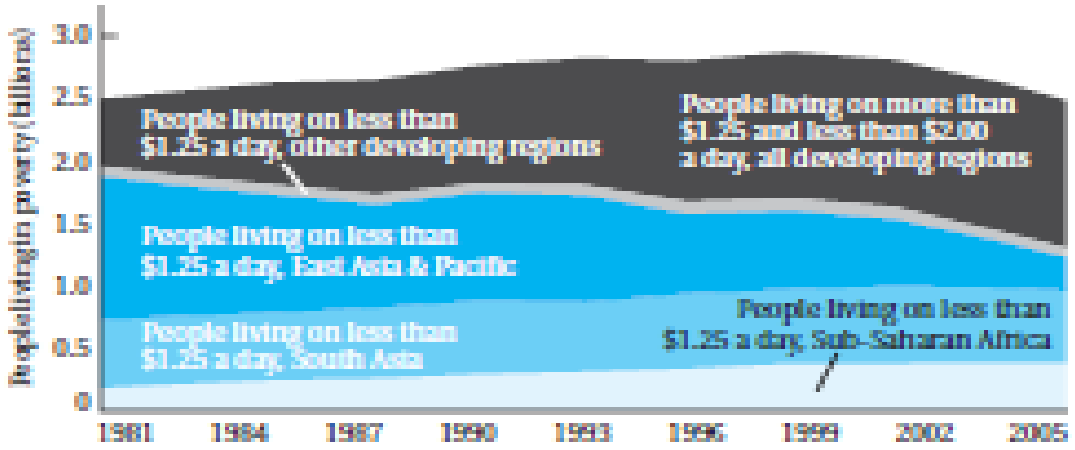
TABLE 5.4 Income and Inequality in Selected Countries

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

ABSOLUTE POVERTY: EXTENT AND MAGNITUDE

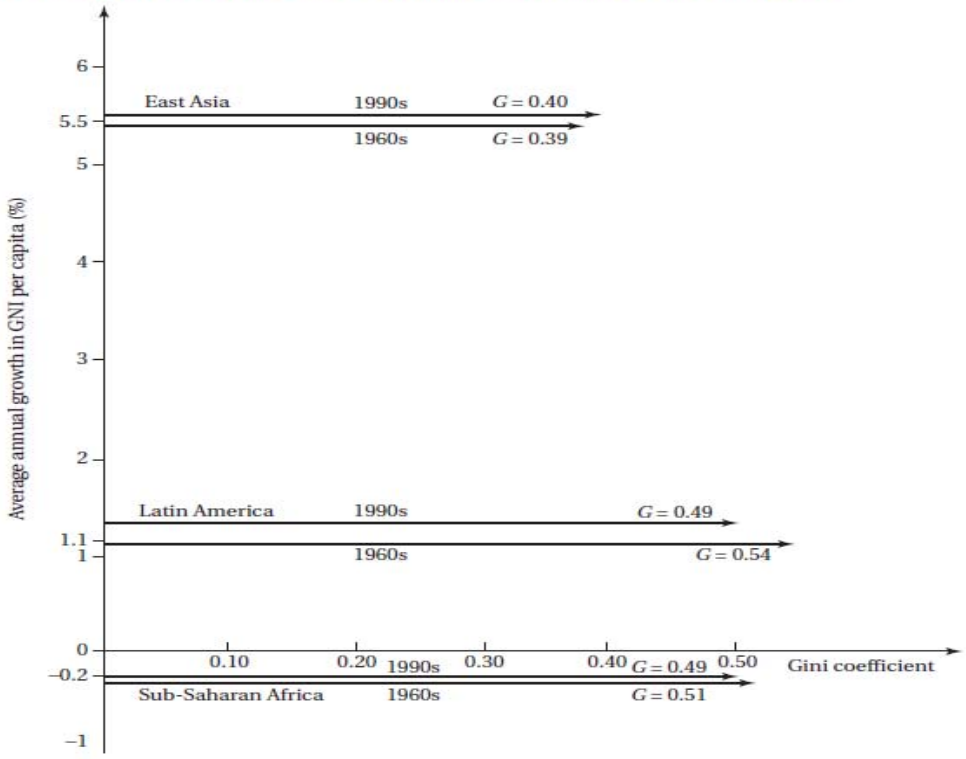
It is extremely difficult to arrive at a tight estimate of the extent of global poverty at any point in time. Major World Bank reports issued within a couple of years of each other have provided estimates of the dollar-a-day headcount that differ by tens of millions of people. This reflects the difficulty of the task. Another difficulty is determining the most appropriate cutoff income for extreme poverty. The $1-a-day line was first set in 1987 dollars, and for years the standard was$1.08 in 1993 U.S. purchasing power parity. In 2008, the equivalent line was reset at $1.25 at 2005 U.S. purchasing power.

FIGURE 5.14 Global and Regional Poverty Trends



The World Bank's current estimates of the trends of poverty reduction are reported in Figure 5.14. There has been very substantial progress in reducing the still enormous numbers of people living in extreme poverty at $1.25 per day. The number living on less than $2 per day has remained relatively stable.

FIGURE 5.13 Long-Term Economic Growth and Income Inequality



The incidence of extreme poverty is very uneven around the developing world. Household survey–based estimates are regarded as the most accurate ways to estimate poverty incidence. Table 5.5 provides some survey-based poverty estimates by region at the $1.25 and $2 poverty lines. As can be seen, poverty incidence is very high in both South Asia, with about 40% below $1.25per day, and in sub-Saharan Africa, with 51% below. But poverty severity is far higher in sub-Saharan Africa, with a squared poverty gap index P2 (in percentage terms) at 11.05, far above that of South Asia at 3.64. Table 5.6 provides estimates for some specific countries in Africa, Asia, and Latin America at the $1.25and $2 poverty lines. It can be seen that about 44% of India's 2004 rural population lived below the $1.25-a-day poverty line, while almost 80% lived on less than $2 per day. In contrast, less than 36% of its urban population lived on less than $1.25 per day, although about 66% still lived on less than $2 per day. Research suggests that approximately one-third of all people who are poor at any one time are chronically (always) poor.

Problems of the poorest of the poor pose particular challenges. Ultra-poverty differs from conventional poverty in terms of depth (degree of deprivation), length (duration of time), and breadth (the number of dimensions, such as illiteracy and malnutrition). The mutual reinforcement among the different dimensions of poverty can potentially result in multiple mutually reinforcing poverty traps.

The prospect for ending poverty depends critically on two factors: first, the rate of economic growth—provided it is undertaken in a shared and sustainable way—and second, the level of resources devoted to poverty programs and the quality of those programs.

TABLE 5.5 Regional Poverty Incidence, 2005

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

GROWTH AND POVERTY

Are the reduction of poverty and the acceleration of growth in conflict? Or are they complementary? Traditionally, a body of opinion held that rapid growth is bad for the poor because they would be bypassed and marginalized by the structural changes of modern growth. Beyond this, there had been considerable concern in policy circles that the public expenditures required for the reduction of poverty would entail a reduction in the rate of growth. The concerns that concentrated efforts to lower poverty would slow the rate of growth paralleled the arguments that countries with lower inequality would experience slower growth.

Certainly, the relationship between economic growth and progress among the poor does not by itself indicate causality. Some of the effect probably runs from improved incomes, education, and health among the poor to faster overall growth (as suggested by some of the arguments listed previously). Moreover, as we have noted, poverty reduction is possible without rapid growth. But whatever the causality, it is clear that growth and poverty reduction are entirely compatible objectives.

TABLE 5.6 Poverty Incidence in Selected Countries

Country	Year	Per Capita Monthly Income (2005 PPP)	Headcount Ratio (%)	Poverty Gap (%)	Squared Poverty Gap (%)	Gini Index (%)
Incidence at $1.25 a Day; Poverty Line at 38						
Bangladesh	2005	48.27	50.47	14.17	5.20	33.22
Benin	2003	52.77	47.33	15.73	6.97	38.62
Brazil	2007	346.64	5.21	1.26	0.44	55.02
Burkina Faso	2003	46.85	56.54	20.27	9.38	39.6
China—Rural	2005	71.34	26.11	6.46	2.26	35.85
China—Urban	2005	161.83	1.71	0.45	0.24	34.8
Côte d'Ivoire	2002	101.11	23.34	6.82	2.87	48.39
Guatemala*	2006	191.7	12.65	3.83	1.63	53.69
Honduras*	2006	184.45	18.19	8.19	5.00	55.31
India—Rural	2004	49.93	43.83	10.66	3.65	30.46
India—Urban	2004	62.43	36.16	10.16	3.80	37.59
Indonesia—Rural	2005	62.79	24.01	5.03	1.61	29.52
Indonesia—Urban	2005	89.1	18.67	4.06	1.29	39.93
Madagascar	2005	44.82	67.83	26.52	13.23	47.24
Mexico	2006	330.37	0.65	0.13	0.05	48.11
Mozambique	2002	36.58	74.69	35.4	20.48	47.11
Nicaragua*	2005	151.18	15.81	5.23	2.54	52.33
Nigeria	2003	39.46	64.41	29.57	17.2	42.93
Pakistan	2004	65.76	22.59	4.35	1.28	31.18
Peru	2006	216.82	7.94	1.86	0.61	49.55
Philippines	2006	98.99	22.62	5.48	1.74	44.04
Rwanda	2000	33.76	76.56	38.21	22.94	46.68
Senegal	2005	66.86	33.5	10.8	4.67	39.19
Incidence at $2 a Day; Poverty Line at 60.84						
Bangladesh	2005	48.27	80.32	34.35	17.55	33.22
Benin	2003	52.77	75.33	33.51	18.25	38.62
Brazil	2007	346.64	12.70	4.15	1.85	55.02
Burkina Faso	2003	46.85	81.22	39.26	22.58	39.60
China—Rural	2005	71.34	55.63	19.47	8.94	35.85
China—Urban	2005	161.83	9.38	2.12	0.81	34.8
Côte d'Ivoire	2002	101.11	46.79	17.62	8.78	48.39
Guatemala*	2006	191.7	25.71	9.63	4.84	53.69
Honduras*	2006	184.45	29.73	14.15	8.91	55.31
India—Rural	2004	49.93	79.53	30.89	14.69	30.46
India—Urban	2004	62.43	65.85	25.99	12.92	37.59
Indonesia—Rural	2005	62.79	61.19	19.55	8.27	29.52
Indonesia—Urban	2005	89.1	45.85	14.85	6.39	39.93
Madagascar	2005	44.82	89.62	46.94	28.5	47.24
Mexico	2006	330.37	4.79	0.96	0.31	48.11
Mozambique	2002	36.58	90.03	53.56	36.00	48.07
Nicaragua*	2005	151.18	31.87	12.26	6.44	52.33
Nigeria	2003	39.46	83.92	46.89	30.8	42.93
Pakistan	2004	65.76	60.32	18.75	7.66	31.18
Peru	2006	216.82	18.51	5.95	2.54	49.55
Philippines	2006	98.99	45.05	16.36	7.58	44.04
Rwanda	2000	33.76	90.3	55.69	38.5	44.11
Senegal	2005	66.86	60.37	24.67	12.98	39.19

ECONOMIC CHARACTERISTICS OF HIGH-POVERTY GROUPS

High poverty groups include:

1- RURAL POVERTY

Perhaps the most valid generalizations about the poor are that they are disproportionately located in rural areas, that they are primarily engaged in agricultural and associated activities, that they are more likely to be women and children than adult males, and that they are often concentrated among minority ethnic groups and indigenous peoples. On the average, we may conclude that in Africa and Asia, about 80% of all target poverty groups are located in the rural areas, as are about 50% in Latin America. Some data for specific countries are provided in Table 5.7.

TABLE 5.7 Poverty: Rural versus Urban

Region and Country	Survey Year	Percentage below National Poverty Line		
		Rural Population	Urban Population	National Population
Sub-Saharan Africa				
Benin	2003	46.0	29.0	39.0
Burkina Faso	2003	52.4	19.2	46.4
Cameroon	2007	55.0	12.2	29.9
Malawi	2005	55.9	25.4	52.4
Tanzania	2001	38.7	29.5	35.7
Uganda	2006	34.2	13.7	31.1
Zambia	2004	72.0	53.0	68.0
Asia				
Bangladesh	2005	43.8	28.4	40.0
India	2000	30.2	24.7	28.6
Indonesia	2004	20.1	12.1	16.7
Uzbekistan	2003	29.8	22.6	27.2
Vietnam	2002	35.6	6.6	28.9
Latin America				
Bolivia	2007	63.9	23.7	37.7
Brazil	2003	41.0	17.5	21.5
Dominican Republic	2007	54.1	45.4	48.5
Guatemala	2006	72.0	28.0	51.0
Honduras	2004	70.4	29.5	50.7
Mexico	2004	56.9	41.0	47.0
Peru	2004	72.5	40.3	51.6

We need only point out here that in view of the disproportionate number of the very poor who resides in rural areas, any policy designed to alleviate poverty must necessarily be directed to a large extent toward rural development in general and the agricultural sector in particular.

2- WOMEN AND POVERTY

Women make up a substantial majority of the worlds poor. If we compared the lives of the inhabitants of the poorest communities throughout the developing world, we would discover that virtually everywhere, women and children experience the harshest deprivation. They are more likely to be poor and malnourished and less likely to receive medical services, clean water, sanitation, and other benefits. The prevalence of female-headed households, the lower earning capacity of women, and their limited control over their spouses 'income all contribute to this disturbing phenomenon. In addition, women have less access to education, formal-sector employment, social security, and government employment programs. These facts combine to ensure that poor women's financial resources are meager and unstable relative to men's.

3- ETHNIC MINORITIES, INDIGENOUS POPULATIONS, AND POVERTY

A final generalization about the incidence of poverty in the developing world is that it falls especially heavily on minority ethnic groups and indigenous populations.
Although detailed data on the relative poverty of minority ethnic and indigenous peoples is difficult to obtain (for political reasons, few countries wish to highlight these problems),

TABLE 5.8 Indigenous Poverty in Latin America

Population below the Poverty Line (%), Early 1990s			Change in Poverty (%), Various Periods		
Country	Indigenous	Nonindigenous	Period	Indigenous	Nonindigenous
Bolivia	64.3	48.1	1997–2002	0	−8
Guatemala	86.6	53.9	1989–2000	−15	−25
Mexico	80.6	17.9	1992–2002	0	−5
Peru	79.0	49.7	1994–2000	0	+3

Researchers have compiled data on the poverty of indigenous people in Latin America. The results clearly demonstrate that a majority of indigenous groups live in extreme poverty and that being indigenous greatly increases the chances that an individual will be malnourished, illiterate, in poor health, and unemployed.

4- POOR COUNTRIES

Finally, it should be noted that the poor come from poor countries. Although this may seem like a trivial observation, it is actually a useful note of optimism. The negative relationship between poverty and per capita income suggests that if higher incomes can be achieved, poverty will be reduced, if only because of the greater resources that countries will have available to tackle poverty problems and the growth of civil society and the voluntary sector.

POLICY OPTIONS ON INCOME INEQUALITY AND POVERTY: SOME BASIC CONSIDERATIONS

AREAS OF INTERVENTION

Developing countries that aim to reduce poverty and excessive inequalities in their distribution of income need to know how best to achieve their aim. We have identified four broad areas of possible government policy intervention i.e.

- Altering the functional distribution
- Mitigating the size distribution
- Moderating (reducing) the size distribution at upper levels
- Moderating (increasing) the size distribution at lower levels

POLICY OPTIONS

ALTERING THE FUNCTIONAL DISTRIBUTION OF INCOME THROUGH RELATIVE FACTOR PRICES

Altering the functional distribution is a traditional economic approach. It is argued that as a result of institutional constraints and faulty government policies, the relative price of labor in the formal, modern, urban sector is higher than what would be determined by the free interplay of the forces of supply and demand.

Because factor prices are assumed to function as the ultimate signals and incentives in any economy, correcting these prices (i.e., lowering the relative price of labor and raising the relative price of capital) would not in general only increase productivity and efficiency but also reduce inequality by providing more wage-paying jobs for currently unemployed or underemployed unskilled and semiskilled workers. It would also lower the artificially high incomes of owners of capital.

We may conclude that there is much merit to the traditional factor-price distortion argument and that correcting prices should contribute to a reduction in poverty and an improved distribution of income.

MODIFYING THE SIZE DISTRIBUTION THROUGH INCREASING ASSETS OF THE POOR

Given correct resource prices and utilization levels for each type of productive factor (labor, land, and capital), we can arrive at estimates for the total earnings of each asset. But to translate this functional income into personal income, we need to know the distribution and ownership concentration of these assets among and within various segments of the population.

It follows that the second and perhaps more important line of policy to reduce poverty and inequality is to focus directly on reducing the concentrated control of assets, the unequal distribution of power, and the unequal access to educational and income-earning opportunities that characterize many developing countries. A classic case of such redistribution policies as

they relate to the rural poor, who comprise 70% to 80% of the target poverty group, is land reform.

- **Asset ownership:** The ownership of land, physical capital (factories, buildings, machinery, etc.), human capital, and financial resources that generate income for owners.
- **Redistribution policies:** Policies geared to reducing income inequality and expanding economic opportunities in order to promote development, including income tax policies, rural development policies, and publicly financed services.
- **Land reform:** A deliberate attempt to reorganize and transform existing agrarian systems with the intention of improving the distribution of agricultural incomes and thus fostering rural development.

PROGRESSIVE INCOME AND WEALTH TAXES

Any national policy attempting to improve the living standards of the bottom 40% must secure sufficient financial resources to transform paper plans into program realities. The major source of such development finance is the direct and progressive taxation of both income and wealth.

- **Progressive income tax**: A tax whose rate increases with increasing personal incomes.
- **Regressive tax:** A tax structure in which the ratio of taxes to income tends to decrease as income increases.
- **Indirect taxes:** Taxes levied on goods ultimately purchased by consumers; including customs duties (tariffs), excise duties, sales taxes, and export duties.

DIRECT TRANSFER PAYMENTS AND THE PUBLIC PROVISION OF GOODS AND SERVICES

The direct provision of tax-financed public consumption goods and services to the very poor is another potentially important instrument of a comprehensive policy designed to eradicate poverty. Examples include public health projects in rural villages and urban fringe areas, school lunches and preschool nutritional supplementation programs, and the provision of clean water and electrification to remote rural areas. Direct money transfers and subsidized food programs for the urban and rural poor, as well as direct government policies to keep the prices of essential food stuffs low; represent additional forms of public consumption subsidies.

- **Public consumption:** All current expenditures for purchases of goods and services by all levels of government, including capital expenditures on national defense and security.
- **Subsidy:** A payment by the government to producers or distributors in an industry to prevent the decline of that industry, to reduce the prices of its products, or to encourage hiring.

WORKFARE PROGRAM

A poverty alleviation program that requires program beneficiaries to work in exchange for benefits, as in a food for-work program.
In sum, we can say that workfare, such as the Food for Work Program, represents a better policy than welfare or direct handouts when the following criteria are met:

- The program does not reduce or seriously undermine incentives for the poor to acquire human capital and other assets.

- There are greater net benefits of the work output of the program.
- It is harder to screen the poor without the workfare requirement.
- There is lower opportunity cost of time for poor workers (so the economy loses little output when they join the workfare program).
- There is higher opportunity cost of time for non poor workers (so they won't avail themselves of the benefits).
- The fraction of the population living in poverty is smaller (so the extra costs of a universal welfare scheme would be high).
- There is less social stigma attached to participating in a workfare program, so that the poor do not suffer undue humiliation or even be deterred from seeking the help that their families need (otherwise, a discreet welfare transfer may be preferable to a highly visible workfare scheme).

SUMMARY AND CONCLUSIONS: THE NEED FOR A PACKAGE OF POLICIES

To summarize our discussion of alternative policy approaches to the problems of poverty and inequality in development, the need is not for one or two isolated policies but for a "package" of complementary and supportive policies, including the following four basic elements.

- A policy or set of policies designed to correct factor price distortions.
- A policy or set of policies designed to change the distribution of assets, power, and access to education and associated employment opportunities.
- A policy or set of policies designed to modify the size distribution of income at the upper levels through the enforcement of legislated progressive taxation and directed transfer payments.
- A policy or set of policies designed to build capabilities and human and social capital of the poor.

Lesson 10

POPULATION GROWTH AND ECONOMIC DEVELOPMENT: CAUSES, CONSEQUENCES AND CONTROVERSIES

THE BASIC ISSUE: POPULATION GROWTH AND THE QUALITY OF LIFE

In 2009, the world's population was estimated to be 6.8 billion people. Projections by the United Nations placed the figure at more than 9.2 billion by the year 2050 (another widely cited projection is higher, at 9.5 billion). The overwhelming majority of that population will inhabit the developing world. What will be the economic and social implications for development if such projections are realized? Is this scenario inevitable, or will it depends on the success or failure of development efforts? Finally, even more significant, is rapid population growth per se as serious a problem as many people believe, or is it a manifestation of more fundamental problems of underdevelopment and the unequal utilization of global resources between rich and poor nations, as others argue?

SIX MAJOR ISSUES

- Will developing countries be able to improve levels of living given anticipated population growth?
- How will developing countries deal with the vast increases in their labor forces?
- How will higher population growth rates affect poverty?
- Will developing countries be able to extend the coverage and improve the quality of health care and education in the face of rapid population growth?
- Is there a relationship between poverty and family size?
- How does affluence in the developed world affect the ability of developing countries to provide for their people?

POPULATION GROWTH: PAST, PRESENT, AND FUTURE

WORLD POPULATION GROWTH THROUGHOUT HISTORY

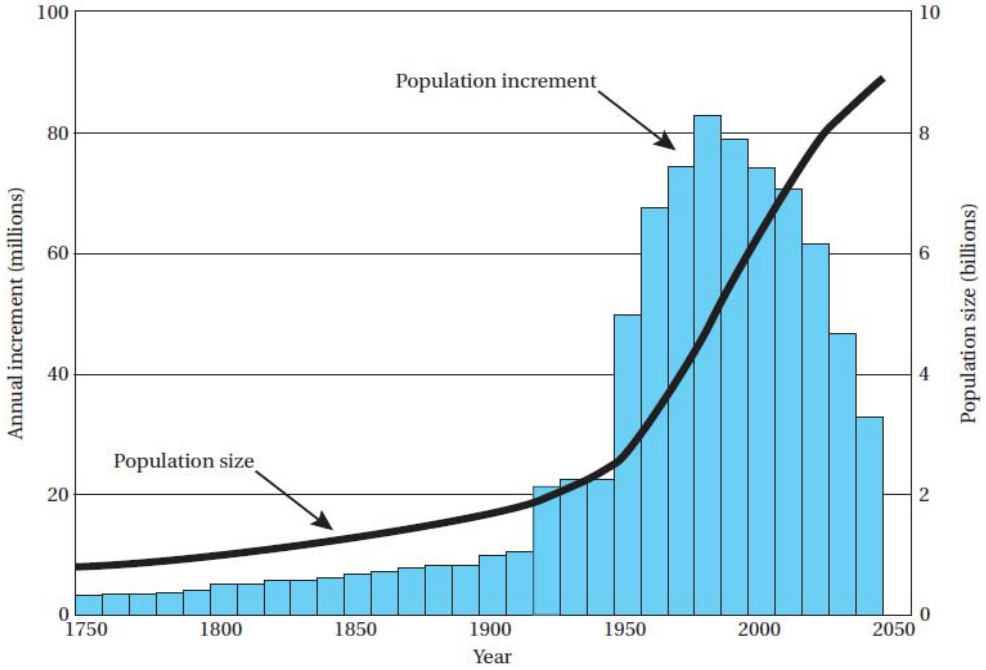
When people first started to cultivate food through agriculture some 12,000 years ago, the estimated world population was no more than 5 million (see Table 6.1). Two thousand years ago, world population had grown to nearly 250 million, less than a fifth of the population of China today. From year 1 on our calendar to the beginning of the Industrial Revolution around 1750, it tripled to 728 million people, less than three-quarters of the total number living in India today. During the next 200 years (1750–1950), an additional 1.7 billion people were added to the planet's numbers. But in just four decades thereafter (1950–1990), the earth's human population more than doubled again, bringing the total figure to around 5.3 billion. The world entered the twenty first century with over 6 billion people. Figure 6.1 shows how rapidly total population grew after 1950 in comparison with the two centuries before that. It vividly portrays the magnitude of population growth, most of which has been in developing countries, both as a percentage of the total and in terms of absolute numbers. Finally, it provides projections to 2050, when world population is expected to reach 9.2 billion.

TABLE 6.1 Estimated World Population Growth

Year	Estimated Population (millions)	Estimated Annual Increase in the Intervening Period (%)	Doubling time (years)
10,000 B.C.E.	5		
1 C.E.	250	0.04	1,733
1650	545	0.04	1,733
1750	728	0.29	239
1800	906	0.45	154
1850	1,171	0.53	130
1900	1,608	0.65	106
1950	2,576	0.91	76
1970	3,698	2.09	33
1980	4,448	1.76	39
1990	5,292	1.73	40
2000	6,090	1.48	47
2010	6,892	1.22	57
2050 (projected)	9,200	0.675	103

The relationship between annual percentage increases and the time it takes for a population to

FIGURE 6.1 World Population Growth, 1750–2050



double in size, or doubling time, is shown in the rightmost column of Table 6.2. We see that before 1650, it took nearly 36,000 years, or about 1,400 generations, for the world population to double. Today it would take about 58 years, or two generations, for world population to double at current growth rates. Moreover, whereas it took 1,750 years to add 480 million people to the world's population between year 1 and the onset of the Industrial Revolution, this same number of people is today being added in less than seven years.

The reason for the sudden change in overall population trends is that for almost all of recorded history, the rate of population change, whether up or down, had been strongly influenced by the combined effects of famine, disease, malnutrition, plague, and war—conditions that resulted in high and fluctuating death rates. In the twentieth century, such conditions came increasingly

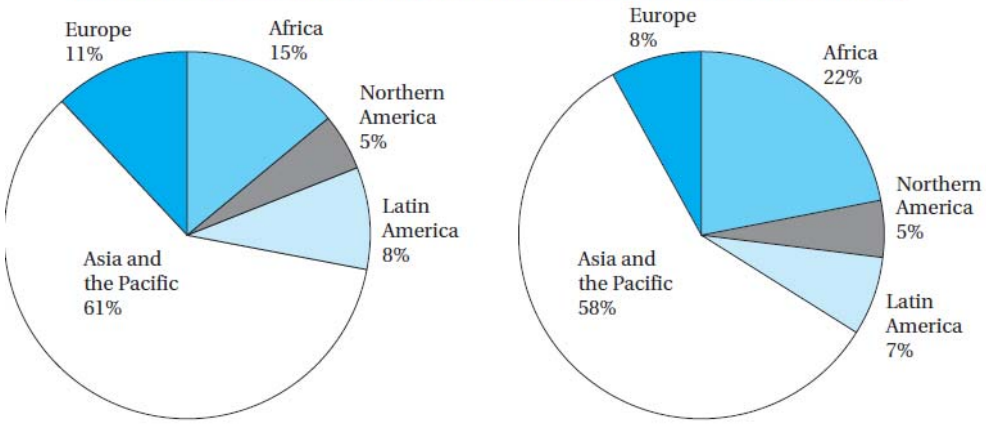
under technological and economic control. As a result, human mortality (the death rate) is now lower than at any other point in human existence. It is this decline in mortality resulting from rapid technological advances in modern medicine and the spread of modern sanitation measures throughout the world, particularly within the past half century, which has resulted in the unprecedented increases in world population growth, especially in developing countries. In short, population growth today is primarily the result of a rapid transition from a long historical era characterized by high birth and death rates to one in which death rates have fallen sharply but birth rates, especially in developing countries, have fallen more slowly from their historically high levels.

STRUCTURE OF THE WORLD'S POPULATION

GEOGRAPHIC REGION

More than three-quarters of the world's people live in developing countries; fewer than one person in four lives in an economically developed nation. Figure 6.2 shows the regional distribution of the world's population as it existed in 2010 and as it is projected for 2050.World population distribution is put into dramatic perspective by the map in Figure 6.3. Each box represents 1 million inhabitants.

FIGURE 6.2 World Population Distribution by Region, 2010 and 2050

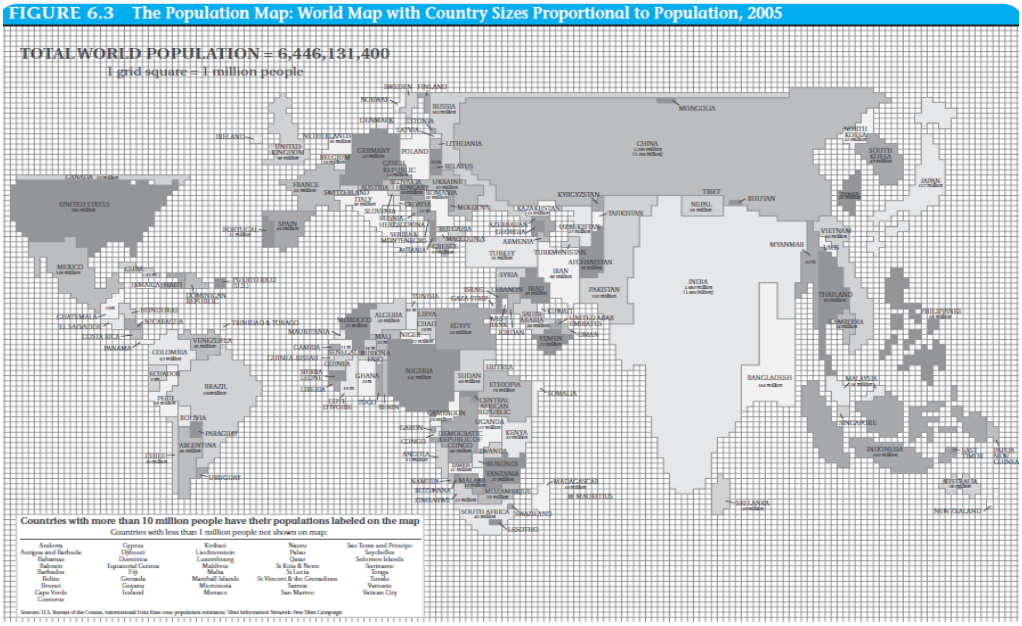


(a) Total population 2010: 6.89 billion

(b) Total population 2050: 9.5 billion

FERTILITY AND MORTALITY TRENDS

FIGURE 6.3 The Population Map: World Map with Country Sizes Proportional to Population, 2005



- **Rate of population increase:** The growth rate of a population, calculated as the natural increase after adjusting for immigration and emigration.
- **Natural increase:** The difference between the birth rate and the death rate of a given population.
- **Net international migration**: The excess of persons migrating into a country over those who emigrate from that country.
- **Crude birth rate:** The number of children born alive each year per 1,000 population (often shortened to birthrate).
- **Death rate**: The number of deaths each year per 1,000population.
- **Total fertility rate (TFR):** The number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with the prevailing age specific fertility rates.

TABLE 6.3 Fertility Rate for Selected Countries, 1970 and 2009

Country	Total Fertility Rate[a]	
	1970	2009
Bangladesh	7.0	2.3
Colombia	5.3	2.5
Indonesia	5.5	2.4
Jamaica	5.3	2.4
Mexico	4.9	2.3
Thailand	5.5	1.8
Zimbabwe	7.7	3.9

Table 6.3 lists seven countries that experienced significant fertility declines between 1970 and 2009. Nevertheless, the total fertility rate (TFR)—(the average number of children a woman would have assuming that current age-specific birth rates remain constant throughout her

childbearing years (15 to 49 years of age)—remains very high in sub-Saharan Africa (5.3) and western Asia (3.1).

- **Life expectancy at birth:** The number of years a newborn child would live if subject to the mortality risks prevailing for the population at the time of the child's birth.
- **Under-5 mortality rate:** Deaths among children between birth and 5 years of age per 1,000 live births.

AGE STRUCTURE AND DEPENDENCY BURDENS

Population is relatively youthful in the developing world. Children under the age of 15 constitute more than 30% of the total population of developing countries but just 17% of developed nations. In fact, at least 10 developing nations have over 44% of their population under the age of 15; as of 2009, 43% of Ethiopia's population, 45% of Nigeria's, and 38% of Pakistan's was under 15; for both India and Mexico, the comparable figure is 32%.
Youth dependency ratio: The proportion of young people under age 15 to the working population aged 16 to 64 in a country.

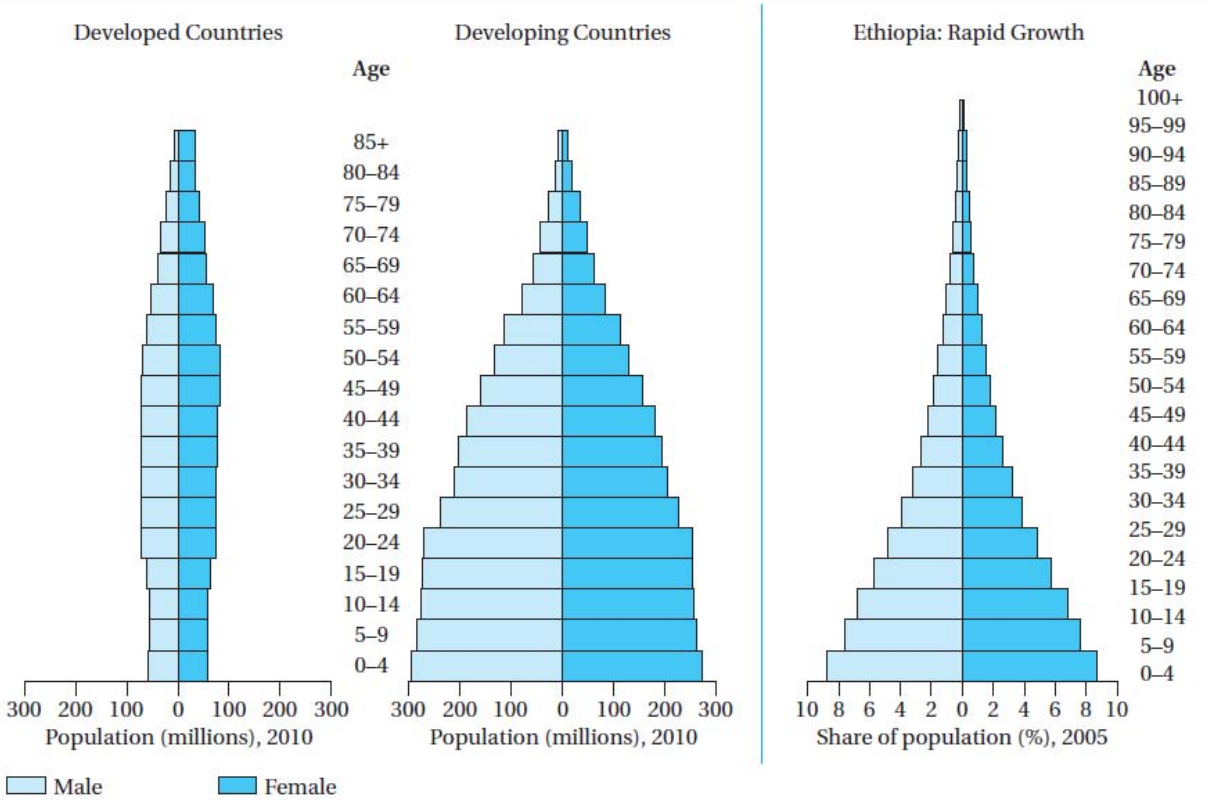
THE HIDDEN MOMENTUM OF POPULATION GROWTH

- **Hidden momentum of population growth:** The phenomenon whereby population continues to increase even after a fall in birth rates because the large existing youthful population expands the population's base of potential parents.

Perhaps the least understood aspect of population growth is its tendency to continue even after birth rates have declined substantially. Population growth has a built-in tendency to continue, a powerful momentum that, like a speeding automobile when the brakes are applied, tends to keep going for sometime before coming to a stop. In the case of population growth, this momentum can persist for decades after birth rates drop. There are two basic reasons for this. First, high birth rates cannot be altered substantially overnight. The second and less obvious reason for the hidden momentum of population growth relates to the age structure of many developing countries' populations. Figure 6.4 illustrates the great difference between age structures in less developed and more developed countries by means of two population pyramids for 2010.

- **Population pyramid:** A graphic depiction of the structure of the population, with age cohorts plotted on the vertical axis and either population shares or numbers of males and females in each cohort on the horizontal axis.

FIGURE 6.4 Population Pyramids: All Developed and Developing Countries and Case of Ethiopia



THE DEMOGRAPHIC TRANSITION

- **Demographic transition**: The phasing-out process of population growth rates from a virtually stagnant growth stage characterized by high birth rates and death rates through a rapid-growth stage with high birth rates and low death rates to a stable, low growth stage in which both birth and death rates are low.

The demographic transition attempts to explain why all contemporary developed nations have more or less passed through the same three stages of modern population history. Before their economic modernization, these countries for centuries had stable or very slow-growing populations as a result of a combination of high birth rates and almost equally high death rates. This was stage 1. Stage 2 began when modernization, associated with better public health methods, healthier diets, higher incomes, and other improvements, led to a marked reduction in mortality that gradually raised life expectancy from under40 years to over 60 years. However, the decline in death rates was not immediately accompanied by a decline in fertility. As a result, the growing divergence between high birth rates and falling death rates led to sharp increases in population growth compared to past centuries.

Stage 2 thus marks the beginning of the demographic transition (the transition from stable or slow-growing populations first to rapidly increasing numbers and then to declining rates). Finally, stage 3was entered when the forces and influences of modernization and development caused the beginning of a decline in fertility; eventually, falling birth rates converged with lower death rates, leaving little or no population growth.

FIGURE 6.5 The Demographic Transition in Western Europe

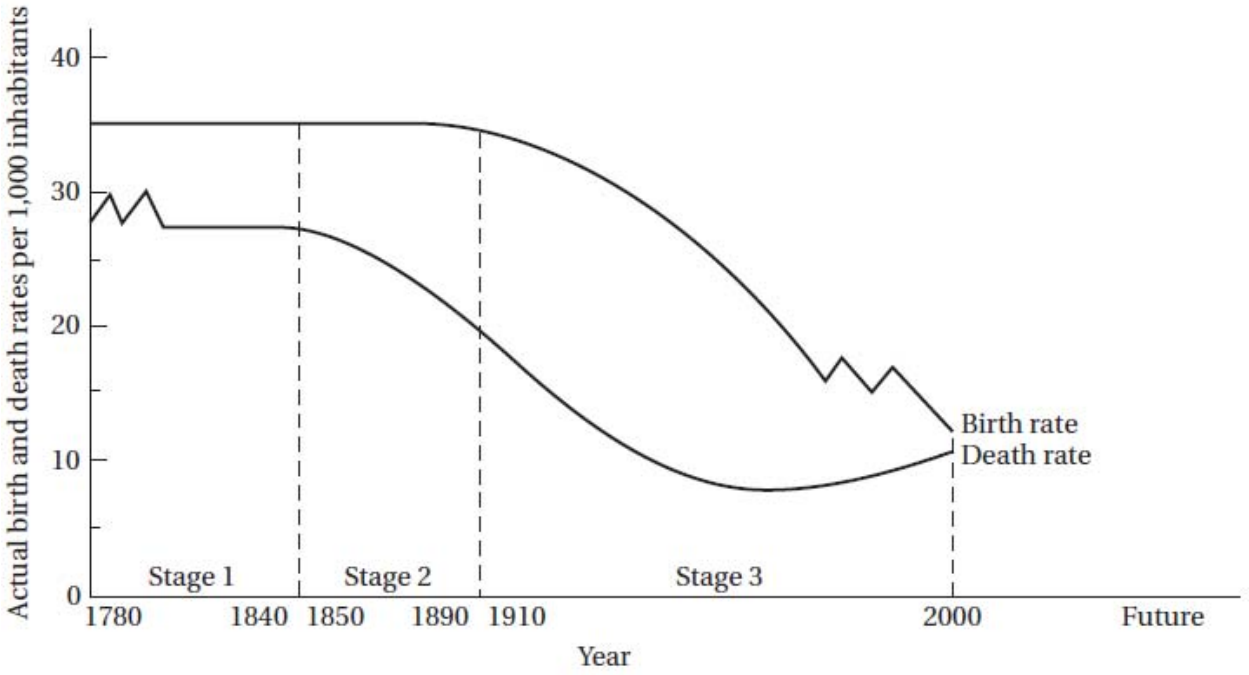
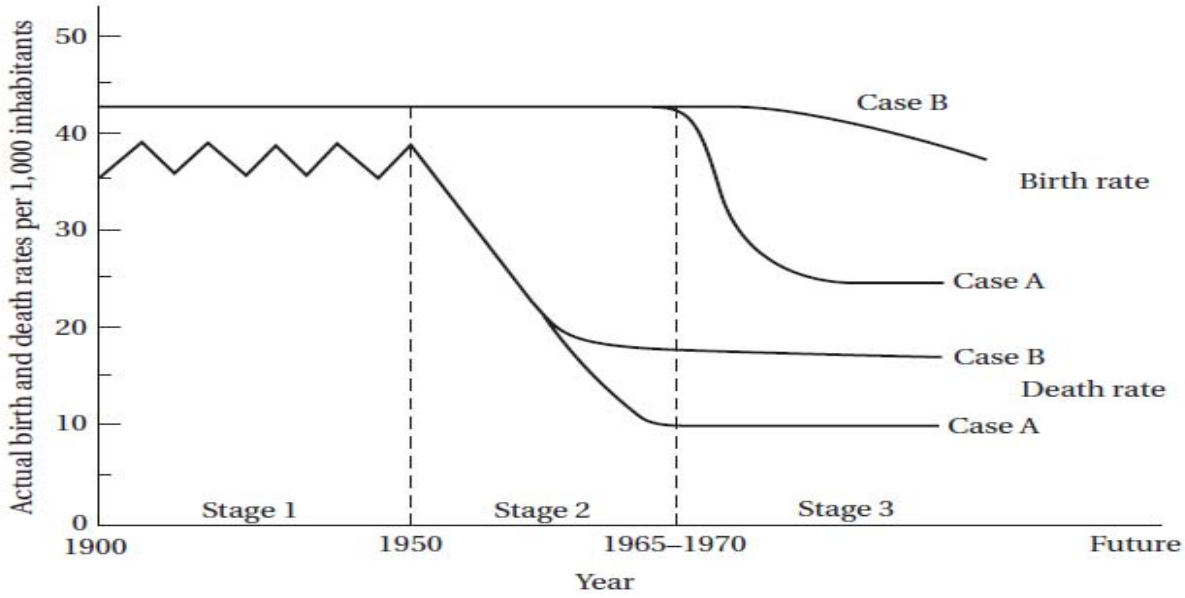


Figure 6.5 depicts the three historical stages of the demographic transition in Western Europe. Figure 6.6 shows the population histories of contemporary developing countries, which contrast with those of Western Europe and fall into two patterns.

FIGURE 6.6 The Demographic Transition in Developing Countries



Lesson 11

POPULATION GROWTH AND ECONOMIC DEVELOPMENT: CAUSES, CONSEQUENCES AND CONTROVERSIES (CONTINUED1)

THE DEMOGRAPHIC TRANSITION MODEL

The phasing-out process of population growth rates from a virtually stagnant growth stage characterized by high birth rates and death rates through a rapid-growth stage with high birth rates and low death rates to a stable, low growth stage in which both birth and death rates are low.

STAGES OF DEMOGRAPHIC TRANSITION

- **Stage I:** High Stationary Stage:
  - High birthrates and death rates
- **Stage II:** Early Expanding Stage:
  - Continued high birthrates, declining death rates
- **Stage III:** Late Expanding Stage
  - Falling birthrates and death rates
- **Stage IV:** Low Stationary Stage:
  - Low birth rates and Low death rates, eventually stabilizing.

FIGURE 6.5 The Demographic Transition in Western Europe

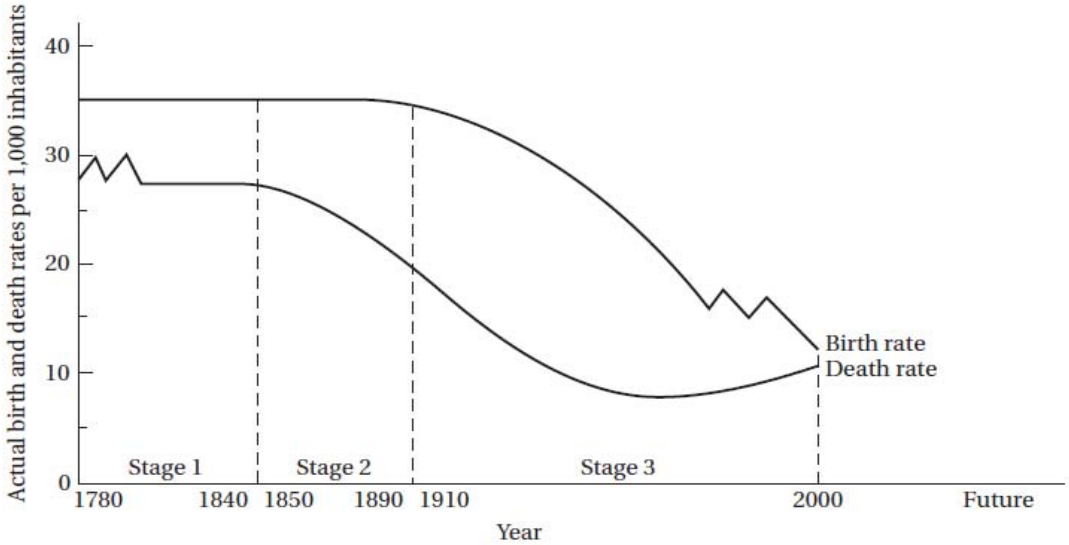


Figure 6.5 depicts the three historical stages of the demographic transition in Western Europe.

FIGURE 6.6 The Demographic Transition in Developing Countries

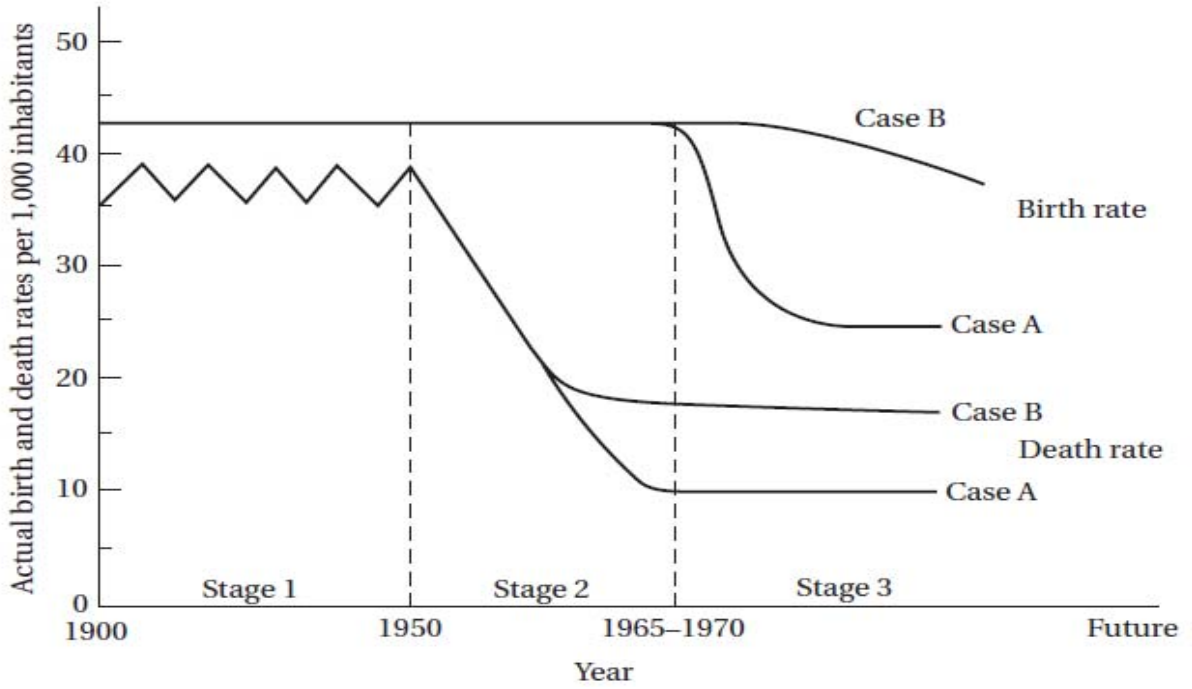


Figure 6.6 shows the population histories of contemporary developing countries, which contrast with those of Western Europe and fall into two patterns

CRITICISM OF THE DEMOGRAPHIC TRANSITION MODEL

- Over-generalization of the industrialized European experience.
- Too rigid in assuming all countries proceed from stage 1-4.
- It takes into account only birth and mortality rates and ignores variables and exceptions like War, Famines).
- The model assumes that reductions in fertility are a function of increased wealth and industrialization– other factors such as the status of women and other social development are ignored.

THE MALTHUSIAN MODEL

THE CAUSES OF HIGH FERTILITY IN DEVELOPING COUNTRIES

- The Malthusian Model
- The Household Model

THE MALTHUSIAN POPULATION TRAP

The threshold population level anticipated by Thomas Malthus (1766–1834) at which population increase was bound to stop because life sustaining resources, which increase at an arithmetic rate, would be insufficient to support human population, which increases at a geometric rate.

THE MALTHUSIAN POPULATION TRAP THEORY

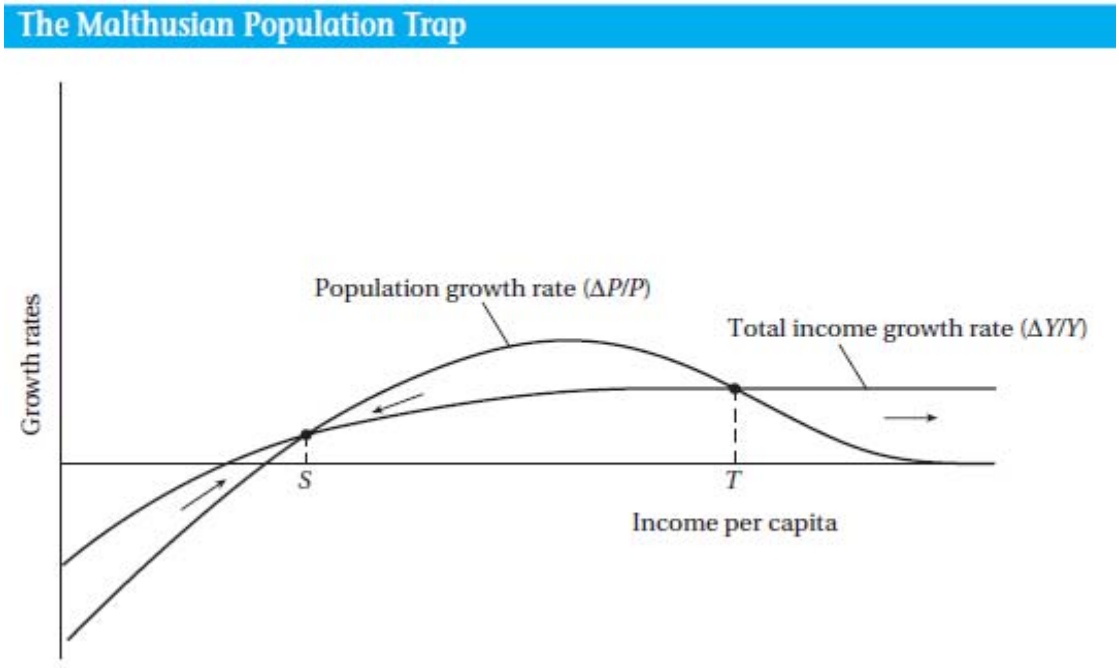
In 1798 Thomas Malthus published his views on the effect of population on food supply. His theory has two basic principles:

- Population grows at a geometric rate i.e. 1, 2, 4, 16, 32, etc.
- Food production increases at an arithmetic rate i.e. 1, 2, 3, 4, etc.

The consequence of these two principles is that eventually, population will exceed the capacity of agriculture to support the new population numbers. Population would rise until a limit to growth was reached. Further growth would be limited when:

- Preventive checks - postponement of marriage (lowering of fertility rate), increased cost of food etc.
- Positive checks - famine, war, disease, would increase the death rate.

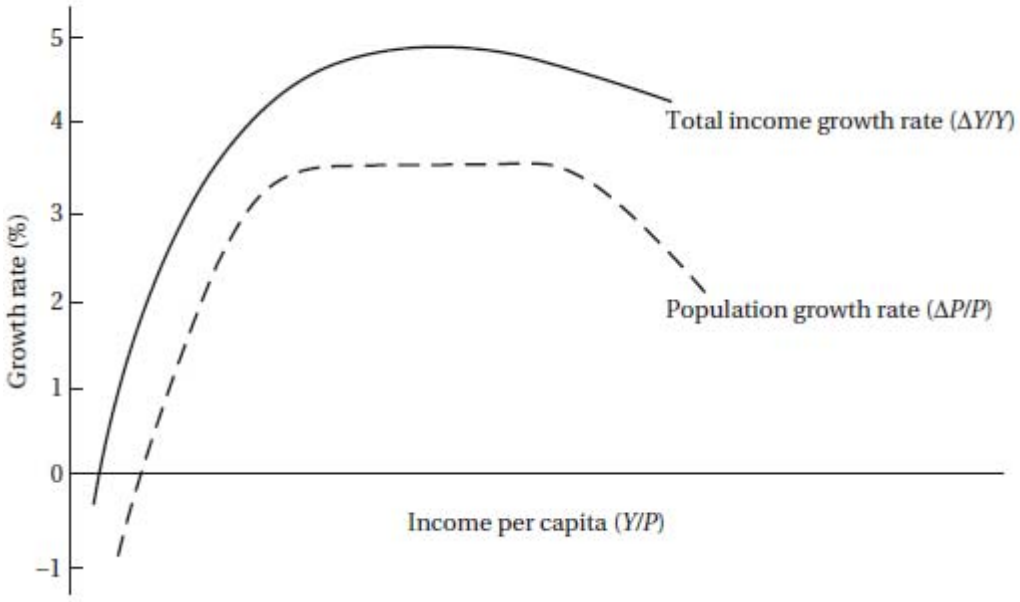
Malthusian ideas are often supported by Western governments because it highlights the problem of too many mouths to feed, rather than the uneven distribution of resources, because these preventive checks differed across the globe, each society faced its own equilibrium population.
In the long run, he predicted that economies would converge to their subsistence wage whenever the rate of total income growth is greater than the rate of population growth, income per capita is rising.



CRITICISMS OF THE MALTHUSIAN MODEL

- Impact of technological progress (Malthus assumes limited supply of land).
- Currently no positive correlation between population growth and levels of per capita income in the data.
- Microeconomics of family size; individual and not aggregate variables.

How Technological and Social Progress Allows Nations to Avoid the Population Trap



THE MICROECONOMIC HOUSEHOLD THEORY OF FERTILITY

"The theory that family formation has costs and benefits that determine the size of families formed"

The conventional theory of consumer behavior assumes that an individual with a given set of tastes or preferences for a range of goods (a "utility function") tries to maximize the satisfaction derived from consuming these goods subject to his or her own income constraint and the relative prices of all goods. In the application of this theory to fertility analysis, children are considered as a special kind of consumption (and in developing countries, particularly low income countries, investment) good so that fertility becomes a rational economic response to the consumer's (family's) demand for children relative to other goods.

The usual income and substitution effects are assumed to apply. That is, if other factors are held constant, the desired number of children can be expected to vary directly with household income (this direct relationship may not hold for poor societies; it depends on the strength of demand for children relative to other consumer goods and to the sources of increased income, such as female employment), inversely with the price (cost) of children, and inversely with the strength of tastes for other goods relative to children.

Mathematically, these relationships can be expressed as follows:

Where,

$$C_d = f(Y, P_c, P_x, t_x), \quad x = 1,..., \quad n$$

- C_d is the demand for surviving children
- Y is the level of household income
- P_c is the "net" price of children
- P_x is price of all other goods
- t_x is the tastes for goods relative to children

- $\frac{\partial C_d}{\partial Y} > 0$ — The higher the household income, the greater the demand for children.
- $\frac{\partial C_d}{\partial P_c} < 0$ — The higher the net price of children, the lower the quantity demanded.
- $\frac{\partial C_d}{\partial P_x} > 0$ — The higher the prices of all other goods relative to children, the greater the quantity of children demanded.
- $\frac{\partial C_d}{\partial t_x} < 0$ — The greater the strength of tastes for goods relative to children, the fewer children demanded.

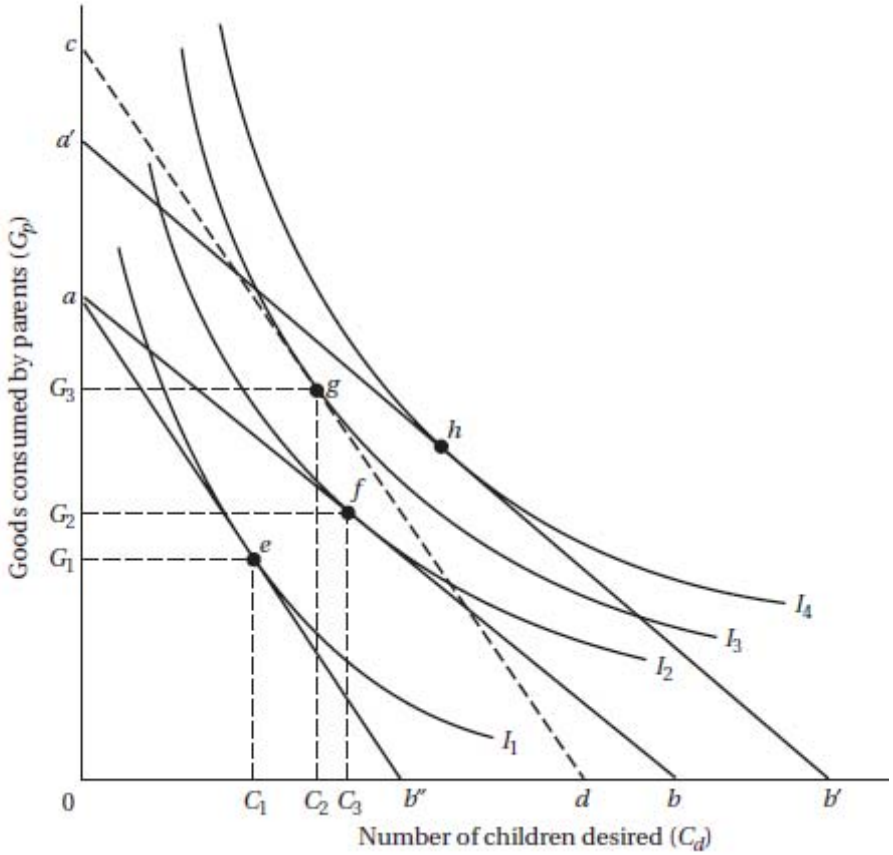
Figure 6.9 provides a simplified diagrammatic presentation of the **microeconomic theory of fertility**. The number of desired (surviving) children, Cd, is measured along the horizontal axis, and the total quantity of goods consumed by the parents, Gp, is measured on the vertical axis.

In Figure 6.9, only four indifference curves, I1 to I4, are shown; in theory, there is an infinite set of such curves, filling the whole quadrant and covering all possible commodity-child combinations. The household's ability to "purchase" alternative combinations of goods and children is shown by the budget constraint line, ab. Thus all combinations on or below line ab (within the triangular area 0ab) are financially attainable by the household on the basis of its perceived income prospects and the relative prices of children and goods, as represented by the slope of the ab budget constraint. The steeper the slope of the budget line, the higher the price of children relative to goods.

According to the demand-based theory of fertility, the household chooses from among all attainable combinations the one combination of goods and children that maximizes family satisfaction on the basis of its subjectively determined preferences. Diagrammatically, this optimal combination is represented by point f, the tangency point between the budget constraint, ab, and indifference curve I2. Therefore, C3 children and G2 goods will be demanded.

A rise in family income, represented in Figure 6.9 by the parallel outward shift of the budget line from ab to a b, enables the household to attain a higher level of satisfaction (point h on curve I4) by consuming more of both commodities and children—that is, if children, like most commodities, are assumed to be normal goods (demand for them rises with income), an important if in low income countries where children are often in demand primarily as a source of future financial security. Note that as income rises, parents may spend more on each child, preferring a smaller number of children, each of higher "quality," for example, healthier and better educated.

FIGURE 6.9 Microeconomic Theory of Fertility: An Illustration



Similarly, an increase in the price (opportunity cost) of children relative to other goods will cause households to substitute commodities for children. Other factors (namely, income and tastes) being constant, a rise in the relative price of children causes the household utility-maximizing consumption combination to occur on a lower indifference curve, as shown by the movement of the equilibrium point from f to e when the budget line rotates around point a to ab.

Note, finally, that if there is a simultaneous increase in household income and net child price as a result of, say, expanding female employment opportunities and a rise in wages coupled with a tax on children beyond a certain number per family, there will be both an outward shift and downward rotation of the budget constraint line of Figure 6.9 to, say, dashed line cd. The result is a new utility-maximizing combination that includes fewer children per family. This is just one example of how the economic theory of fertility can shed light on the relationship between economic development and population growth as well as suggest possible lines of policy.

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Lesson 12

POPULATION GROWTH AND ECONOMIC DEVELOPMENT: CAUSES, CONSEQUENCES AND CONTROVERSIES (CONTINUED2)

THE DEMAND FOR CHILDREN IN DEVELOPING COUNTRIES

The economic theory of fertility assumes that the household demand for children is determined by family preferences for a certain number of surviving (usually male) children (i.e., in regions of high mortality, parents may produce more children than they actually desire in the expectation that some will not survive), by the price or "opportunity cost" of rearing these children, and by levels of family income. Children in poor societies are seen partly as economic investment goods in that there is an expected return in the form of both child labor and the provision of financial support for parents in old age. However, in many developing countries, there is a strong intrinsic psychological and cultural determinant of family size, so the first two or three children should be viewed as "consumer" goods for which demand may not be very responsive to relative price changes.

The choice mechanism in the economic theory of fertility as applied to developing countries is assumed, therefore, to exist primarily with regard to the additional ("marginal") children who are considered as investments. In deciding whether or not to have additional children, parents are assumed to weigh private economic benefits against private costs, where the principal benefits are the expected income from child labor, usually on the farm, and eventual financial support for elderly parents. Balanced against these benefits are the two principal elements of cost: the opportunity cost of the mother's time (the income she could earn if she were not at home caring for her children) and the cost of educating children—the financial trade-off between having fewer "high quality," high-cost, educated children with high-income-earning potential versus more "low-quality," low-cost, uneducated children with much lower earning prospects.

Using the same thought processes as in the traditional theory of consumer behavior, the theory of family fertility concludes that when the price or cost of children rises as a result of, say, increased educational and employment opportunities for women or a rise in school fees or the establishment of minimum-age child labor laws or the provision of publicly financed old-age social security schemes, parents will demand fewer additional children, substituting, perhaps, quality for quantity or a mother's employment income for her child-rearing activities. It follows that one way to induce families to desire fewer children is to raise the price of child rearing by, say, providing greater educational opportunities and a wider range of higher-paying jobs for young women.

SOME EMPIRICAL EVIDENCE

Statistical studies in a broad spectrum of developing countries have provided support for the economic theory of fertility. For example; it has been found that high female employment opportunities outside the home and greater female school attendance, especially at the primary and secondary levels, are associated with significantly lower levels of fertility. As women become better educated, they tend to earn a larger share of household income and to produce fewer children. Moreover, these studies have confirmed the strong association between declines in child mortality and the subsequent decline in fertility. Assuming that households desire a target number of surviving children, increased female education and higher levels of income can decrease child mortality and therefore increase the chances that the firstborn will

survive. As a result, fewer births may be necessary to attain the same number of surviving children. This fact alone underlines the importance of educating women and improving public health and child nutrition programs in reducing fertility levels.

IMPLICATIONS FOR DEVELOPMENT AND FERTILITY

All of the foregoing can be summarized by saying that the effect of social and economic progress in lowering fertility in developing countries will be the greatest when the majority of the population and especially the very poor share in its benefits. Specifically, birth rates among the very poor are likely to fall where the following socioeconomic changes come to pass:

1. An increase in the education of women and a consequent change in their role and status.
2. An increase in female nonagricultural wage employment opportunities, which raises the price or cost of their traditional child-rearing activities.
3. A rise in family income levels through the increased direct employment and earnings of a husband and wife or through the redistribution of income and assets from rich to poor.
4. A reduction in infant mortality through expanded public health programs and better nutritional status for both mother and child and better medical care.
5. The development of old-age and other social security systems outside the extended family network to lessen the economic dependence of parents, especially women, on their offspring.
6. Expanded schooling opportunities so that parents can better substitute child “quality” for large numbers of children.

THE CONSEQUENCES OF HIGH FERTILITY: SOME CONFLICTING PERSPECTIVES

Conflicting Perspectives

1. Population Growth is a real problem
2. Population Growth is not a real problem

1- IT’S NOT A REAL PROBLEM

We can identify three general lines of argument on the part of people who assert that population growth is not a cause for concern:

- The problem is not population growth but other issues.
- Population growth is a false issue deliberately created by dominant rich country agencies and institutions to keep developing countries in their dependent condition.
- For many developing countries and regions, population growth is in fact desirable.

OTHER ISSUES

Many observers from both rich and poor nations argue that the real problem is not population growth per se but one or all of the following four issues.

UNDERDEVELOPMENT

If correct strategies are pursued and lead to higher levels of living, greater self-esteem, and expanded freedom, population will take care of itself. Eventually, it will disappear as a problem, as it has in all of the present economically advanced nations. According to this argument,

underdevelopment is the real problem, and development should be the only goal. With it will come economic progress and social mechanisms that will more or less automatically regulate population growth and distribution. As long as people in developing countries remain impoverished, uneducated, and unhealthy and the social safety net remains weak, the large family will constitute the only real source of social security (i.e., parents will continue to be denied the freedom to choose a small family if they so desire). Some proponents of the underdevelopment argument then conclude that birth control programs will surely fail, as they have in the past, when there is no motivation on the part of poor families to limit their size.

WORLD RESOURCE DEPLETION AND ENVIRONMENTAL DESTRUCTION

Population can only be an economic problem in relation to the availability and utilization of scarce natural and material resources. The fact is that developed countries, with less than one-quarter of the world's population, consume almost 80% of the world's resources. In terms of the depletion of the world's limited resources, therefore, the addition of another child in the developed countries is as significant as the birth of many times as many additional children in the underdeveloped countries. According to this argument, developed nations should curtail their excessively high consumption standards instead of asking less developed nations to restrict their population growth. The latter's high fertility is really due to their low levels of living, which are in turn largely the result of the over consumption of the world's scarce resources by rich nations. This combination of rising affluence and extravagant consumption habits in rich countries and among rich people in poor countries, and not population growth, should be the major world concern.

POPULATION DISTRIBUTION

According to this third argument, it is not the number of people per se that is causing population problems but their distribution in space. Many regions of the world (e.g., parts of sub-Saharan Africa) and many regions within countries (e.g., the northeastern and Amazon regions of Brazil) are viewed as under populated in terms of available or potential resources. Others simply have too many people concentrated in too small an area (e.g., central Java or most urban concentrations). Governments should therefore strive not to moderate the rate of population growth but rather to bring about a more natural spatial distribution of the population in terms of available land and other productive resources.

SUBORDINATION OF WOMEN

Perhaps most important, as noted previously, women often bear the disproportionate burdens of poverty, poor education, and limited social mobility. In many cases, their inferior roles, low status, and restricted access to birth control are manifested in their high fertility. According to this argument, population growth is a natural outcome of women's lack of economic opportunity. If women's health, education, and economic well-being are improved along with their role and status in both the family and the community, this empowerment of women will inevitably lead to smaller families and lower population growth.

IT'S A DELIBERATELY CONTRIVED FALSE ISSUE

A radical neo-Marxist version of this argument views population control efforts by rich countries and their allied international agencies as racist or genocidal attempts to reduce the relative or absolute size of the poor, largely nonwhite populations of the world who may someday pose a

serious threat to the welfare of the rich, predominantly white societies. Worldwide birth control campaigns are seen as manifestations of the fears of the developed world in the face of a possible radical challenge to the international order by the people who are its first victims.

IT'S A DESIRABLE PHENOMENON

A more conventional economic argument is that of population growth as an essential ingredient to stimulate economic development. Larger populations provide the needed consumer demand to generate favorable economies of scale in production, to lower production costs, and to provide a sufficient and low-cost labor supply to achieve higher output levels. Population "revisionist economists of the neoclassical counterrevolution school argue, for example, that free markets will always adjust to any scarcities created by population pressures. Such scarcities will drive up prices and signal the need for new cost-saving production technologies. In the end, free markets and human ingenuity (Julian Simon's "genius" as the "ultimate resource") will solve any and all problems arising from population growth. This revisionist viewpoint was clearly in contrast with the traditional "orthodox" argument that rapid population growth had serious economic consequences that, if left uncorrected, would slow economic development.

Three other non economic arguments, each found to some degree in a wide range of developing countries, complete the "population growth is desirable" viewpoint. First, many countries claim a need for population growth to protect currently under populated border regions against the expansionist intentions of neighboring nations. Second, there are many ethnic, racial, and religious groups in less developed countries whose attitudes favoring large family size have to be protected for both moral and political reasons. Finally, military and political power is often seen as dependent on a large and youthful population.

Many of these arguments have certain realism about them—if not in fact, then at least in the perceptions of vocal and influential individuals in both the developed and developing worlds. The important point is that they represent a considerable range of opinions and viewpoints and therefore need to be seriously weighed against the counterarguments of theorists who believe that rapid population growth is indeed a real and important problem for underdeveloped countries. Let us now look at some of these counterarguments.

2- IT IS A REAL PROBLEM

Positions supporting the need to curtail population growth because of the negative economic, social, and environmental consequences are typically based on one of the following three arguments.

THE EXTREMIST ARGUMENT: POPULATION AND GLOBAL CRISIS

The extreme version of the population-as-problem position attempts to attribute almost all of the world's economic and social evils to excessive population growth. Unrestrained population increase is seen as the major crisis facing humankind today. It is regarded as the principal cause of poverty, low levels of living, malnutrition, ill health, environmental degradation, and a wide array of other social problems. Value-laden and incendiary terms such as "population bomb" and "population explosion" are tossed around. Indeed, dire predictions of world food catastrophes and ecological disaster are often attributed almost entirely to the growth in population numbers. Such an extreme position leads some of its advocates to assert that

"world" (i.e., developing country) population stabilization or even decline is the most urgent contemporary task even if it requires severe and coercive measures such as compulsory sterilization to control family size in some of the most populated developing countries, such as India and Bangladesh.

THE THEORETICAL ARGUMENT: POPULATION-POVERTY CYCLES AND THE NEED FOR FAMILY-PLANNING PROGRAMS

"Population-poverty cycle: *A theory to explain how poverty and high population growth become reinforcing."*

The population-poverty cycle theory is the main argument advanced by economists who hold that too rapid population growth yields negative economic consequences and thus should be a real concern for developing countries. Advocates start from the basic proposition that population growth intensifies and exacerbates the economic, social, and psychological problems associated with the condition of underdevelopment. Population growth is believed to retard the prospects for a better life for the already born by reducing savings rates at the household and national levels. It also severely draws down limited government revenues simply to provide the most rudimentary economic, health, and social services to the additional people. This in turn further reduces the prospects for any improvement in the levels of living of the existing generation and helps transmit poverty to future generations of low-income families.

The basic model that economists use to demonstrate these adverse consequences of rapid population growth is a simplification of the standard Solow type neoclassical growth equation. Using the standard production function, *Y f(K, L, R, T*)—that is, output is a function of capital, labor, resources, and technology— and holding the resource base fixed, we can derive the result that

$y - l = a(k - l) + t$

Where y rate of GNI growth, l = rate of labor force (population) growth, k rate of growth of the capital stock, α capital elasticity of output (usually found to be constant), and t the effect of technological change (the Solow residual in empirical studies of sources of economic growth.

OTHER EMPIRICAL ARGUMENTS: SEVEN NEGATIVE CONSEQUENCES OF POPULATION GROWTH

According to the latest empirical research, the potential negative consequences of population growth for economic development can be divided into seven categories: its impact on economic growth, poverty and inequality, education, health, food, the environment, and international migration.

ECONOMIC GROWTH

Evidence shows that although it is not the culprit behind economic stagnation, rapid population growth lowers per capita income growth in most developing countries, especially those that are already poor, dependent on agriculture, and experiencing pressures on land and natural resources.

POVERTY AND INEQUALITY

Even though aggregate statistical correlations between measures of poverty and population growth at the national level are often inconclusive, at the household level the evidence is strong and compelling. The negative consequences of rapid population growth fall most heavily on the poor because they are the ones who are made landless, suffer first from cuts in government health and education programs, and bear the brunt of environmental damage. Poor women once again bear the greatest burden of government austerity programs, and another vicious circle ensues. To the extent that large families perpetuate poverty, they also exacerbate inequality.

EDUCATION

Although the data are sometimes ambiguous on this point, it is generally agreed that large family size and low incomes restrict the opportunities of parents to educate all their children. At the national level, rapid population growth causes educational expenditures to be spread more thinly, lowering quality for the sake of quantity. This in turn feeds back on economic growth because the stock of human capital is reduced by rapid population growth.

HEALTH

High fertility harms the health of mothers and children. It increases the health risks of pregnancy, and closely spaced births have been shown to reduce birth weight and increase child mortality rates.

FOOD

Feeding the world's population is made more difficult by rapid population growth—a large fraction of developing country food requirements are the result of population increases. New technologies of production must be introduced more rapidly, as the best lands have already been cultivated. International food relief programs become more widespread.

ENVIRONMENT

Rapid population growth contributes to environmental degradation in the form of forest encroachment, deforestation, fuel wood depletion, soil erosion, declining fish and animal stocks, inadequate and unsafe water, air pollution, and urban congestion.

INTERNATIONAL MIGRATION

Many observers consider the increase in international migration, both legal and illegal, to be one of the major consequences of developing countries' population growth. Though many factors spur migration, an excess of job seekers (caused by rapid population growth) over job opportunities is surely one of them. However, unlike the first six consequences listed here, some of the economic and social costs of international migration fall on recipient countries, increasingly in the developed world. It is not surprising, therefore, that this issue has recently taken on political importance in North America and Europe.

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Lesson 13

POPULATION GROWTH AND ECONOMIC DEVELOPMENT: CAUSES, CONSEQUENCES AND CONTROVERSIES (CONTINUED3)

GOALS AND OBJECTIVES: TOWARD A CONSENSUS

The following three propositions constitute the essential components of this intermediate or consensus opinion.

1. Population growth is not the primary cause of low levels of living, extreme inequalities, or the limited freedom of choice that characterize much of the developing world. The fundamental causes of these problems must be sought, rather, in the plight of poor families, especially women, and the failure of other aspects of domestic and international development policy.

2. The problem of population is not simply one of numbers but involves the quality of life and material well-being. Thus developing country population size must be viewed in conjunction with developed-country affluence in relation to the quantity, distribution, and utilization of world resources, not just in relation to developing countries' indigenous resources.

3. Rapid population growth does serve to intensify problems of underdevelopment and make prospects for development that much more remote. As noted, the momentum of growth means that, barring catastrophe, the population of developing countries will increase dramatically over the coming decades, no matter what fertility control measures are adopted now. It follows that high population growth rates, though not the principal cause of underdevelopment, are nevertheless important contributing factors in specific countries and regions of the world.

In view of these three propositions, we may conclude that the following three policy goals and objectives might be included in any realistic approach to the issue of population growth in developing countries.

1. In countries or regions where population size, distribution, and growth are viewed as an existing or potential problem, the primary objective of any strategy to limit further growth must deal not only with the population variable per se but also with the underlying social and economic conditions of underdevelopment. Problems such as absolute poverty, gross inequality, widespread unemployment (especially among women), limited female access to education, malnutrition, and poor health facilities must be given high priority. Their amelioration is both a necessary concomitant of development and a fundamental motivational basis for the expanded freedom of the individual to choose an optimal—and in many cases, smaller—family size.

2. To bring about smaller families through development-induced motivations, family-planning programs providing both the education and the technological means to regulate fertility for people who wish to regulate it should be established.

3. Developed countries should help developing countries achieve their lowered fertility and mortality objectives not only by providing contraceptives and funding family-planning

clinics but, even more important, by curtailing their own excessive depletion of nonrenewable world resources through programs designed to cut back on the unnecessary consumption of products that intensively use such resources; by making genuine commitments to eradicating poverty, illiteracy, disease, and malnutrition in developing countries as well as their own; and by recognizing in both their rhetoric and their international economic and social dealings that development is the real issue, not simply population control.

SOME POLICY APPROACHES

Three areas of policy can have important direct and indirect influences on the well-being of present and future world populations:

1. General and specific policies that developing country governments can initiate to influence and perhaps even control their population growth and distribution
2. General and specific policies that developed-country governments can initiate in their own countries to lessen their disproportionate consumption of limited world resources and promote a more equitable distribution of the benefits of global economic progress
3. General and specific policies that developed-country governments and international assistance agencies can initiate to help developing countries achieve their population objectives.

WHAT DEVELOPING COUNTRIES CAN DO?

Earlier discussions have led to the conclusion that the principal variables influencing the demand for children at the family level are the ones most closely associated with the concept of development. Thus certain development policies are particularly crucial in the transition from a high-growth to a low-growth population.

There are five specific policies that developing country governments might try to adopt to lower birth rates in the short run.

- **First,** they can try to persuade people to have smaller families through the media and the educational process, both formal (school system) and informal (adult education).
- **Second,** they can enhance family-planning programs to provide health and contraceptive services to encourage the desired behavior. Such publicly sponsored or officially supported programs now exist in most developing countries. Today only a few countries do not have such publicly sponsored or officially endorsed family-planning programs.
- **Third,** they can deliberately manipulate economic incentives and disincentives for having children—for example, through the elimination or reduction of maternity leaves and benefits, the reduction or elimination of financial incentives, or the imposition of financial penalties for having children beyond a certain number; the establishment of old-age social security provisions and minimum-age child labor laws; the raising of school fees and the elimination of heavy public subsidies for higher education; and the subsidization of smaller families through direct money payments.
- **Fourth,** governments can attempt to coerce people into having smaller families through the power of state legislation and penalties. For obvious reasons, few governments would attempt to engage in such coercion; not only is it often morally repugnant and politically unacceptable, but it is also almost always extremely difficult to administer.

- **Finally,** no policy measures will be successful in controlling fertility unless efforts are made to raise the social and economic status of women and hence create conditions favorable to delayed marriage and lower marital fertility.

REPRODUCTIVE CHOICE:

The concept that women should be able to determine on an equal status with their husbands and for themselves how many children they want and what methods to use to achieve their desired family size.

WHAT THE DEVELOPED COUNTRIES CAN DO?

When we view the problems of population from the perspective of global resources and the environment, as we should, the question of the relationship between population size and distribution and the depletion of many nonrenewable resources in developed and underdeveloped countries assumes major importance. In a world where 4.5% of the population, located in one country, the United States, accounts for over one-fifth annual world total energy use, we are clearly not dealing only or even primarily with a problem of numbers. We must also be concerned with the impact of rising affluence and the very unequal worldwide distribution of incomes on the depletion of many nonrenewable resources such as petroleum, certain basic metals, and other raw materials essential for economic growth.

The use of fossil fuel energy to power private automobiles, operate home and office air conditioners, activate electric toothbrushes, and so on in the developed nations is by far the major contributor of carbon dioxide (CO_2) gases into the atmosphere and to the phenomenon of greenhouse global warming. It also means that there is potentially that much less to fertilize small family farms in the less developed nations. Alternatively, it means that poor families will have to pay more to obtain these valuable resource inputs.

In addition to simplifying lifestyles and consumption habits, one other positive (if unlikely), internal policy that rich nations could adopt to mitigate current world population problems would be to liberalize the legal conditions for the international immigration of poor, unskilled workers and their families from Africa, Asia, and Latin America to North America, Europe, Japan, and Australia. The international migration of peasants from Europe to North America, Australia, and New Zealand in the nineteenth and early twentieth century's was a major factor in moderating the problems of underdevelopment and population pressure in European countries. No such safety valve or outlet exists today for developing countries.

In fact, what few outlets existed has over the past two decades been progressively closed. Yet clearly, many under populated regions of the world and many labor-scarce societies could benefit economically from international migration, and the benefits to developing countries would be enormous. For example, the United Nations has estimated that legal barriers to international migration from the developing to the developed world cost developing nations at least $250 billion a year.

HOW DEVELOPED COUNTRIES CAN HELP DEVELOPING COUNTRIES WITH THEIR POPULATION PROGRAMS

There are a number of ways in which the governments of rich countries and multilateral donor agencies can help the governments of developing countries achieve their population policy

objectives sooner. The most important of these concerns the willingness of rich countries to be of genuine assistance to poor countries in their development efforts, particularly in sub-Saharan Africa.

- Address resources use inequities
- Soft migration policies
- Technology of fertility control
- Financial assistance for family planning programs

We conclude with a note of optimism. Fertility rates in many of the poorest countries, such as Bangladesh and most of the countries in sub-Saharan Africa, have experienced an impressive decline. Population experts have lowered their estimates of world population growth for coming decades. In no small part, this decline is the result of more widespread availability of family planning. This change helps set the stage for an opportunity for successful development efforts in the coming years, but developed countries need to do their part in providing expanded development assistance, especially efforts focused on the need and opportunity to greatly reduce the incidence of poverty, which remains the biggest cause of high rates of fertility.

CASE STUDY - POPULATION, POVERTY, AND DEVELOPMENT: CHINA AND INDIA

- Two of the world's fastest growing economies, China and India, also happen to be the world's two most populous nations.
- In 2010, India's population was nearly 1.2 billion one-child policy in China.
- Women's empowerment and education in some parts of India, such as the state of Kerala.

OBJECTIVE

What can we learn about population and development from the world's most populous countries?

- India, which had well under two-thirds of China's population half a century ago, is projected to surpass China's population by 200 million people by 2050.
- Amartya Sen's view that development is freedom, the greater opportunities available to young women when fertility is reduced or delayed is itself a key indicator of development success and population policy can help realize these goals.

POPULATION POLICY IN CHINA

- After the Communist takeover in 1949.
- Chinese leaders led by Mao Zedong believed that a larger population would mean a more powerful country.
- Mao "60% right" used to send advocates of population control to jail.
- In late 1950s due to famine, these policies got moderated.
- By the mid-1990s, China's fertility rate reached 1.9 births per woman, and it fell further to 1.6 by 2009.
- This rate is below replacement level and consistent with a slow long-term decline in population growth.
- Because of population momentum, China's population has continued to grow as larger, younger cohorts replace smaller, older ones.

- Social imbalance with more boys and less girls.

POPULATION POLICY IN INDIA

- In 1949, India became the first country to implement a national family-planning program.
- It has proved to be relatively ineffective.
- By the early 1970s, observers were becoming increasingly alarmed by the very high rate of population growth in India.
- Indira Gandhi tried to implement drastic population control in 1975–1977.
- Forced sterilization.
- Coercive birth control policies.
- As fertility has fallen, a preference for boys over girls has developed, particularly in the "Hindi belt" in northern India. The result is a "missing women" problem parallel to China's
- Stronger male bias is actually found in the better-off states of India, and researchers Jean Drèze, Anne-Catherine Guio, and Mamta Murthi found that "female disadvantage in child survival is significantly lower in districts with higher poverty levels."
- The ratio of males to females in India as a whole reached 108 to 100, one of the highest in the world.

KERALA SUCCESS

- In Mid-1990s, Kerala's fertility rate had fallen to just 1.7 births per woman.
- This was without coercion.
- The power of TV in India played an important role in it.
- More than 85% of women in Kerala are literate.
- The success of Kerala suggests that fertility reduction may depend not on rapid economic growth or even, in its absence, on draconian governmental policies but rather on grassroots human development emphasizing women's empowerment, in which civil society plays a leading role.

Lesson 14

HUMAN CAPITAL: EDUCATION AND HEALTH IN ECONOMIC DEVELOPMENT

HUMAN CAPITAL

Productive investments embodied in human persons, including skills, abilities, ideals, health, and locations, often resulting from expenditures on education, on-the-job training programs, and medical care.

THE CENTRAL ROLES OF EDUCATION AND HEALTH

Education and health are basic *objectives of development;* they are important ends in themselves. Health is **central to well-being**, and education is essential for a satisfying and rewarding life; both are fundamental to the broader notion of expanded human capabilities that lie at the heart of the meaning of development. At the same time, education plays a key role in the ability of a **developing country to absorb modern technology** and to develop the capacity for self-sustaining growth and development. Moreover, health is a prerequisite for increases in **productivity, and successful** education relies on adequate health as well. Thus both health and education can also be seen as **vital *components of growth and development***—as inputs to the aggregate production function. Their dual role as both inputs and outputs gives health and education their **central importance in economic development**.

Literacy *The ability to read and write.*

In this chapter, we examine the roles of education and health in economic development. These two **human capital** issues are treated together because of their close relationship. Our look at the connections between health and education include similar analytical treatment, because both are forms of human capital; the dual impacts of effects of health spending on the effectiveness of the educational system and vice versa; and the fundamental fact that when we speak of investing in a person's health and investing in a person's education, we are after all talking about the same person. We then consider the relationships between income on the one hand and health and education on the other. Despite their close relationship, you will see that higher household income is no guarantee of improved health and education: Human capital must be given direct attention in its own right, even in economies that are growing rapidly. Finally, we take a close look at educational and health systems in developing countries, to identify the sources of the severe inequalities and inefficiencies that continue to plague them. The evidence reveals that investments in human capital have to be undertaken with both equity and efficiency for them to have their potential positive effects on incomes.

EDUCATION AND HEALTH AS JOINT INVESTMENTS FOR DEVELOPMENT

Health and education are closely related in economic development. On one hand, greater health capital may improve the return to investments in education, in part because health is an important factor in school attendance and in the formal learning process of a child. A longer life raises the return to investments in education; better health at any point during working life may in effect lower the rate of depreciation of education capital. On the other hand, greater education capital may improve the return to investments in health, because many health programs rely on basic skills often learned at school, including personal hygiene and sanitation, not to mention basic literacy and numeracy; education is also needed for the formation and training of health

personnel. Finally, an improvement in productive efficiency from investments in education raises the return on a lifesaving investment in health.

Box 8.2 summarizes the linkages between investments in health and education.

BOX 8.2 Linkages between Investments in Health and Education

- Health and education are investments made in the same individual.
- Greater health capital may raise the return on investment in education for several reasons:
  - Health is an important factor in school attendance.
  - Healthier children are more successful in school and learn more efficiently.
  - Deaths of school-age children also increase the cost of education per worker.
  - Longer life spans raise the return to investments in education.
  - Healthier individuals are more able to productively use education at any point in life.
- Greater education capital may raise the return to investment in health in the following ways:
  - Many health programs rely on skills learned in school (including literacy and numeracy).
  - Schools teach basic personal hygiene and sanitation.
  - Education is needed for the formation and training of health personnel.
  - Education leads to delayed childbearing, which improves health.
- Improvements in productive efficiency from investment in education raise the return on a lifesaving investment in health.

IMPROVING HEALTH AND EDUCATION: WHY INCREASING INCOMES IS NOT SUFFICIENT

Health and education levels are much higher in high-income countries. There are good reasons to believe that the causality runs in both directions: With higher income, people and governments can afford to spend more on education and health, and with greater health and education, higher productivity and incomes are possible. Because of these relationships, development policy needs to focus on income, health, and education simultaneously. People will spend more on human capital when income is higher. But the evidence shows clearly that even if we were able to raise incomes without a large improvement in health and education, we could not count on that income increase being used to adequately invest in children's education and health. The market will not solve this problem automatically, and in many cases, household consumption choices themselves may lead to a surprisingly small link between income and nutrition, especially for children.

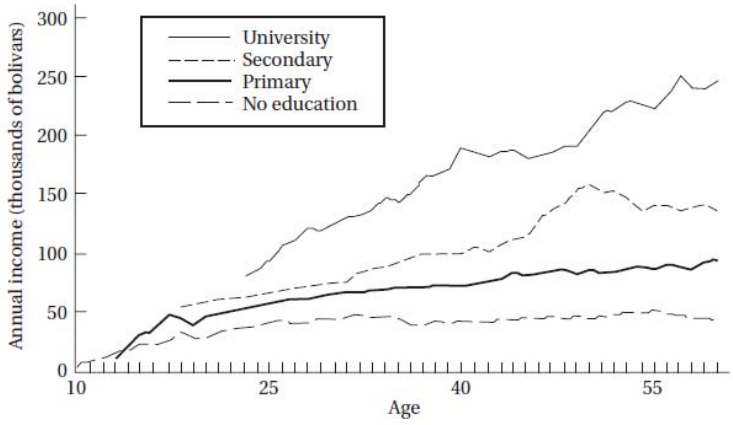
There is considerable evidence that the better the education of the mother, the better the health of her children. Usually, formal education is needed in complementary relationship with ongoing access to current information. Paul Glewwe found in an analysis of data from Morocco that a mother's basic health knowledge had a positive effect on her children's health. Several mechanisms were possible, such as that "formal education directly teaches health knowledge to future mothers; literacy and numeracy skills acquired in school assist future mothers in diagnosing and treating child health problems; and exposure to modern society from formal schooling makes women more receptive to modern medical treatments." But, Glewwe concludes, "Mother's health knowledge alone appears to be the crucial skill for raising child health.

Finally, there are other important spillover benefits to investment in one's health or education. An educated person provides benefits to people around him or her, such as reading for them or coming up with innovations that benefit the community. As a result, there are significant market failures in education. Moreover, a healthy person is not only less contagious but can also benefit the community in many ways that a sick person cannot. Because of such spillover effects, the market cannot be counted on to deliver the socially efficient levels of health and education. Thus, as the World Health Organization (WHO) concluded, "Ultimate responsibility for the performance of a country's health system lies with government.

INVESTING IN EDUCATION AND HEALTH: THE HUMAN CAPITAL APPROACH

The analysis of investments in health and education is unified in the human capital approach. ***Human capital*** is the term economists often use for education, health, and other human capacities that can raise productivity when increased. An analogy is made to conventional investments in physical capital: After an initial investment is made, **a stream of higher future income can be generated** from both expansion of education and improvements in health. As a result, a rate of return can be deduced and compared with returns to other investments. This is done by estimating the present discounted value of the increased income stream made possible by these investments and then comparing it with their direct and indirect costs. Of course, health and education also contribute directly to well-being. But the basic human capital approach focuses on their indirect ability to increase well-being by increasing incomes. In this section, we will generally illustrate points with educational investments, but the same principles apply to health investments.

FIGURE 8.1 Age-Earnings Profiles by Level of Education: Venezuela



Source: International Bank for Reconstruction and Development / The World Bank: *The Profitability of Investment in Education: Concepts & Methods* by George Psacharopoulos, 1995. Reprinted with permission.

The impact of human capital investments in developing countries can be quite substantial. Figure 8.1 shows the age-earnings profiles by levels of education in Venezuela. The chart shows how incomes vary over the life cycle for people with various levels of education. Note that those with higher levels of education start full-time work at a later age, but as the graph shows, their incomes quickly outpace those who started working earlier. But such future income gains from education must be compared with the total costs incurred to understand the value of human capital as an investment. Education costs include any direct tuition or other expenditures

specifically related to education, such as books and required school uniforms, and indirect costs, primarily income forgone because the student could not work while in school.
Formally, the income gains can be written as follows, where *E* is income with extra education, *N* is income without extra education, *t* is year, *i* is the **discount rate**, and the summation is over expected years of working life:

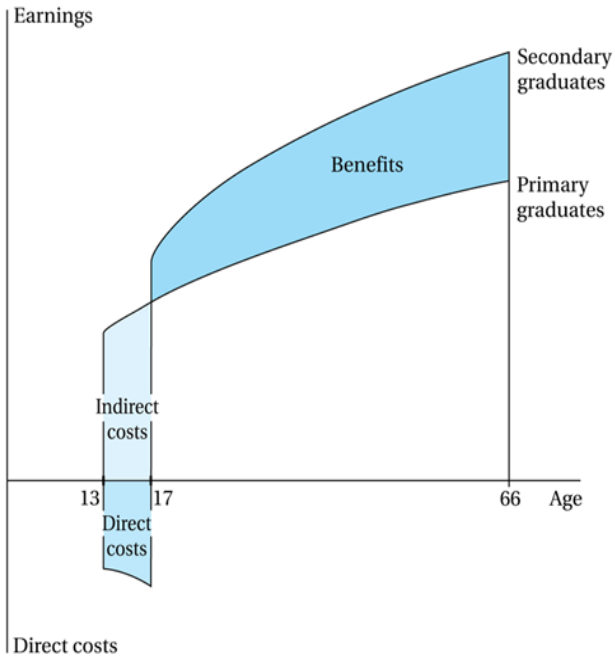
$$\sum \frac{E_t - N_t}{(1+i)^t}$$

- **Discount rate:** In present value calculations, the annual rate at which future values are decreased to make them comparable to values in the present.

An analogous formula applies to health (such as improved nutritional status), with the direct and indirect cost of resources devoted to health compared with the extra income gained in the future as a result of higher health status.

Figure 8.2 provide a typical schematic representation of the trade-offs involved in the decision to continue in school. It is assumed that the individual works from the time he or she finishes school until he or she is unable to work, retires, or dies. This is taken to be 66 years. Two earnings profiles are presented—for workers with primary school but no secondary education and for those with a full secondary (but no higher) education. Primary graduates are assumed to begin work at age 13, secondary graduates at age 17. For an individual in a developing country deciding whether to go on from primary to secondary education, four years of income are forgone. This is the indirect cost, as labeled in the diagram. The child may work part time, a possibility ignored here for simplicity, but if so, only part of the indirect-cost area applies. There is also a direct cost, such as fees, school uniforms, books, and other expenditures that would not have been made if the individual had left school at the end of the primary grades. Over the rest of the person's life, he or she makes more money each year than would have been earned with only a primary education.

Fig 8.2



This differential is labeled "Benefits" in the diagram. Before comparing costs with benefits, note that a dollar today is worth more to an individual than a dollar in the future, so those future income gains must be discounted accordingly, as is done in Equation 8.1. The rate of return will be higher whenever the discount rate is lower, the direct or indirect costs are lower, or the benefits are higher.

Lesson 15

HUMAN CAPITAL: EDUCATION AND HEALTH IN ECONOMIC DEVELOPMENT (CONTINUED1)

This analysis was performed from the individual's point of view in the three right-hand columns of Table 8.1. Notice that in sub-Saharan Africa and Asia, the private rate of return to primary education is about 40%! Despite this extraordinary return, many families do not make this investment because they have no ability to borrow even the meager amount of money that a working child can bring into the family—the topic of the next section. Note that the higher rates of return for developing countries reflect that the income differential between those with more and less schooling is greater on average than for the developed countries.

TABLE 8.1 Sample Rates of Return to Investment in Education by Level of Education, Country, Type, and Region

Country Type and Region	Social Rate of Return (%)			Private Rate of Return (%)		
	Primary	Secondary	Higher	Primary	Secondary	Higher
Developing						
Sub-Saharan Africa	24	18	11	41	27	28
Asia	20	13	12	39	19	20
Latin America	18	13	12	26	17	20
Developed	14	10	9	22	12	12

The first three columns of Table 8.1 indicate the social rate of return. This is found by including the amount of public subsidy for the individual's education as part of the direct costs, because this is part of the investment from the social point of view (and also by considering pretax rather than after-tax incomes). It should be noted that these social returns are probably understated because they do not take into account the externality that educated people confer on others (e.g., being able to read for other family members), not to mention other individual and social benefits such as increased autonomy and civic participation, as reflected in this chapter's opening quote from Amartya Sen.

CHILD LABOR

Child labor is a widespread problem in developing countries. When children under age 15 work, their labor time disrupts their schooling and in a majority of cases prevents them from attending school altogether. Compounding this, the health of child workers is significantly worse, even accounting for their poverty status, than that of children who do not work; physical stunting among child laborers is very common. In addition, many laboring children are subject to especially cruel and exploitative working conditions.

Working conditions are often horrendous; the ILO reports that some of its surveys show that more than half of child laborers toil for nine or more hours per day. The worst forms of child labor endanger health or well-being, involving hazards, sexual exploitation, trafficking, and debt bondage. Every year, about 20,000 children die as a result of work-related accidents. Clearly, child labor is not an isolated problem but a widespread one, especially in Africa and South Asia. Nevertheless, it is not obvious that an immediate ban on all forms of child labor is always in the best interests of the child. Without work, a child may become severely malnourished; with work, school fees as well as basic nutrition and health care may be available. But there is one set of circumstances under which both the child laborer and the family as a whole may be

unambiguously better off with a ban on **child labor: multiple equilibria**. Kaushik Basuhas provided such an analysis, and we shall first consider his simple model, which shows how this problem may arise.

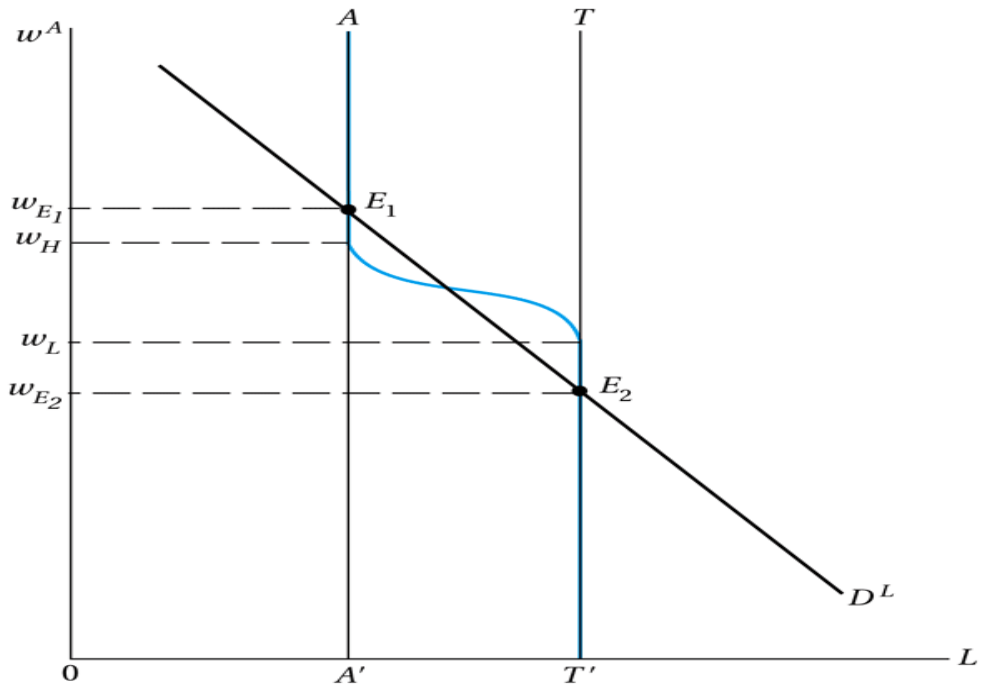
ASSUMPTIONS OF THE CHILD LABOR MULTIPLE EQUILIBRIA MODEL

To model child labor, we make two important assumptions i.e.

- **Luxury Axiom:** A household with sufficiently high income would not send its children to work
- **Substitution Axiom:** Adult and child labor are substitutes (perfect substitutes in this model), in which the quantity of output by a child is a given fraction of that of an adult: $Q^C = \gamma Q^A$, $0 < \gamma < 1$.

It is important to emphasize this, because one rationalization for child labor often heard is that children have special productive abilities, such as small fingers, that make them important for the production of rugs and other products. However, there is no support for this view. In essentially every task that has been studied, including carpet weaving, adult laborers are significantly more productive. As a result, we can consider the supply of adult and child labor together in an economic analysis of the problem.

The child labor model is graphed in Figure 8.3. On the *x*-axis, we have the supply of labor in adult equivalents. Because we are interested in understanding the impact of the demand for



Source: From *Journal of Economic Literature* by Kaushik Basu. Copyright 1999 by the American Economic Association. Reproduced with permission of the American Economic Association via Copyright Clearance Center.

labor, in a graph it is best to consider homogeneous units of labor. So if a child laborer is γ times as productive as an adult worker, we consider one child the productive equivalent of γ adult workers. According to our assumptions, $\gamma < 1$. For example, if a child laborer is half as productive as an adult worker, $\gamma = 0.5$.

We start with the assumption that in the region in question, all (unskilled) adults work, regardless of the wage. This gives us a perfectly inelastic, vertical adult labor supply curve, called *AA*_ in the diagram. Highly inelastic supply is a very reasonable assumption among families so poor that their children work. While the parents may not have modern-sector jobs, every adult is involved in some type of activity to help the family survive. This adult supply *AA*_ is simply the number of unskilled adults.

To understand the total labor supply curve, consider what happens if the wage falls. If the wage falls below w_H, then some families find they are poor enough that they have to send their children to work. At first wages are still high enough so that this affects only a few families and children, reflected in the fact that the S-shaped curve just below w_H is still quite steep.

As the wage continued to fall, more families would do the same, and labor supply expands along the S-shaped curve, which becomes flatter as smaller drops in the wage lead many more families to send their children to work. If a wage of w_L were reached, all of the children would work. At this point, we are on the vertical line labeled *TT*_, which is the aggregate labor supply of all the adults and all the children together. This sum is the number of adults, plus the number of children multiplied by their lower productivity, γ< 1. (An S shape in the middle portion is likely, but the analysis holds even if this is a straight line.)

The resulting supply curve for children and adults together is very different from the standard one but it is highly relevant for the developing country child labor context. To summarize, as long as the wage is above w_H, the supply curve is along *AA*_; if the wage is below w_L, the supply curve is along *TT*_, and in between, it follows the S-shaped curve between the two vertical lines.

Now consider the labor demand curve, *DL*; if demand is inelastic enough to cut the *AA*_ line above $w_H$and also cut the *TT*_ line below w_L, there will be two stable equilibria, labeled *E*1 and *E*2, in the diagram.23 When there are two equilibria, if we start out at the bad equilibrium *E*2, an effective ban on child labor will move the region to the good equilibrium *E*1. Moreover, once the economy had moved to the new equilibrium, the child labor ban would be self-enforcing, because by assumption, the new wage is high enough for no family to have to send its children to work. If poor families coordinate with each other and refuse to send their children to work, each would be better off; but in general, with a large number of families, they will be unable to achieve this.

Banning child labor when there is an alternative equilibrium in which all children go to school might seem like an irresistible policy, but note that while all the families of child laborers are better off, employers may now be worse off, because they have to pay a higher wage. Thus employers may use political pressure to prevent enactment of child labor laws.

While these child labor models are probably reasonable depictions of many developing areas, we do not know enough about conditions in unskilled labor markets to say how significant these types of multiple equilibria severe credit constraints really are as explanations for child labor. Thus it would be potentially counterproductive, if even enforceable, to seek an immediate ban on all child labor in all parts of the world today. As a result, an intermediate approach is currently dominant in international policy circles.

OTHER APPROACHES TO CHILD LABOR POLICY

There are five main approaches to child labor policy current in development policy.

- **The first** recognizes **child labor as an expression of poverty** and recommends an emphasis on eliminating poverty rather than directly addressing child labor; this position is generally associated with the World Bank.

- **The second approach** emphasizes strategies to get more children into school, including expanded school places, such as new village schools, and **conditional cash transfer** incentives to induce parents to send their children to school, such as the Progresa/Opportunidades program in Mexico, discussed. This strategy has wide support from many international agencies and development bodies. It is probably a more effective approach than making basic education compulsory, because without complementary policies, the incentives to send children to work would still remain strong and enforcement is likely to be weak, for the same reasons that regulation of the informal sector has proved almost impossible in many other cases. Compulsory schooling is a good idea, but it is not an effective solution to the problem of child labor. Improving the quality of basic schooling and increasing accessibility are also very important; the fraction of national income spent on basic education in a majority of low-income countries remains problematic.

- **The third approach** considers **child labor inevitable**, at least in the short run, and stresses palliative measures such as regulating it to prevent abuse and to provide support services for working children. This approach is most commonly associated with UNICEF, which has prepared a checklist of regulatory and social approaches that could meet the "best interest of the child." The regulations included on UNICEF's checklist include expanding educational opportunities through "time off" for standard or workplace schooling, encouraging stricter law enforcement against illegal child labor trafficking, providing support services for parents and for children working on the streets, and working to develop social norms against the economic exploitation of children.

- **The fourth approach**, most often associated with the ILO**, favors banning child labor**. If this is not possible, however, and recognizing that child labor may not always result from multiple equilibrium problems, this approach favors banning child labor *in its most abusive forms.* The latter approach has received much attention in recent years; the ILO's "Worst Forms of Child Labor Convention" was adopted in 1999. The worst forms covered under the convention include "all forms of slavery or practices similar to slavery, such as the sale and trafficking of children, debt bondage and serfdom and forced or compulsory labor"; child prostitution and pornography; other illicit activities, such as drug trafficking; and work that "by its nature or the circumstances is likely to harm the health, safety or morals of children."

- **Finally**, many activists in developed countries have **proposed the imposition of trade sanctions against countries that permit child labor** or at least banning the goods on which children work. This approach is well intentioned, but if the objective is the welfare of children, it needs to be considered carefully, because if children cannot work in the export sector, they will almost certainly be forced to work in the informal sector, where wages and other working conditions are generally worse. Export restrictions may also make it more difficult for poor countries to grow their way out of poverty. Of course, the

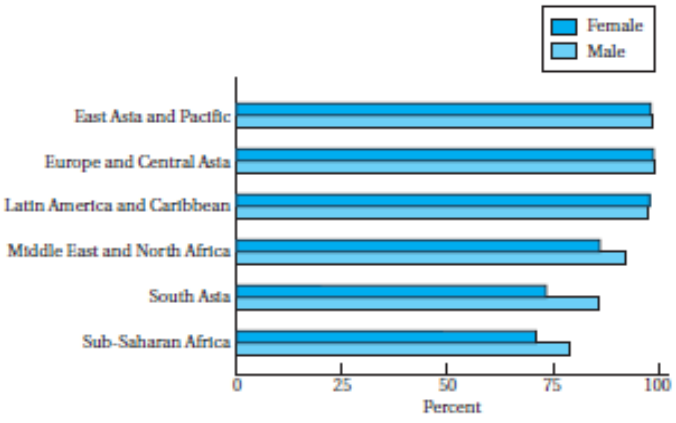
worst forms of child labor can never be tolerated. It seems clear that if efforts at banning imports from developing countries were channeled instead into working to secure more public and private development assistance for nongovernmental organizations that work with child laborers, much more would be accomplished to help these children.

THE GENDER GAP: DISCRIMINATION IN EDUCATION AND HEALTH

EDUCATION AND GENDER

Young females receive less education than young males in most low-income developing countries. While youth literacy is now much higher than it was as recently as 1990, Figure 8.4 shows that in most regions girls still lag behind boys. Large majorities of illiterate people and those who have been unable to attend school around the developing world are female.
The **educational gender gap i.e.** *Male-female differences in school access and completion***,** is

FIGURE 8.4 Youth Literacy Rate, 2008



Source: International Bank for Reconstruction and Development/The World Bank, *World Development Indicators*, 2010. Reprinted with permission.

especially great in the least developed countries in Africa, where female literacy rates can be less than half that of men in countries such as Niger, Mali, Guinea, and Benin. The gap is also relatively large in South Asia; in India, the adult female literacy rate is just 47.8, which is just 65% of the male rate (the female youth literacy rate is 67.7, 80% of the male youth literacy rate). In Pakistan, the adult female literacy rate is just 36%, only 57% of the male rate (in this case, the female youth literacy rate is 54.7%, some 72% of the male rate).

In most low income countries and many middle-income countries, women make up a minority—sometimes a small minority—of college students. But the long term trend in higher-income countries for a significantly higher and growing share of female than male enrollment in tertiary (university) education has been extending recently to many upper-middle-income countries in the Middle East, Latin America, and elsewhere.

School completion is also subject to gender inequalities, and the gap is often particularly large in rural areas. For example, in rural Pakistan, 42% of males complete their primary education, while only 17% of females do. In the cities, the gender gap is smaller though still substantial, as 64% of males complete primary education versus 50% of females in urban areas.

CLOSING THE EDUCATIONAL GENDER GAP IS IMPORTANT

Empirical evidence shows that educational discrimination against women hinders economic development in addition to reinforcing social inequality. Closing the educational gender gap by expanding educational opportunities for women, a key plan of the Millennium Development Goals is economically desirable for following **reasons:**

1. The rate of return on women's education is higher than that on men's in most developing countries.
2. Increasing women's education not only increases their productivity in the workplace but also results in greater labor force participation, later marriage, lower fertility, and greatly improved child health and nutrition, thus benefiting the next generation as well.
3. Educated mothers have a multiplier impact on future generations.
4. Because women carry a disproportionate burden of poverty, any significant improvements in their role and status via education can have an important impact on breaking the vicious circle of poverty and inadequate schooling.
5. Good news: Millennium Development Goals on parity being approached, progress in every developing region.

HEALTH AND GENDER

Girls also face discrimination in health care in many developing countries. In South Asia, for example, studies show that families are far more likely to take an ill boy than an ill girl to a health center. Women are often denied reproductive rights, whether legally or illegally. Broadly, health spending on men is often substantially higher than that on women.
Female genital mutilation/cutting (FGM/C) is a health and gender tragedy, explained in the 2005 UNICEF report changing a Harmful Social Convention: Female Genital Mutilation/Cutting. FGM/C is most widely practiced in sub-Saharan Africa and the Middle East and is believed to have affected about 130million women. This practice, which is dangerous and a violation of the most basic rights, does not only result from decisions made by men; many mothers who have undergone FGM/C also require their daughters to do so. If most other families practice FGM/C, it becomes difficult for any one family to refuse to take part, to avoid the perceived resulting "dishonor" to the daughter and her family and lost "marriage ability". The general problem fits the model of multiple equilibria associated with social norms or conventions, such as foot binding, an interpretation suggested by Gerry Mackie drawing on work of Nobel laureate Thomas Schelling.

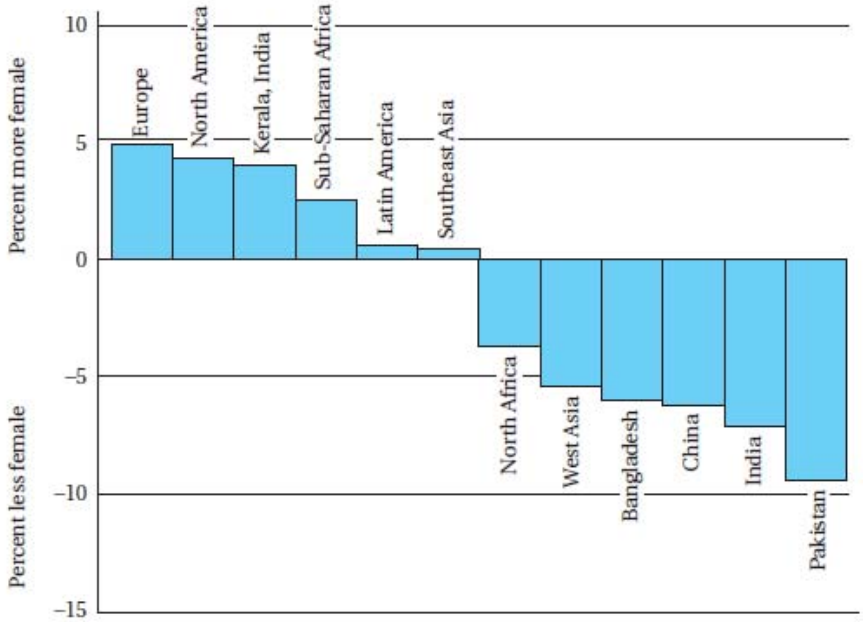
CONSEQUENCES OF GENDER BIAS IN HEALTH AND EDUCATION

Studies from around the developing world consistently show that expansion of basic education of girls earns among the very highest rates of return of any investment—much larger, for example, than most public infrastructure projects. One estimate is that the global cost of *failing* to educate girls is about $92 billion a year. This is one reason why discrimination against girls in education is not just inequitable but very costly from the standpoint of achieving development goals.
Inferior education and health care access for girls shows the interlinked nature of economic incentives and the cultural setting. In many parts of Asia, a boy provides future economic benefits, such as support of parents in their old age and possible receipt of a dowry upon marriage, and often continues to work on the farm into adulthood. A girl, in contrast, may require

a dowry upon marriage, often at a young age, and will then move to the village of her husband's family, becoming responsible for the welfare of her husband's parents rather than her own. A girl from a poor rural family in South Asia will in many cases perceive no suitable alternatives in life than serving a husband and his family; indeed, a more educated girl may be considered "less marriageable." For the parents, treatment of disease may be expensive and may require several days lost from work to go into town for medical attention. Empirical studies demonstrate what we might guess from these perverse incentives: Often more strenuous efforts are made to save the life of a son than a daughter, and girls generally receive less schooling than boys.

The bias toward boys helps explain the **"missing women"** mystery. In Asia, the United Nations has found that there are far fewer females as a share of the population than would be predicted by demographic norms. A large part of the explanation is poorer treatment of girls. Figure 8.5

FIGURE 8.5 Female-Male Ratios in Total Population in Selected Communities



shows the female male ratios in the total population in selected regions and countries as of 1999. As of 2010, the estimated ratio of males to females in China and India was 1.06 and 1.08 respectively, compared with 0.98 in the United States, United Kingdom, and Canada. The problem may be worsening in several countries including China, where the Chinese Academy of Sciences estimated in a 2010 report that 119.5 boys were born for every 100 girls in 2009; sex-selective abortion is an important cause.

Greater mothers' education, however, generally improves prospects for both her sons' and daughters' health and education. The level of child stunting, a valid indicator of child under nutrition, is much lower with higher education attainment of the mother at every income level.

Taken together, the evidence shows that increases in family income do not automatically result in improved health status or educational attainment. If higher income cannot be expected to necessarily lead to higher health and education, as we will show in subsequent sections, there are no guarantees that higher health or education will lead to higher productivities and incomes.

Much depends on the context, on whether gains from income growth and also the benefits of public investments in health and education and other infrastructure are shared equitably.

Lesson 16

HUMAN CAPITAL: EDUCATION AND HEALTH IN ECONOMIC DEVELOPMENT (CONTINUED2)

EDUCATIONAL SYSTEMS AND DEVELOPMENT

Much of the literature and public discussion about education and economic development in general, and education and employment in particular, revolve around two fundamental economic processes:

- The interaction between economically **motivated demands and politically responsive supplies** in determining how many quality school places are provided, who gets access to these places, and what kind of instruction they receive and
- The important distinction between **social and private benefits and costs** of different levels of education and the implications of these differentials for educational investment strategy.

THE POLITICAL ECONOMY OF EDUCATIONAL SUPPLY AND DEMAND: THE RELATIONSHIP BETWEEN EMPLOYMENT OPPORTUNITIES AND EDUCATIONAL DEMANDS

DEFINITION OF POLITICAL ECONOMY

The study and use of how economic theory and methods influences political ideology. Political economy is the interplay between economics, law and politics, and how institutions develop in different social and economic systems, such as capitalism, socialism and communism. Political economy analyzes how public policy is created and implemented.

DETERMINANTS OF THE AMOUNT OF SCHOOLING RECEIVED BY AN INDIVIDUAL

The amount of schooling received by an individual, although affected by many nonmarket factors, can be regarded as largely determined by demand and supply, like any other commodity or service.

The demand side depends on two factors:

- A more educated student's prospects of earning considerably more income through future modern-sector employment (the family's **private benefits** of education).
- The educational costs, both direct and indirect, that a student or family must bear.

The amount of education demanded is thus in reality a **derived demand** for high-wage employment opportunities in the modern sector. This is because access to such jobs is largely determined by an individual's education.

- **Private benefits:** The benefits that accrue directly to an individual economic unit. For example, private benefits of education are those that directly accrue to a student and his or her family.
- **Derived demand:** Demand for a good that emerges indirectly from demand for another good.

SUPPLY SIDE

The quantity of school places at the primary, secondary, and university levels is determined largely by political processes, often unrelated to economic criteria. The level of government educational expenditures is fixed. These expenditures are influenced by the level of aggregate private demand for education.

The amount of schooling demanded depends on:

- The wage or income differential.
- The probability of success in finding modern-sector employment.
- The direct private costs of education.
- The indirect or opportunity costs of education.

In a large number of developing countries, following conditions prevail:

- The difference between the modern-traditional or urban-rural wage gap is very big (even 100%).
- The rate of increase in modern-sector employment opportunities for primary school dropouts is slower than the rate at which such individuals enter the labor force.
- The same may be true at the secondary level and even the university level in countries such as India, Mexico, Egypt, Pakistan, Ghana, Nigeria, and Kenya.
- Employers, facing an excess of applicants, tend to select by level of education. They will choose candidates with secondary rather than primary education even though satisfactory job performance may require no more than a primary education.
- Governments, supported by the political pressure of the educated, tend to bind the going wage to the level of educational attainment of jobholders rather than to the minimum educational qualification required for the job.
- Fees decline at the university level as the state bears a larger proportion of the college student's costs.

Under these conditions, which conform closely to the realities of the employment and education situation in many developing nations, we would expect the quantity of higher education demanded for the formal sector to be substantial. This is because the anticipated private benefits of more schooling would be large compared to the alternative of little schooling, while the direct and indirect private educational costs are relatively low. And the demand spirals upward over time. As job opportunities for the uneducated are limited, individuals must safeguard their position by acquiring increasingly more education.

Supply and amount demanded are equated not by a price-adjusting market mechanism but rather institutionally, largely by the state. The **social benefits of education** for all levels of schooling fall short of the private benefits. Governments and formal-sector private employers in many developing countries tend to reinforce this trend by **educational certification.**

Note that this political economy process pulls scarce public resources away from the limited and often low-quality **basic education** available for the many and toward more advanced education for the few. This is both inequitable and economically inefficient.

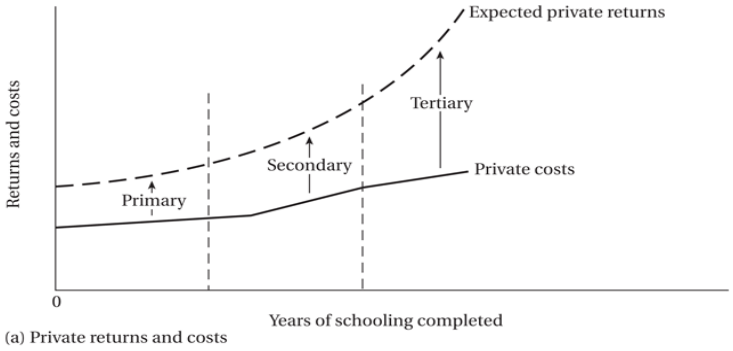
Some key definitions are.

- **Social benefits of education**: Benefits of the schooling of individuals, including those that accrue to others or even to the entire society, such as the benefits of a more literate workforce and citizenry.
- **Educational certification**: The phenomenon by which particular jobs require specified levels of education.
- **Basic education:** The attainment of literacy, arithmetic competence, and elementary vocational skills.

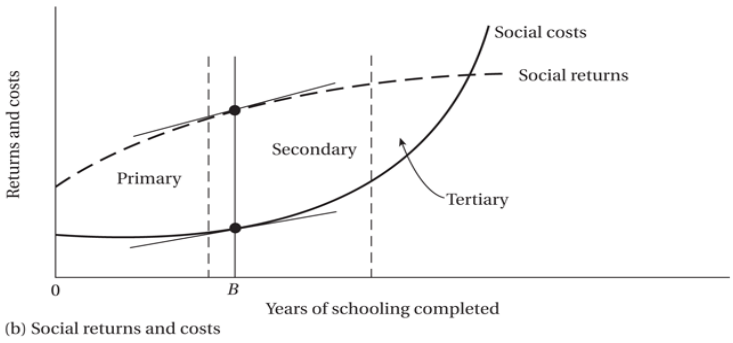
SOCIAL VERSUS PRIVATE BENEFITS AND COSTS

Typically in developing countries, the **social costs of education** (the opportunity cost to society as a whole resulting from the need to finance costly educational expansion at higher levels when these limited funds might be more productively used in other sectors of the economy) increase rapidly as students climb the educational ladder. The **private costs** of education (those borne by students themselves) increase more slowly or may even decline.

This widening gap between social and private costs provides an even greater stimulus to the demand for higher education than it does for education at lower levels. But educational opportunities can be accommodated to these distorted demands only at full social cost.



(a) Private returns and costs



(b) Social returns and costs

Figure 8.6 provides an illustration of this divergence between private and social benefits and costs. It also demonstrates how this divergence can lead to a misallocation of resources when private interests supersede social investment criteria. In Figure 8.6a, expected private returns and actual private costs are plotted against years of completed schooling. As a student completes more and more years of schooling, expected private returns grow at a much faster rate than private costs, for reasons explained earlier. To maximize the difference between expected benefits and costs, the optimal strategy for a student would be to secure as much schooling as possible.

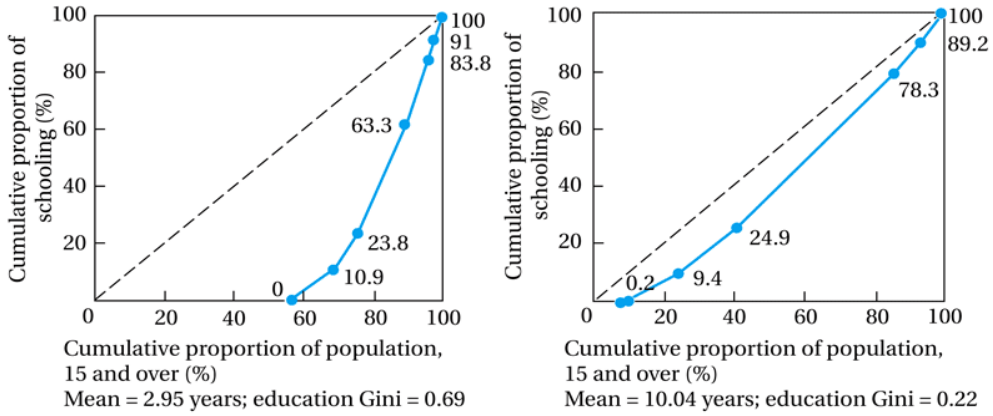
Now consider Figure 8.6b, where social returns and social costs are plotted against years of schooling. The social benefits curve rises sharply at first, reflecting the improved levels of productivity of, say, small farmers and the self-employed that result from receipt of a basic education and the attainment of literacy, arithmetic skills, and elementary vocational skills. Thereafter, the marginal social benefit of additional years of schooling rises more slowly, and the social returns curve begins to level off. By contrast, the social cost curve shows a slow rate of growth for early years of schooling (basic education) and then a much more rapid growth for higher levels of education. This rapid increase in the marginal social costs of post primary education is the result both of the much more expensive capital and recurrent costs of higher education (buildings and equipment) and the fact that much post primary education in developing countries is heavily subsidized.

It follows from Figure 8.6b that the optimal strategy from a social viewpoint, the one that maximizes the net social rate of return to educational investment, would be one that focuses on providing all students with at least *B* years of schooling. Figure 8.6 also illustrates the inherent conflict between optimal private and social investment strategies—a conflict that will continue to exist as long as private and social valuations of investment in education continue to diverge as students climb the educational ladder.

DISTRIBUTION OF EDUCATION

The foregoing analysis of forces operating for over education in developing countries should not lead us to despair over the possibility of fostering development through greater education. Countries that have developed successfully have generally ensured that educational benefits are more broadly available in the economy—to the poor as well as the rich, in the rural areas as well as the urban. And so we turn to examining the distribution of educational benefits in developing countries.

Figure 8.7 shows Lorenz curves for education in India and South Korea, using comparable data



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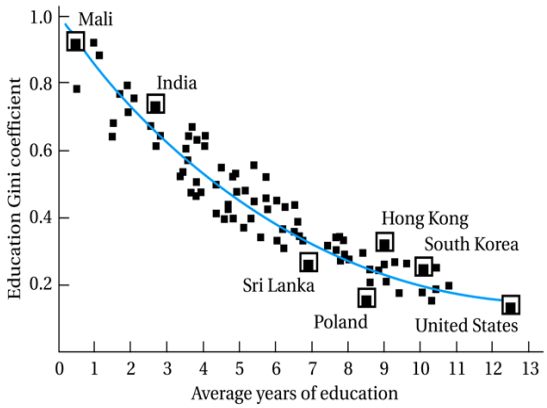
from 1990. By analogy with income Lorenz curves, we write the cumulative proportion of the population on the *x*-axis and the cumulative proportion of years of schooling on the *y*-axis. Along the 45-degree line of perfect equality, everyone in the economy would have the same number of years of schooling; for example, everyone would have finished a basic eight years of school, but no one would have started secondary education. In a highly unequal economy, many people might have no years of schooling at all, while a few might have received a Ph.D. from foreign

universities. The closer the Lorenz curve is to the 45-degree line, the more equal the distribution of education.

As can be seen from Figure 8.7, South Korea had a much more equal distribution of education than India. For example, in the sample year 1990, well over half of the population of India had received no schooling at all. In South Korea, less than 10% had received no schooling. Yet both countries we reproducing significant numbers of Ph.D. diplomats. One may also derive an education Gini coefficient. Clearly, India had a much higher educational inequality as measured by the education Gini (in fact, the Gini was 0.69) than South Korea did (0.22). Plotting the Gini coefficient for education against the average years of education, as in Figure 8.8, we see that there is no inverted-U curve for education. Instead, educational inequality tends to fall as average years of education in the population rises.

The precision of the relationship in Figure 8.8 is due in part to the "quantitative "way that education is measured—by the number of years of schooling. No allowance is made for the fact that some secondary school systems, for example, do a much more effective job of teaching than others. Accuracy could therefore be increased by comparing supplemental data such as spending per pupil. Certainly, educational quality is higher in high- than in low-income countries—higher in Europe than in Africa, for example. However, it is also likely that the variability of educational quality is higher in a country such as Mali, where elite schools offer excellent college preparation while many rural public schools may have only one textbook for each five or six students. Although quality differs from school to school in developed countries as well, the differences are not as extreme, on average, as they are in developing countries.

Indeed, research by Jere Behrman and Nancy Birdsall indicates that it is the quality of education and not its quantity alone that best explains differential earnings and productivity. The implication is that beyond the urgent need for universal primary education, the priority is to upgrade existing schools rather than to expand the number of school places at the higher levels of education. Moreover, much can be done to improve the chances that children living in poverty will at least receive a decent primary education.



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EDUCATION, INEQUALITY, AND POVERTY

Studies have also demonstrated that contrary to what might have been assumed, the educational systems of many developing nations sometimes act to increase rather than to decrease income inequalities.

The basic reason for this perverse effect of formal education on income distribution is the positive correlation between level of education and level of lifetime earnings. This correlation holds especially for workers who are able to complete upper secondary and university education where income differentials over workers who have completed only part or all of their primary education can be on the order of 300% to 800%. And as levels of earned income are clearly dependent on years of completed schooling, it follows that large income inequalities will be reinforced if students from the middle- and upper-income brackets are represented disproportionately in secondary and university enrollments. In short, if for financial or other

reasons the poor are effectively denied access to secondary and higher educational opportunities, the educational system can actually perpetuate and even increase inequality across as well as within generations in developing countries.

The private costs of primary education (especially in view of the opportunity cost of a child's labor to poor families) are higher for poor students than for more affluent students. As a result of these higher opportunity costs, school attendance, and therefore school performance, tends to be much lower for children of poor families than for those from higher-income backgrounds.

EDUCATION, INTERNAL MIGRATION, AND THE BRAIN DRAIN

Education seems to be an important factor influencing rural-urban migration. Numerous studies of migration in diverse countries have documented the positive relationship between the educational attainment of an individual and his or her propensity to migrate from rural to urban areas.

Education also plays a powerful role in the international migration of high-level educated workers—the so-called **brain drain**—from poor to rich countries. This is particularly true in the case of scientists, engineers, academics, and physicians, many thousands of whom have been trained in home country institutions at considerable social cost only to reap the benefits from and contribute to the further economic growth of the already affluent nations.

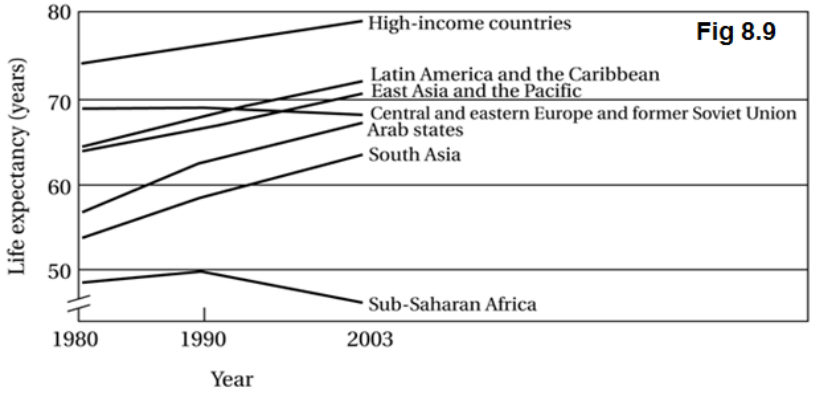
- **Brain drain:** The emigration of highly educated and skilled professionals and technicians from the developing countries to the developed world.

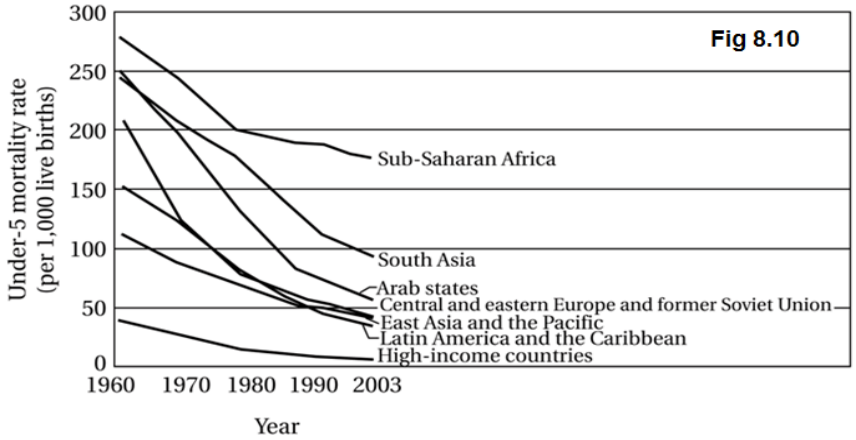
Lesson 17

HUMAN CAPITAL: EDUCATION AND HEALTH IN ECONOMIC DEVELOPMENT (CONTINUED3)

HEALTH MEASUREMENT AND DISTRIBUTION

In this section we measure health through life expectancy. Life expectancy has continued to improve in most regions, although there have been setbacks in sub-Saharan Africa largely due to AIDS, as seen in Figure 8.9. However, this measure can be very misleading. The extension of life expectancy can deliver years of vitality in one country while providing only additional years of poor health or suffering in another.
Progress is also being made in reducing under-5 mortality, though the rate of improvement has





slowed since 1990, as seen in Figure 8.10. Indeed, if the global trend of the 1980s had continued through 2003, some 1.2 million child deaths would have been averted, as seen in Figure 8.11. Although this measure omits consideration of the general health status of the population beyond early childhood, it is sometimes argued that the two measures proxy for this status reasonably well.

The **World Health Organization (WHO),** the key United Nations agency concerned with global health matters, defines health as “a state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity.” This approach may put us on a better conceptual foundation but does not in itself provide a better measure. An alternative measure of health promoted by the **WHO** is the ***disability-adjusted life year*** **(DALY).** There are doubts about the quality of data used in these measures, especially for some of the poorest countries,

and the use of **DALYs** to compare health across countries is controversial. Using a DALY measure, a World Bank study calculated that about **one-quarter** of the global burden of disease

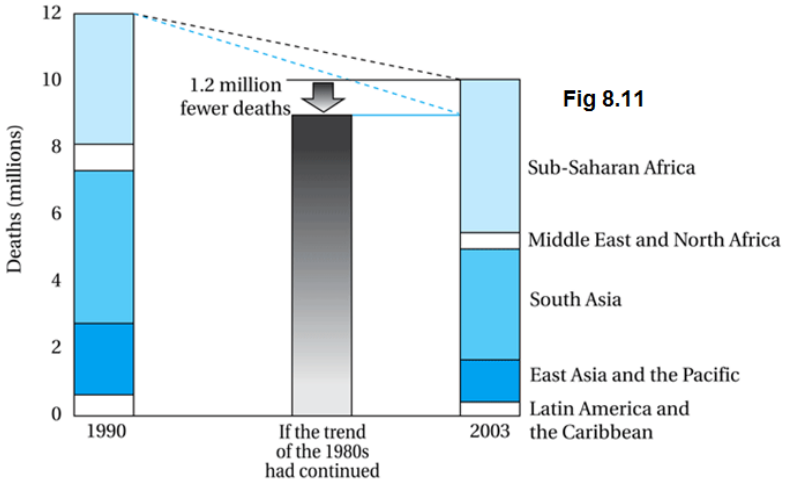


Fig 8.11

was represented by diarrhea, childhood diseases including measles, respiratory infections, parasitic worm infections, and malaria, all major health problems in developing countries. Progress has continued to be made in most but not all of these disease categories.

However, average health levels can mask great inequality. Thus as is the case with income and education, the distribution of health among the population, not just averages, is what matters. As one might expect, the poor are significantly less healthy than the more affluent. Figure 8.12a shows that the children of the poor are much more likely to die than those of the rich. Figure 8.12b points to an important culprit. The proportion of children under age 5 who are underweight is far higher for poorer quintiles than for richer quintiles, particularly in South Asia and sub-Saharan Africa. Health inequality is a consistent pattern, whatever the measure of health outcomes used.

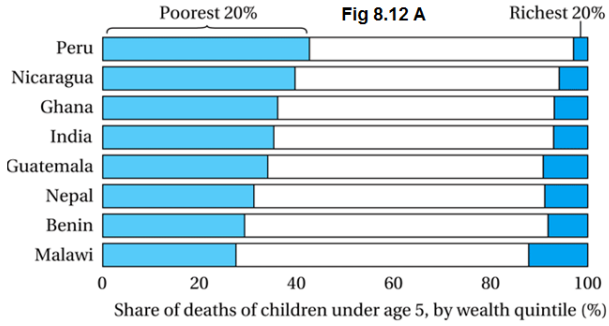


Fig 8.12 A

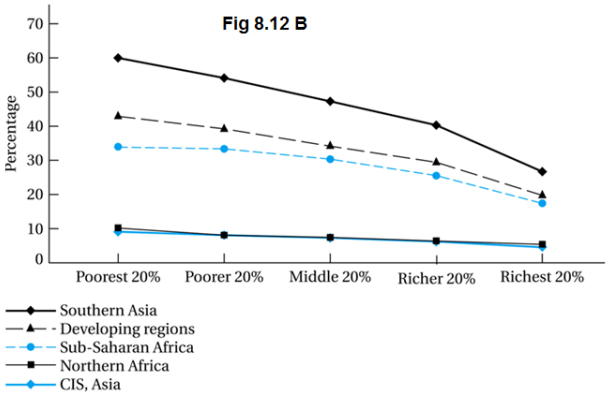
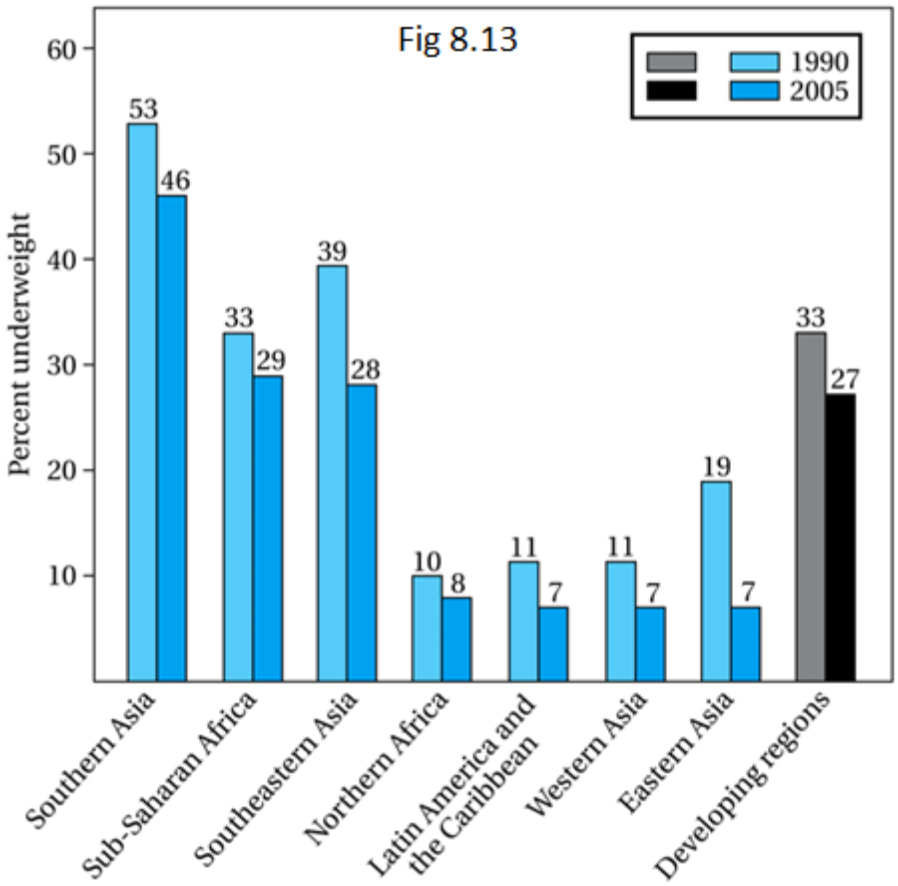


Fig 8.12 B

Health inputs are also very unequal, even when they are provided by public authorities rather than procured privately. Higher-quality medical facilities are concentrated in urban and richer areas, where the more affluent have the political clout to secure them. Even when public clinics are available in poor rural areas, they are typically under-equipped and under-staffed. Just as teacher truancy is a problem in schools, absenteeism of medical personnel can be pervasive.

DISEASE BURDEN

Developing countries face a much more crippling disease burden than developed countries, especially regarding infectious diseases. AIDS, malaria, and parasites are three major problems that we consider in this section. In 2009, over 8 million children under the age of 5 died in developing countries. This means that under-5 child deaths account for more than 14% of all deaths worldwide. Because most of these children die of causes that could be prevented for just a few cents per child, it has been rightly claimed that their real underlying disease is poverty.
Malnutrition among children is particularly consequential. Although child hunger has been declining in all developing regions, the rate of improvement is too slow to achieve even the



fundamental Millennium Development Goal target of halving hunger between 1990 and 2015 (see Figure 8.13). And an increase in hunger caused by the global food price spike in 2007–2008 and the global crisis that followed highlighted continued vulnerability, as seen also in the upward push of food prices in 2010. The International Food Policy Research Institute has introduced an annual global hunger index to track progress and setbacks.

HIV/AIDS

The AIDS epidemic threatens to halt or even reverse years of hard-won human and economic development progress in numerous countries. But in recent years, slow but steady progress has been made, and a majority of specialists now conclude that a corner has been turned on the epidemic.

Acquired immunodeficiency syndrome (AIDS) is the final and fatal stage of infection with the human immunodeficiency virus (HIV). In the developing countries as a whole, AIDS is transmitted primarily through heterosexual intercourse; contact with infected blood and drug needles, both by drug abusers and in hospitals; and perinatal transmission (from mother to fetus).

Table 8.2

Region	Adults and Children Living with HIV	Adults and Children Newly Infected with HIV	Adult and Child Deaths Due to AIDS
Sub-Saharan Africa	22.4 million	1.9 million	1.4 million
Middle East and North Africa	310,000	35,000	20,000
South and Southeast Asia	3.8 million	280,000	270,000
East Asia	850,000	75,000	50,000
Oceania	59,000	3,900	2,000
Latin America	2 million	170,000	77,000
Caribbean	240,000	20,000	12,000
Eastern Europe and Central Asia	1.5 million	110,000	87,000
Western and Central Europe	850,000	30,000	13,000
North America	1.4 million	55,000	25,000
Total	33.4 million	2.7 million	2 million

Table 8.2 provides a breakdown of the incidence of AIDS in various parts of the world, showing the total number of cases and new cases in 2009. The southern sub region of Africa is the hardest hit, with 34% of global AIDS deaths occurring there. Swaziland has the highest adult HIV prevalence, at33.4%, and adult HIV prevalence ranges between 20% and 24% in Botswana and Lesotho. In South Africa, the rate was over 18%, including almost a quarter million children under age 5.54.

Now that the world's attention has focused on AIDS in the developing world, it is important to ensure that overall public health resources are enhanced, not simply diverted from other high-impact programs such as those addressing maternal and child nutrition, immunization, malaria, TB, and tropical diseases.

MALARIA

Malaria directly causes over 1 million deaths each year, most of them among impoverished African children. Pregnant women are also at high risk. Severe cases of malaria leave about 15% of the children who survive the disease with substantial neurological problems and learning disabilities. A child dies from malaria every 30 seconds. Over 500 million people become severely ill with malaria each year.

The WHO's Roll Back Malaria program seeks to eradicate this disease at its source. In addition, major efforts are under way to increase international funding for a war on malaria, emphasizing the development of a malaria vaccine. With proper funding, specialists believe that an effective vaccine might be just a few years away, but because victims of malaria tend to come from low-income countries and cannot afford expensive drugs, there has been little incentive for pharmaceutical companies to emphasize research in this field. However, citizen and government pressure in developed countries and a desire to score public relations points, among other factors, have increasingly led drug companies to begin to offer drugs at lower costs in low-income countries, and this may expand to a more balanced portfolio of research.

PARASITIC WORMS AND OTHER "NEGLECTED TROPICAL DISEASES"

Many health challenges of developing countries have received high-profile attention in recent years, epitomized by the relatively well-funded and central role of the Global Fund to Fight AIDS, Tuberculosis, and Malaria. Recall from Chapter 1 that the sixth Millennium Development Goal is to combat "HIV-AIDS, malaria, and other diseases". Indeed, these "other" developing country health problems, including several types of parasitic worms, have also had devastating impacts on the developing world but have long been comparatively neglected.

Table 8.3

Disease	Global Prevalence (millions)	Population at Risk	Regions of Highest Prevalence
Ascariasis	807	4.2 billion	East Asia and Pacific Islands, sub-Saharan Africa, India, South Asia, China, Latin America and Caribbean
Trichuriasis	604	3.2 billion	Sub-Saharan Africa, East Asia and Pacific Islands, Latin America and Caribbean, India, South Asia
Hookworm infection	576	3.2 billion	Sub-Saharan Africa, East Asia and Pacific Islands, India, South Asia, Latin America and Caribbean
Schistosomiasis	207	779 million	Sub-Saharan Africa, Latin America and Caribbean
Lymphatic filariasis	120	1.3 billion	India, South Asia, East Asia and Pacific Islands, sub-Saharan Africa
Trachoma	84	590 million	Sub-Saharan Africa, Middle East and North Africa
Onchocerciasis	37	90 million	Sub-Saharan Africa, Latin America and Caribbean
Leishmaniasis	12	350 million	India, South Asia, sub-Saharan Africa, Latin America and Caribbean
Chagas' disease	8–9	25 million	Latin America and Caribbean
Leprosy	0.4	N.D.	India, sub-Saharan Africa, Latin America and Caribbean
Human African trypanosomiasis	0.3	60 million	Sub-Saharan Africa
Dracunculiasis	0.01	N.D.	Sub-Saharan Africa
Buruli ulcer	N.D.	N.D.	Sub-Saharan Africa

Table 8.3 shows the 13 major neglected tropical diseases, ranked by their global prevalence (number infected). Taken together, these diseases cause an estimated 534,000 deaths each year. But most of these diseases are curable, can be prevented with environmental improvements at their source, and can ultimately be inoculated against with vaccines. The cost of combating these diseases is relatively low in most cases, and the tragedy is that despite this, they have received relatively little attention.

But these "neglected" tropical diseases are finally starting to get the focus they deserve. The Global Network for Neglected Tropical Diseases is coordinating a campaign to fight these scourges.

HEALTH, PRODUCTIVITY, AND POLICY

PRODUCTIVITY

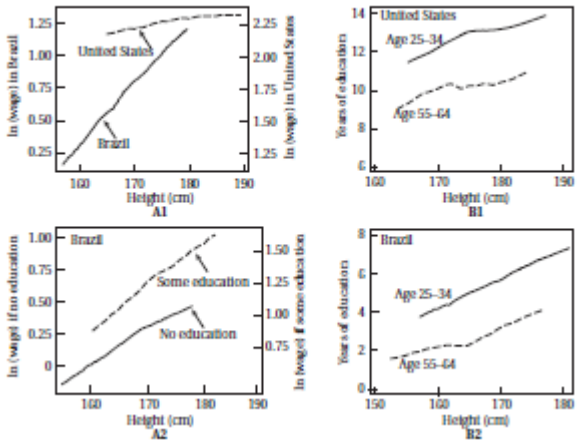
The devastating effects of poor health on child mortality are clear enough. But do poor health conditions in developing countries also harm the productivity of adults? The answer appears to

be yes. Studies show that healthier people earn higher wages. For example, daily wage rates in Côte d'Ivoire are different by 19%.

The Nobel laureate **Robert Fogel** has found that citizens of developed countries are substantially taller today than they were two centuries ago and has argued that stature is a useful index of the health and general well-being of a population.

- **John Strauss and Duncan** Thomas found that taller men earn more money in Brazil, even after controlling for other important determinants of income such as education and experience (Figure 8.14, panels A1 and A2). A 1% increase in height is associated with a 7% increase in wages in that middle-income country.
- In the United States, there is also an association, but a much smaller one, with a 1% increase in height associated with a 1% increase in wages.
- Moreover, shorter individuals are more likely to be unemployed altogether.
- In particular, taller people receive significantly more education than shorter people (see Figure 8.14, panels B1 and B2). Note also that these relationships carry over to alternative health measures such as the body mass index, which reflects short-term as well as long-term health and nutrition.

Fig 8.14



Thus the preponderance of the evidence is that health and nutrition do affect employment, productivity, and wages and very substantially so among the poorest of the poor. This finding magnifies the policy priority of health in development; not only is health a major goal in itself, but it has a significant impact on income levels as well. Strauss and Thomas conclude that "the balance of evidence points to a positive effect of elevated nutrient intakes on wages, at least among those who are malnourished".

A healthy population is a prerequisite for successful development.

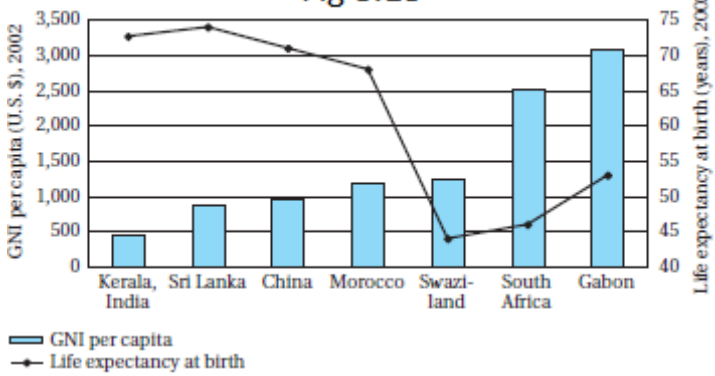
HEALTH SYSTEMS POLICY

In the WHO's definition, a health system is "all the activities whose primary purpose is to promote, restore, or maintain health". Health systems include the components of public health departments, hospitals and clinics, and offices of doctors and paramedics. Outside this formal system is an informal network used by many poorer citizens, which includes traditional healers.

It has long been understood that some developing countries' health systems were far more effective than others in achieving health goals. Figure 8.15 shows that some countries, such as China and Sri Lanka, and some regions, such as Kerala state in India, have achieved life expectancies of more than 70 years despite their low-income status. At the same time, some middle-income countries, such as Brazil, South Africa, and Gabon, have only been able to achieve significantly lower life expectancies despite their much greater resources. The latter countries all have far more inequitable access to health care than China, Sri Lanka, and Kerala.

The WHO compared health systems around the world, revealing great variability in the performance of health systems at each income level. For example, Singapore was ranked 6th, Morocco 29th, Colombia 22nd, Chile 33rd, and Costa Rica 36th—all of these developing countries ranked higher than the United States. Clearly, much can be done with relatively modest incomes.

Fig 8.15



The study used five performance indicators to measure health systems in the 191 WHO member states:

1. The overall level of health of the population.
2. Health inequalities within the population.
3. Health-system responsiveness.
4. The distribution of responsiveness within the population.
5. Distribution, or fairness, of the health system's financial burden within the population.

The WHO concluded that "dollar for dollar spent on health, many countries are falling short of their performance potential. The result is a large number of preventable deaths and lives stunted by disability. The impact of this failure is born disproportionately by the poor." At any given income level, there was wide variation in country performance, showing that a low-income country can achieve fairness in allocating the resources that it has.

CONCLUSION

- Health and education play pivotal roles in economic development, as both inputs into production enabling higher incomes and outputs directly affecting human well-being.
- Many health and education problems plague developing countries, ranging from child labor to heavy disease burdens.
- Education and health will not always automatically improve with higher incomes. And market failures mean that too few investments in education and health will be made from the social point of view.
- The wrong kinds of government policies have sometimes led to distortions in the educational system that has reinforced inequality; and inequities in health systems are common. Thus government plays an essential role in health and education, and in most developing countries, considerable improvements in policy are needed.

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CASE STUDY

PATHWAYS OUT OF POVERTY: PROGRESA/OPORTUNIDADES

The Mexican Program on Education, Health, and Nutrition is widely known by its Spanish acronym, Progresa, though officially renamed the Oportunidades Human Development Program(http://www.oportunidades.gob.mx).

- **Developed by**: Santiago Levy (1990s) while serving as deputy minister of finance

It combats child labor and poor education and health by ensuring that parents can **feed** their children, take them to **health clinics**, and keep them in school while providing financial incentives to do so.

Progresa/Oportunidades builds on the growing understanding that health, nutrition, and education are complements in the struggle to end poverty.

HOW THE PROGRAM OPERATES?

- It provides cash transfers to poor families, family clinic visits, in-kind nutritional supplements, and other health benefits for pregnant and lactating women and their children under the age of 5.
- Some of these benefits are provided conditionally on children's regular school and health clinic attendance, and so programs of this kind are commonly called **conditional cash transfer (CCT) programs.**
- Before this program, Mexican government developed a program through which food subsidy was given but the benefits of this program didn't reach the very poor.
- The program covered almost 5 million rural and urban households by 2007.
- More than 21 million people benefited ($1/5^{th}$ of the Mexican population—in over 75,000 localities.
- In 2002, the program distributed 857 million doses of nutrition supplements and covered 2.4 million medical checkups. Over 4.5 million "scholarships" were provided to schoolchildren.
- Most of the people are living in extreme poverty.

PROGRAM COMPONENTS/PATHWAYS

- Cash transfers.
- Nutritional supplements given to all participating children under 2, pregnant and breastfeeding mothers, and children between the ages of 2 and 5 who show signs of malnutrition.
- Growth monitoring - information about hygiene and nutrition is taught.
- Other preventive measures – e.g. information of nutrition and hygiene.
- Participating families receive school program payments every other month.
- Payment is generally made to the mother through a bank card.
- Program payments are conditional on children in grades three through nine attending school regularly.
- Payments increased over time and due to gender.

- It was estimated that the average family participating in the program receives about $35 per month in combined cash and in-kind transfers, which is about 25% of average poor rural family income without the program.
- Evidence shows that Progresa/Oportunidades has a larger impact on enrollment and performance per dollar spent than building new schools.

TOTAL EXPENDITURE

- Total expenditure of Progresa/Oportunidades program in 2005 was about $2.8 billion—less than 0.4% of gross national income.
- Oportunidades is also organizationally efficient, with operating expenses of only about 6% of total outlays.

EXPENDITURE BREAK-UP

- 82% goes to the direct cash transfers.
- 12% goes to nutritional supplements and other in-kind transfers.
- Additional costs for provision of health care and schooling are borne by the Mexican health and education ministries.

EFFECTIVENESS OF THE PROGRAM

Washington-based International Food Policy Research Institute (IFPRI), with many affiliated researchers, has intensively studied the program.

FINDINGS

- Large improvements in the well-being of participants were achieved.
- Malnutrition has measurably declined.
- Family use of health care, including prenatal care, has increased, and child health indicators have improved.
- School attendance is up significantly.
- The dropout rate has declined substantially, particularly in grades six through nine.
- The number of students who stay in the school increased by 20%.
- Child labor decreased by about 15%. The results also indicate that no work reduction has occurred.

POPULARITY

- By 2010, Progresa had been replicated in whole or in part in 29 countries.
- In Mexico, the broader package includes development of infrastructure so the poor can get their products to market and get access to safe water and electricity. It also includes integrated rural development programs.
- Progresa/Oportunidades thus offers a model for providing health and educational progress for poor families and opportunities for their permanent escape from poverty.

Lesson 18

EXOGENOUS AND ENDOGENOUS GROWTH THEORY

What must be the rate of growth of an economy to induce just enough investment to match planned saving for a moving equilibrium through time – and what happens if the actual rate of growth deviates from this equilibrium path? To answer these questions, Harrod introduced three different growth concepts:

- Actual growth rate (g_a).
- Warranted equilibrium growth rate (g_w).
- Natural growth rate (g_n) determined by labor force growth and technical progress.

ACTUAL GROWTH RATE (g_a)

The actual rate of growth (g_a) is defined as:

$$g_a = s/c$$

Where s is the country's savings ratio (S/Y); S is the volume of saving; Y is national income/ output; and c is the actual incremental capital output ratio ($^{\Delta K}/_{\Delta Y} = {}^{I}/_{\Delta Y}$) where $\Delta K = I$ includes changes in the stocks of goods.

WARRANTED EQUILIBRIUM GROWTH RATE (g_w)

The warranted rate (g_w) of growth is taken to be the rate of growth required for the full utilization of a growing stock of capital. (I=Planned Saving).
The demand for investment is given by an accelerator mechanism (or what Harrod called 'the relation') which makes investment a function of the change in output between two periods (ΔY).

Thus, planned investment (I_p) is:

$$I_p = c_r \Delta Y$$

Where, c_r is defined as the required incremental capital–output ratio: that is, the extra capital required to produce a unit flow of output in an accounting period (normally one year) given technological conditions and the rate of interest. The supply of investment funds, or planned saving (Sp), is given by:

$$S_p = sY$$

Where, s is the propensity to save.

Therefore, for a moving equilibrium $c_r \Delta Y = sY$ or:

$$g_w = {}^{s}/_{c_r}$$

Where, g_w is the warranted rate of growth.

NATURAL GROWTH RATE (g_n)

The natural growth rate (g_n) is defined as the rate of growth that is determined by the current growth of the working population and the current potential for technical progress. Such a rate of growth is not determined by the wishes of people as regards saving.

The rate of growth of the labor force (l) and the growth of labor productivity (t), both exogenously determined. Thus:

$g_n = l + t$

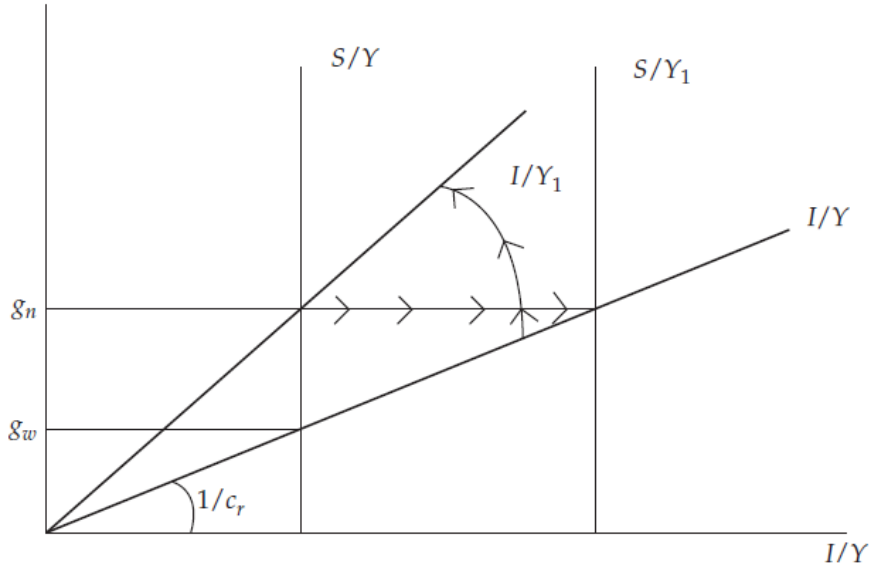


Figure 2.1 Adjustment of the natural and warranted growth rates

Note:

- If $g > g_w$ then $c < cr$: there will be a shortage of capital equipment; investment will be encouraged.
- If $g < g_w$ then $c > cr$: there will be surplus of capital; investment will be discouraged.
- If $g > g_w$ then $c < cr$: there will be a shortage of capital equipment; investment will be encouraged.
- If $g < g_w$ then $c > cr$: there will be surplus of capital; investment will be discouraged.
- If $g \neq g_w$, cyclical fluctuations occur
- If $gw \neq g_n$:
  - secular stagnation if $g_w > g_n$
  - structural unemployment and inflation if $g_n > g_w$
- Most developing countries have labour growing faster than capital accumulation i.e. $g_n > g_w$
- If $g > g_w$, g will continue to diverge from g_w only until it hits g_n.
- The full employment of labour and capital requires
  - $g=g_w=g_n$ (Joan Robinson called it Golden Age).
- If $g > g_w$ then $c < c_r$: there will be a shortage of capital equipment; investment will be encouraged.
  - Where c_r is the required incremental capital-output ratio.
- If $g < g_w$ then $c > c_r$: there will be surplus of capital; investment will be discouraged.

HOW $g_n > g_w$ Can Be Corrected?

1. Reduce the rate of growth of labor force.
2. Reduction in labor productivity's growth rate.
3. Increase in the saving ratio.

4. Use of labor-intensive techniques can reduce the capital-output ratio.

THE SOLOW NEOCLASSICAL GROWTH MODEL

The Solow neoclassical growth model, for which Robert Solow of the Massachusetts Institute of Technology received the Nobel Prize, is probably the best known model of economic growth.

The Solow model allows for substitution between capital and labor. In the process, it assumes that there are diminishing returns to the use of these inputs.

The aggregate production function $Y = F(K, L)$ is assumed characterized by constant returns to scale. For example, in the special case known as the Cobb-Douglas production function, at any time t we have

$$Y(t) = K(t)^{\alpha}(A(t)L(t))^{1-\alpha} \qquad \text{(A 3.2.1)}$$

Where Y is gross domestic product, K is the stock of capital (which may include human capital as well as physical capital), L is labor, and A(t) represents the productivity of labor, which grows over time at an exogenous rate.

Because of constant returns to scale, if all inputs are increased by the same amount, say 10%, then output will increase by the same amount (10% in this case). More generally,

$$\gamma Y = F(\gamma K, \gamma L)$$

Where, g is some positive amount (1.1 in the case of a 10% increase). Because g can be any positive real number, a mathematical trick useful in analyzing the implications of the model is to set $g = 1/L$ so that

$$Y/L = f(K/L, 1) \text{ or } y = f(k) \qquad \text{(A3.2.2)}$$

Lowercase variables are expressed in per-worker terms in these equations. The concave shape of $f(k)$—that is, increasing at a decreasing rate—reflects diminishing returns to capital per worker, as can be seen in Figure A3.2.1.2 In the Harrod-Domar model, this would instead be a straight, upward-sloping line.

This simplification allows us to deal with just one argument in the production function. For example, in the Cobb-Douglas case introduced in Equation A3.2.1,

$$y = Ak^{\alpha} \qquad \text{(A 3.2.3)}$$

This represents an alternative way to think about a production function, in which everything is measured in quantities per worker. Equation A3.2.3 states that output per worker is a function that depends on the amount of capital per worker. The more capital with which each worker has to work, the more output that worker can produce. The labor force grows at rate n per year, say, and labor productivity growth, the rate at which the value of A in the production function increases, occurs at rate l. The total capital stock grows when savings are greater than depreciation, but capital per worker grows when savings are also greater than what is needed to equip new workers with the same amount of capital as existing workers have.

The Solow equation (Equation A3.2.4) gives the growth of the capital-labor ratio, k (known as capital deepening), and shows that the growth of k depends on savings $sf(k)$, after allowing for the amount of capital required to service depreciation, Δk, and after capital widening, that is,

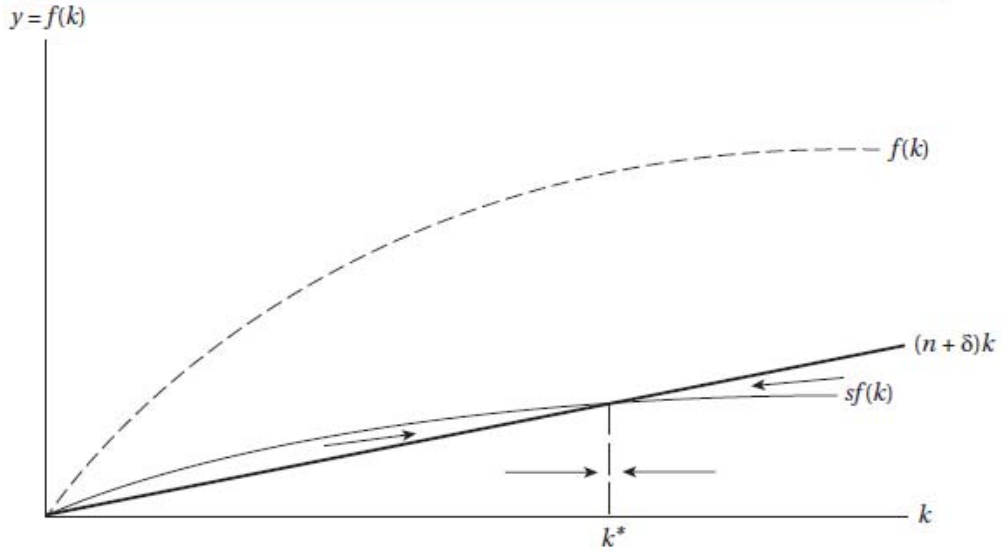
providing the existing amount of capital per worker to net new workers joining the labor force, nk. That is,

$$\Delta k = sf(k) - (\delta + n)k$$

For simplicity, we are assuming for now that A remains constant. In this case, there will be a state in which output and capital per worker are no longer changing, known as the steady state. To find this steady state, set, $\Delta k = 0$:

$$sf(k^*) = (\delta + n)k^*$$

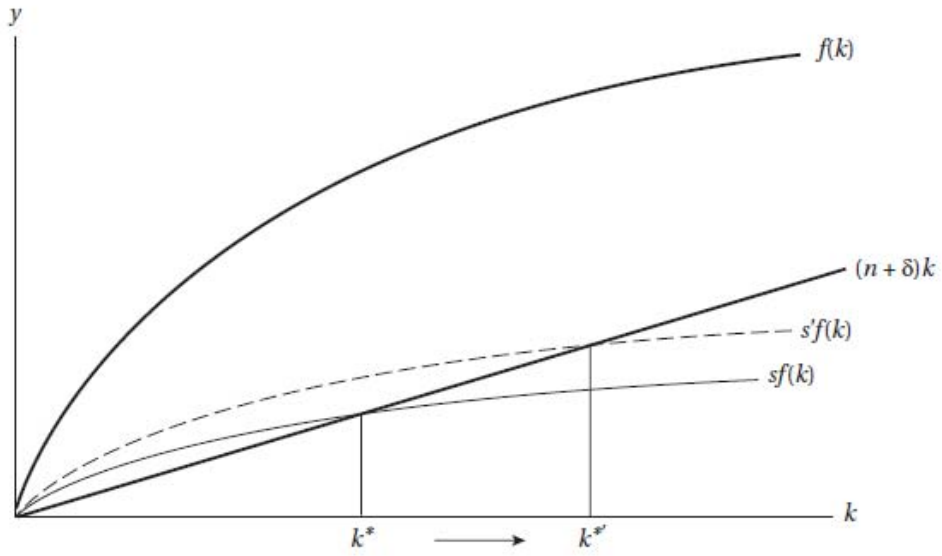
FIGURE A3.2.1 Equilibrium in the Solow Growth Model



The notation k* means the level of capital per worker when the economy is in its steady state. That this equilibrium is stable can be seen from Figure A3.2.1. The capital per worker k* represents the steady state. If k is higher or lower than k*, the economy will return to it; thus k* is a stable equilibrium. This stability is seen in the diagram by noting that to the left of k*, $k < k^*$. Looking at the diagram, we see that in this case, $(n + \delta)k$ < sf(k). But now looking at the Solow equation (Equation A3.2.4), we see that when $(n + \delta)k$ < sf(k), k < 0. As a result, k in the economy is growing toward the equilibrium point k*. By similar reasoning to the right of k*, $(n + \delta)k$ < sf(k), and as a result, k < 0 (again refer to Equation A3.2.4), and capital per worker is actually shrinking toward the equilibrium k*.

It is instructive to consider what happens in the Solow neoclassical growth model if we increase the rate of savings, s. A temporary increase in the rate of output growth is realized as we increase k by raising the rate of savings. We return to the original steady-state growth rate later, though at a higher level of output per worker in each later year. The key implication is that unlike in the Harrod-Domar (AK) analysis, in the Solow model an increase in s will not increase growth in the long run; it will only increase the equilibrium k*. That is, after the economy has time to adjust, the capital-labor ratio increases, and so does the output-labor ratio, but not the rate of growth. The effect is shown in Figure A3.2.2, in which savings is raised to s. In contrast, in the Harrod- Domar model, an increase in s raises the growth rate. (This is because in the Harrod-Domar model sf(k) becomes a straight line from the origin that does not cross $(n + \delta)k$; and so, as we assume that sf(k) lies above $(n + \delta)k$, growth continues at the now higher Harrod-Domar rate—a result that was represented, for example, in the comparison of Equations 3.8

FIGURE A3.2.2 The Long-Run Effect of Changing the Savings Rate in the Solow Model



and 3.9.)

Note carefully that in the Solow model, an increase in s does raise equilibrium output per person—which is certainly a valuable contribution to development—just not the equilibrium rate of growth. And the growth rate does increase temporarily as the economy kicks up toward the higher equilibrium capital per worker. Moreover, simulations based on cross-national data suggest that if s is increased, the economy may not return even halfway to its steady state for decades. That is, for practical purposes of policymaking in developing countries, even if the Solow model is an accurate depiction of the economy, an increase in savings may substantially increase the growth rate for many decades to come.

Finally, it is possible that the rate of savings (and hence investment) is positively related to the rate of technological progress itself, so that the growth of A depends on s. This could be the case if investment uses newer-vintage capital and hence is more productive, if investment represents innovation in that it solves problems faced by the firm, and if other firms see what the investing firm has done and imitate it (“learning by watching”), generating externalities.

ENDOGENOUS GROWTH THEORY

The mixed performance of neoclassical theories in illuminating the sources of long-term economic growth has led to dissatisfaction with traditional growth theory. In the absence of external "shocks" or technological change, which is not explained in the neoclassical model, all economies will converge to zero growth. Hence rising per capita GNI is considered a temporary phenomenon resulting from a change in technology or a short-term equilibrating process in which an economy approaches its long-run equilibrium.

Any increases in GNI that cannot be attributed to short-term adjustments in stocks of either labor or capital are ascribed to a third category, commonly referred to as the Solow residual. This residual is responsible for roughly 50% of historical growth in the industrialized nations.

- **Solow residual:** The proportion of long-term economic growth not explained by growth in labor or capital and therefore assigned primarily to exogenous technological change.

ENDOGENOUS GROWTH (THE NEW GROWTH THEORY)

"Economic growth generated by factors within the production process (e.g., increasing returns or induced technological change) that are studied as part of a growth model."
The new growth theory provides a theoretical framework for analyzing endogenous growth, persistent GNI growth that is determined by the system governing the production process rather than by forces outside that system. In contrast to traditional neoclassical theory, these models hold GNI growth to be a natural consequence of long-run equilibrium. The principal motivations of the new growth theory are to explain both growth rate differentials across countries and a greater proportion of the growth observed. More succinctly, endogenous growth theorists seek to explain the factors that determine the size of I, the rate of growth of GDP that is left unexplained and exogenously determined in the Solow neoclassical growth equation (i.e., the Solow residual).

- **Complementary Investments:** Investments that complement and facilitate other productive factors.

THE ROMER MODEL

To illustrate the endogenous growth approach, we examine the **Romer endogenous growth model** in detail because it addresses technological spillovers that may be present in the process of industrialization. Thus it is not only the seminal model of endogenous growth but also one of particular relevance for developing countries.

- **The Romer endogenous growth model:** An endogenous growth model in which technological spillovers are present; the economy wide capital stock positively affects output at the industry level, so there may be increasing returns to scale at the economy wide level.

Each firm's capital stock includes its knowledge. The knowledge part of the firm's capital stock is essentially a public good, like A in the Solow model that is spilling over instantly to the other firms in the economy.

It is valuable to think of each firm's capital stock as including its knowledge. The knowledge part of the firm's capital stock is essentially a public good, like A in the Solow model, which is spilling

over instantly to the other firms in the economy. As a result, this model treats learning by doing as "learning by investing." You can think of Romer's model as spelling out— endogenizing—the reason why growth might depend on the rate of investment (as in the Harrod-Domar model).

$$Y_t = AK_t^{\alpha} L_t^{1-\alpha} \overline{K}^{\beta} \quad \text{(A 3.3.1)}$$

- **Public Good**: An entity that provides benefits to all individuals simultaneously and whose enjoyment by one person in no way diminishes that of anyone else.

We assume symmetry across industries for simplicity, so each industry will use the same level of capital and labor. Then we have the aggregate production function:

$$Y = AK_t^{\alpha+\beta} L^{1-\alpha} \quad \text{(A 3.3.2)}$$

To make endogenous growth stand out clearly, we assume that A is constant rather than rising over time; that is, we assume for now that there is no technological progress. With a little calculus, it can be shown that the resulting growth rate for per capita income in the economy would be

$$g - n = \frac{\beta n}{1-\alpha-\beta} \quad \text{(A3.3.3)}$$

Where g is the output growth rate and n is the population growth rate. Without spillovers, as in the Solow model with constant returns to scale, β = 0, and so per capita growth would be zero (without technological progress).

CRITICISMS OF ENDOGENOUS GROWTH THEORY

- It remains dependent on a number of traditional neoclassical assumptions that are often inappropriate for developing economies. For example, it assumes all sectors are symmetrical.
- Allocational inefficiencies are common in economies undergoing the transition from traditional to commercialized markets. However, their impact on short- and medium-term growth has been neglected due to the new theory's emphasis on the determinants of long-term growth rates.
- Finally, empirical studies of the predictive value of endogenous growth theories have to date offered only limited support.

Lesson 19

PRODUCTION FUNCTION APPROACH TO THE ANALYSIS OF GROWTH

The approach disaggregates the sources of growth into the contribution of labor, capital, technical progress and other factors.

- It is a supply-oriented approach.
- The sources of growth are treated as exogenous.
- A macroeconomic hypothesis should be consistent with and derivable from microeconomic theory.

This is what we call the production function approach to the analysis of growth.
Y=f(R, K, L, T)

Where R is land, K is capital, L is labor and T is technology.

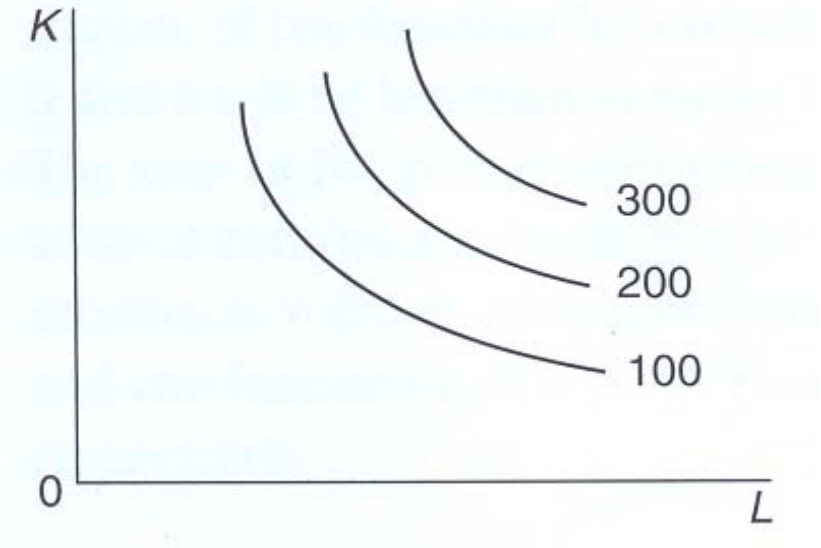
- Commonly

Y = f(K, L)

THE PRODUCTION FUNCTION

Before going on to discuss the types of function that may be employed, however, let us examine in a little more detail the properties of production function. We have established so far that the aggregate production function expresses the functional relation between aggregate output and stock of inputs. If land is submitted into capital, and technology is held constant, we are left with two factors, and the production function may be drawn on a two-dimensional diagram, as in figure 5.5. Capital (K) is measured on the vertical axis and labour (L) on horizontal axis and each function represents a given level of output that can be produced with different

Figure 5.5 The production function



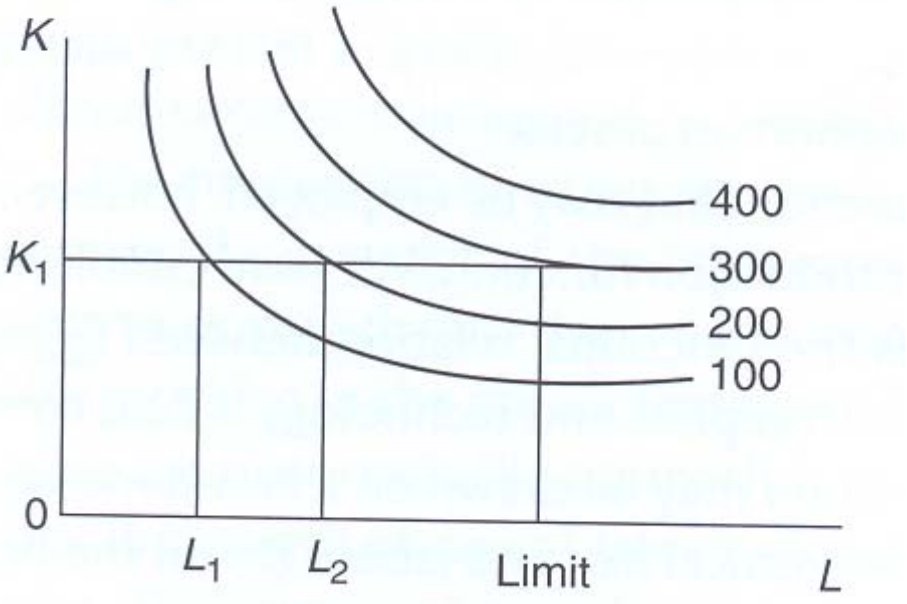
combinations of capital and labour. The function slope negatively from left to right on the assumption the marginal additions of either factor will increase total output that is, factors have

positive marginal product and they are drawn convex to the origin on the assumption that factors have a diminishing marginal productivity as their supply increases, so that if one unit is withdrawn it needs to submitted by more and more of the other factor to keep output constant. The position of the functions broadly reflects the level of technology. The more advanced the technology, the greater the level of output per unit in total inputs, and the closer to the origins will be the production function representing a given output.

From the simple production function diagram it is easy to see how output may increase. First, there may be a physical increase in factor inputs, L and K, permitting a higher level of production. Either or both factors may increase. If only one factor increases, the movement to a higher production function will involve a change in the combination of factors and output will not be able to increase forever, because ultimately the marginal product of the variable factor will fall to zero. This is illustrated in fig 5.6, where, with a given stock of capital $0K_1$, output cannot increase beyond 200 with increases in the supply of labour ($0L_1$, $0L_2$ and so on0 beyond the limit indicated. the diminishing productivity of the variable factor, labour, with capital fixed, is shown by the flatter and flatter slope of the production function is horizontal and the marginal product of labour is zero.

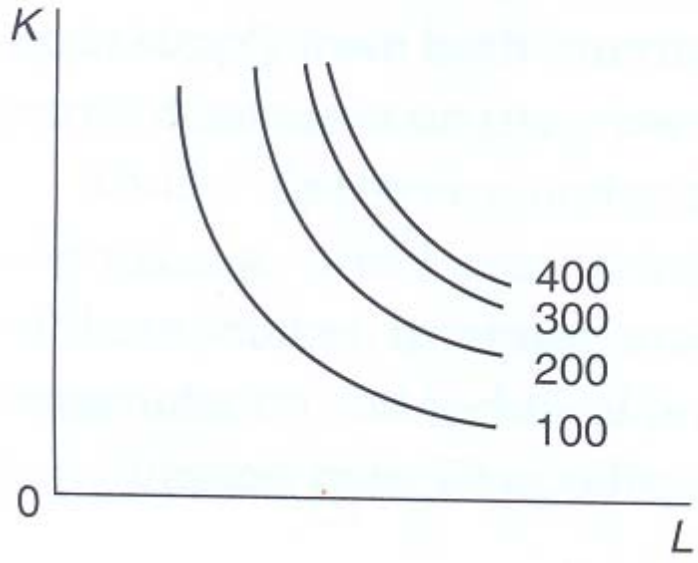
If both factors increase in supply, however, there is no reason why output should not go on increasing indefinitely. In fact, if both factors increase in supply there is a possibility that

Figure 5.6 Production function diagram



production may be subject to increasing returns, such that output rises more than proportionately to the increase in combination inputs. If this is the case, output per unit of total inputs will increase and the production functions representing equal additional amounts of production, for example 100, 200, 300 and so on, must be drawn closer and closer together, as in Figure 5.7.

Figure 5.7 The effect of increasing returns



THE COBB-DOUGLAS PRODUCTION FUNCTION

- Charles Cobb (a mathematician) and Paul Douglas (an economist) (1928)

$$Y_t = T_t K_t^{\alpha} L_t^{\beta}$$

- The effect of technical progress is neutral on the factor intensity of production
- If $\alpha + \beta = 1 \rightarrow$ constant returns to scale
- If $\alpha + \beta < 1 \rightarrow$ decreasing returns to scale
- If $\alpha + \beta > 1 \rightarrow$ increasing returns to scale

$$\frac{dlog\ Y_t}{dt} = \frac{dlog\ T_t}{dt} + \alpha \frac{dlog\ K_t}{dt} + \beta \frac{dlog\ L_t}{dt}$$

Let
d [ln u]/dx = 1/u. du/dx

ry = rt + α rk + β rL

Example: 5.0 = rT + 0.25 (5.0) + 0.75 (1.0)

LIMITATIONS OF THE COBB-DOUGLAS PRODUCTION FUNCTION

- Only one combination of factor inputs can be observed at one time.
- The assumption that technical progress is independent of increases in factor inputs has been questioned.
- The production function assumes constant unit elasticity of substitution between factors.
- Aggregation of heterogeneous factor inputs and output.

SCHOOLS OF THOUGHT IN CONTEXT: SOUTH KOREA AND ARGENTINA

- Critical analysis of the two countries indicate that the first four broad approaches to development—stages of growth, structural patterns of development, dependence, and neoclassical—provides important insights about development processes and policy.
- Both are midsize in population (40 million in Argentina and 49 million in South Korea in 2008).
- Both were long classified as middle-income countries.
- But South Korea, now designated by the World Bank as a high-income country with about $28,000 PPP in 2008, has double the per capita income of Argentina, with about $14,000 PPP in 2008.

SOUTH KOREA

- Linear-stages, albeit in a limited way.
- In recent years, its share of investment in national income has been among the highest in the world.
- Investment rate which is 15%, was still below takeoff levels in 1965. Yet, it rose dramatically to 37% of GNI by 1990 and remained close to 40% in the 2000–2007 period.

STRUCTURAL PATTERNS

South Korea also confirms some patterns-of-development structural-change models. South Korea's per capita income grew by more than 7% annually for the whole 1965–1990 period.

DEPENDENCE REVOLUTION

It was strongly dependent in international relations—it was a Japanese colony until 1945 and thereafter wholly dependent on maintaining the goodwill of the United States for defense against invasion by North Korea.

NEOCLASSICAL COUNTERREVOLUTION

South Korea likewise poses a strong challenge to the neoclassical counterrevolution models. The nation was highly interventionist at home and in international trade, with the government making extensive use of development planning, using a wide range of tax breaks and incentives to induce firms to follow government directives and interventions.

ARGENTINA

STAGES OF GROWTH

Takeoff “in some sense” began in the First World War, but “in the mid 1930s. A sustained take-off was inaugurated, which by and large can now [1960] be judged to have been successful. According to World Bank data, Argentina had a negative growth rate throughout the 1965–1990 period, and in the 1980s, domestic investment shrank at a -8.3% rate, falling back well below Rostow’s threshold takeoff investment levels.

STRUCTURAL PATTERNS

Argentina did exhibit many of the usual structural patterns of development as agricultural productivity rose, industrial employment grew (albeit slowly), urbanization took place, fertility fell, and so on.

DEPENDENCE REVOLUTION

In contrast to South Korea, the case of Argentina offers some vindication for dependence theories in that the country relied to a large extent on exporting primary goods, and the real prices of these goods fell compared to imports. Multinational corporations played a large role, and Argentina was unable to create its own viable manufacturing export industries, ultimately having to submit to stringent structural-adjustment programs, sell state industries to foreign companies, and other constraints.

NEOCLASSICAL COUNTERREVOLUTION

But Argentina also offers some vindication for neoclassical counterrevolution theory in that faulty interventionist restrictions, inefficient state enterprise, bias against production for exports, and unnecessary red tape ended up hurting industry and entrepreneurship.

Lesson 20

CONTEMPORARY MODELS OF DEVELOPMENT AND UNDERDEVELOPMENT

ECONOMIC AGENT

An economic actor—usually a firm, worker, consumer or government official—that chooses actions so as to maximize an objective. Underdevelopment as a Coordination Failure.

COMPLEMENTARITY

An action taken by one firm, worker, or organization that increases the incentives for other agents to take similar actions. Complementarities often involve investments whose return depends on other investments being made by other agents.

When complementarities are present, an action taken by one firm, worker, organization, or government increases the incentives for other agents to take similar actions. In particular, these complementarities often involve investments whose return depends on other investments being made by other agents.

BIG PUSH

A concerted, economy wide and typically public policy–led effort to initiate or accelerate economic development across a broad spectrum of new industries and skills.

O-RING MODEL

An economic model in which production functions exhibit strong complementarities among inputs and which has broader implications for impediments to achieving economic development.

COORDINATION FAILURE

A state of affairs in which the inability of agents to coordinate their behavior (choices) leads to an outcome (equilibrium) that leaves all agents worse off than in an alternative situation that is also an equilibrium.

An important example of a complementarity is the presence of firms using specialized skills and the availability of workers who have acquired those skills. Firms will not enter a market or locate in an area if workers do not possess the skills the firms need, but workers will not acquire the skills if there are no firms to employ them. This coordination problem can leave an economy stuck in a bad equilibrium—that is, at a low average income or growth rate or with a class of citizens trapped in extreme poverty. Even though all agents would be better off if workers acquired skills and firms invested, it may not be possible to get to this better equilibrium without the aid of government. As we will see, such coordination problems are also common in initial industrialization, as well as in upgrading skills and technologies, and may extend to issues as broad as changing behavior to modern “ways of doing things.” Such problems are further compounded by other market failures, particularly those affecting capital markets.

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MIDDLE-INCOME TRAP

A condition in which an economy begins development to reach middle-income status but is chronically unable to progress to high-income status. Often related to low capacity for original innovation or for absorption of advanced technology, and may be compounded by high inequality.

UNDERDEVELOPMENT TRAP

A poverty trap at the regional or national level in which underdevelopment tends to perpetuate itself over time.

DEEP INTERVENTION

A government policy that can move the economy to a preferred equilibrium or even to a higher permanent rate of growth that can then be self-sustaining so that the policy need no longer be enforced because the better equilibrium will then prevail without further intervention.

CONGESTION

The opposite of a complementarity; an action taken by one agent that decreases the incentives for other agents to take similar actions.

WHERE-TO-MEET DILEMMA

A situation in which all parties would be better off cooperating than competing but lack information about how to do so. If cooperation can be achieved, there is no subsequent incentive to defect or cheat.

PRISONERS' DILEMMA

A situation in which all parties would be better off cooperating than competing but once cooperation has been achieved, each party would gain the most by cheating, provided that others stick to cooperative agreements— thus causing any agreement to unravel.

MULTIPLE EQUILIBRIA: A DIAGRAMMATIC APPROACH

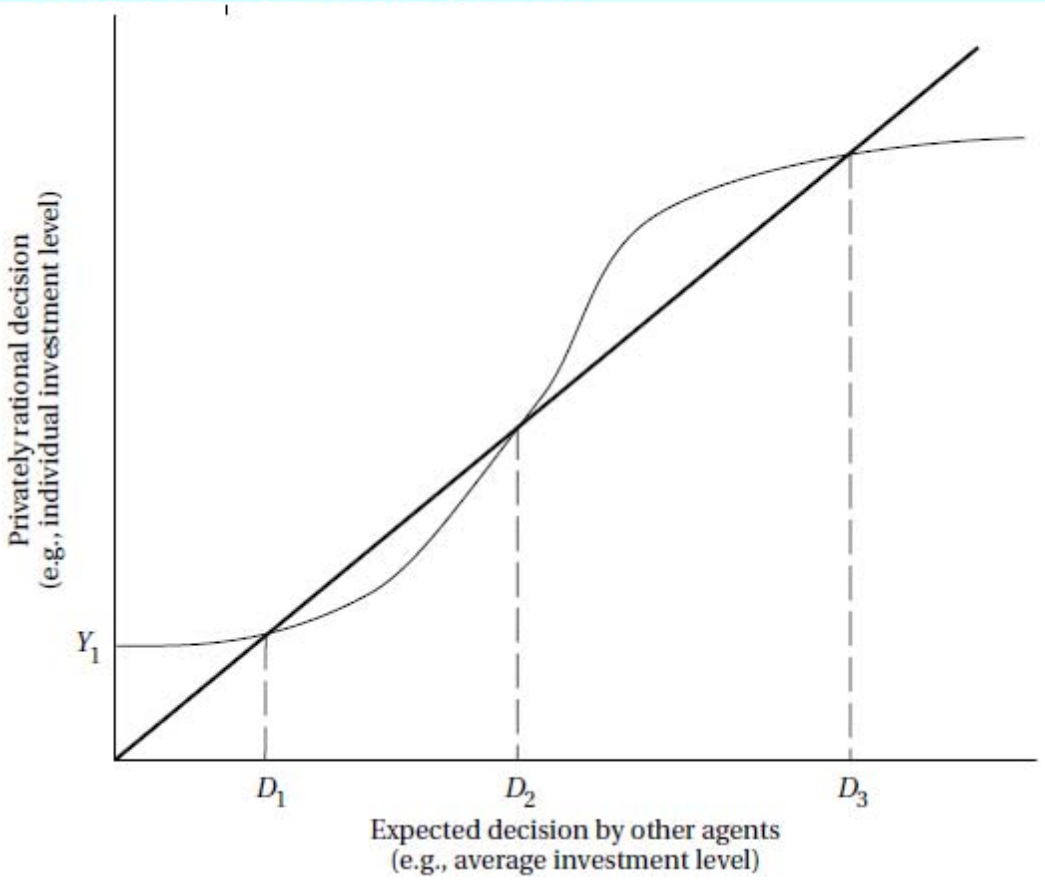
MULTIPLE EQUILIBRIA

"A condition in which more than one equilibrium exist. These equilibria may sometimes be ranked, in the sense that one is preferred to another, but the unaided market will not move the economy to the preferred outcome."

The standard diagram to illustrate multiple equilibria with possible coordination failure is shown in Figure 4.1. This diagram, in one version or another, has become almost as ubiquitous in discussions of multiple equilibria as the famous supply-and-demand ("Marshallian scissors") diagram in discussions of single equilibrium analysis.

The basic idea reflected in the S-shaped function of Figure 4.1 is that the benefits an agent receives from taking an action depend positively on how many other agents are expected to take the action or on the extent of those actions. For example, the price a farmer can hope to receive for his produce depends on the number of middlemen who are active in the region, which in turn depends on the number of other farmers who specialize in the same product.

FIGURE 4.1 Multiple Equilibria



How do we find the equilibria in this type of problem? In the Marshallian supply-and-demand scissors diagram, equilibrium is found where the supply and demand curves cross. In the multiple-equilibrium diagram, equilibrium is found where the "privately rational decision function" (the S-shaped curve in Figure 4.1) crosses the 45-degree line. This is because in these cases, agents observe what they expected to observe. Suppose that firms expected no other firms to make investments, but some firms did anyway (implying a positive vertical intercept in the diagram). But then, seeing that some firms did make investments, it would not be reasonable to continue to expect no investment!

Firms would have to revise their expectations upward, matching their expectations to the level of investment they actually see. But if firms now expect this higher level of investment, firms would want to invest even more. This process of adjustment of expectations would continue until the level of actual investment would just equal the level of expected investment: At that level, there is no reason for firms to adjust their expectations any further. So the general idea of an equilibrium in such cases is one in which all participants are doing what is best for them, given what they expect others to do, which in turn matches what others are actually doing. This

happens when the function crosses the 45-degree line. At these points, the values on the x-axis and y-axis are equal, implying in our example that the level of investment expected is equal to the level that all agents find best (e.g., the profit-maximizing level).

In the diagram, the function cuts the 45-degree line three times. Any of these points could be equilibrium: That is what we mean by the possibility of multiple equilibria. Of the three, D1 and D3 are “stable” equilibria. They are stable because if expectations were slightly changed to a little above or below these levels, firms would adjust their behavior—increase or decrease their investment levels—in a way to bring us back to the original equilibrium. Note that in each of these two stable equilibria, the S-shaped function cuts the 45-degree line from above—a hallmark of a stable equilibrium. At the middle equilibrium at D2, the function cuts the 45-degree line from below, and so it is unstable. This is because in our example, if a little less investment were expected, the equilibrium would be D1, and if a little more, the equilibrium would move to D3. D2 could therefore be equilibrium only by chance. Thus in practice, we think of an unstable equilibrium such as D2 as a way of dividing ranges of expectations over which a higher or lower stable equilibrium will hold sway.

Typically, the S-shaped “privately rational decision function” first increases at an increasing rate and then at a decreasing rate, as in the diagram. This shape reflects what is thought to be the typical nature of complementarities. In general, some agents may take the complementary action (such as investing) even if others in the economy do not, particularly when interactions are expected to be with foreigners, such as through exporting to other countries. If only a few agents take the action, each agent may be isolated from the others, so spillovers may be minimal. Thus the curve does not rise quickly at first as more agents take the action. But after enough invest, there may be a snowball effect, in which many agents begin to provide spillover benefits to neighboring agents, and the curve increases at a much faster rate. Finally, after most potential investors have been positively affected and the most important gains have been realized, the rate of increase starts to slow down.

In general, when jointly profitable investments may not be made without coordination, multiple equilibria may exist in which the same individuals with access to the same resources and technologies could find themselves in either a good or a bad situation. In the view of many development economists, it is very plausible that many of the least developed countries, including many in sub-Saharan Africa, are essentially caught in such circumstances. Of course, other problems are also present. For example, political pressures from potential losers in the modernization process can also prevent shifts to better equilibria. In addition, modern technology may not yet be available in the country. The technology transfer problem is another important concern in economic development. In fact, another problem illustrated by the graph in Figure 4.1 could be that the amount of effort each firm in a developing region expends to increase the rate of technology transfer depends on the effort undertaken by other firms; bringing in modern technology from abroad often has spillover effects for other firms. But the possibility of multiple equilibria shows that making better technology available is generally a necessary but not a sufficient condition for achieving development goals.

PARE TO IMPROVEMENT

"A situation in which one or more persons may be made better off without making anyone worse off."

THE BIG PUSH: A GRAPHICAL MODEL

ASSUMPTIONS

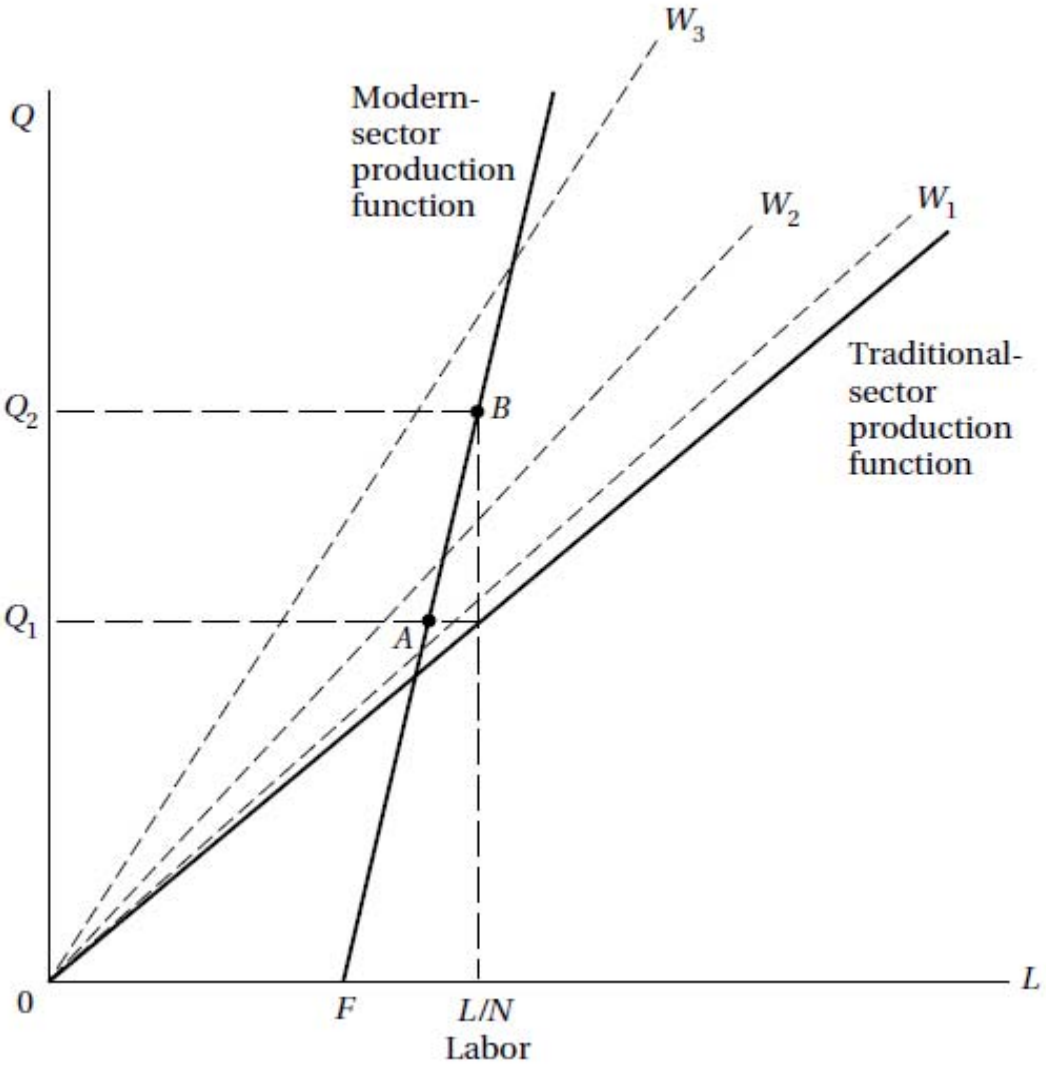
In any model (indeed, in any careful thinking), we need to make some assumptions, sometimes seemingly large assumptions, to make any progress in our understanding. The analysis of the big push is no exception to this rule. The assumptions we use for the big push analysis here can be relaxed somewhat, though at the expense of requiring more mathematical technique, but it should be noted that we cannot relax our assumptions as much as we are accustomed to doing in simpler microeconomic problems, such as those that assume perfect competition. Here, we cannot meaningfully assume perfect competition in the modern sector, where increasing returns to scale and hence natural monopoly, or at least monopolistic competition, prevail. To paraphrase Paul Krugman, if we think development has something significant to do with increasing returns to scale, then we will have to sacrifice some generality to address it. We will make six types of assumptions.

1. **Factor**

We assume that there is only one factor of production—labor. It has a fixed total supply, L.

2. **Factor payments**

FIGURE 4.2 The Big Push



The labor market has two sectors. We assume that workers in the traditional sector receive a wage of 1 (or normalized to 1, treating the wage as the numeraire; that is, if the wage is 19 pesos per day, we simply call this amount of money "1" to facilitate analysis using the geometry in Figure 4.2). Workers in the modern sector receive a wage W1. As a stylized fact, this wage differential is found in every developing country, even if it needs some explanation (see Chapter 7).

The underlying reason for this differential may be a compensation for disutility of modern factory types of work. If so, in equilibrium, workers would receive no net utility benefits from switching sectors during industrialization; but if economic profits are generated, this will represent a Pareto improvement (in this case because investors are better off and no one is worse off), and average income would rise (there can also be income redistribution so that everyone may be made better off, not just no one worse off). Moreover, if there is surplus labor in the economy or if modern wages are higher than opportunity costs of labor for some other reason, the social benefits of industrialization are all the greater. Finally, note that we are examining one example of a model in which a driving force for an underdevelopment trap is the relatively high wages

that have to be paid in the modern sector. We do this because it is an approach that is easy to characterize graphically and that has received a lot of attention. As will be described later, however, high modern wages is only one circumstance in which a coordination problem may exist. In fact, we will see that there may be coordination failure problems even if modern-sector wages are no higher than those in the traditional sector.

3. Technology

We assume that there are N types of products, where N is a large number.16 For each product in the traditional sector, one worker produces one unit of output (this is a less stringent assumption than it appears because again we have a certain freedom in choosing our unit of measurement; if a worker produces three pairs of shoes per day, we call this quantity one unit). This is a very simple example of constant-returns to- scale production. In the modern sector, there are increasing returns to scale. We want to introduce increasing returns in a very simple way. Assume that no product can be produced unless a minimum of, say, F workers are employed. This is a fixed cost. Because we are keeping things simple to facilitate analysis of the core issues, we have not put capital explicitly in the model; thus the only way to introduce a fixed cost is to require a minimum number of workers. After that, there is a linear production function in which workers are more productive than those in the traditional sector. Thus labor requirements for producing any product in the modern sector take the form $L = F + cQ$, where $c < 1$ is the marginal labor required for an extra unit of output. The trade-off is that modern workers are more productive, but only if a significant cost is paid up front. As this fixed cost is amortized over more units of output, average cost declines, which is the effect of increasing returns to scale. We assume symmetry: The same production function holds for producing any product in the modern sector.

4. Domestic demand

We assume that each good receives a constant and equal share of consumption out of national income. The model has only one period and no assets; thus there is no saving in the conventional sense. As a result, if national income is Y, then consumers spend an equal amount, Y/N, on each good.

5. International supply and demand

We assume that the economy is closed. This makes the model easy to develop. The most important conclusions will remain when trade is allowed, provided that there are advantages to having a domestic market. These advantages likely include initial economies of scale and learning to achieve sufficient quality, favorable product characteristics, and better customer support before having to produce for distant and unknown consumers. These are very realistic considerations: Evidence suggests that export-led economies such as South Korea have benefited enormously from the presence of a substantial domestic market to which early sales are directed. Moreover, export-led economies have benefited from active industrial policy aimed at overcoming coordination failures (see Chapter 12). The points will also hold if there are necessary inputs that are not tradable, such as certain types of services. Alternative models focusing on infrastructure investments can also imply the need for a big push even with a fully open world economy.

6. Market structure

We assume perfect competition in the traditional (cottage industry) sector, with free entry and no economic profits. Therefore, the price of each good will be 1, the marginal cost of labor (which is the only input). We assume that at most, one modern-sector firm can enter each market. This limitation is a consequence of increasing returns to scale. Given the assumptions about preferences, the monopolist faces unit-elastic demand, so if this monopolist could raise its price above 1, it would be profitable to do so. However, if price is raised above 1, competition from the traditional sector producers will cause the modern-sector firm to lose all of its business. Therefore, the monopolist will also charge a price of 1 if it decides to enter the market. Because the monopolist charges the same price, it will monopolize this particular market if it enters but will also produce the same quantity that was produced by the traditional producers. Because this firm is the only one using modern techniques and in producing all other products workers receives a wage of 1, national income will be essentially the same, so more units of output cannot be sold. We also assume that at the point the monopolist would choose to produce, it is able to produce at least as much output as the traditional producers for that same level of labor; otherwise, it would make no sense to switch out of the traditional techniques.

CONDITIONS FOR MULTIPLE EQUILIBRIA

With these six assumptions, we can characterize cases that will require a big push. To begin, suppose that we have a traditional economy with no modern production in any market. A potential producer with modern technology (i.e., a technology like the one described previously, with fixed costs and increasing returns) considers whether it is profitable to enter the market. Given the size of the fixed cost, the answer depends on two considerations: (1) how much more efficient the modern sector is than the traditional sector and (2) how much higher wages are in the modern sector than in the traditional sector.

In Figure 4.2, production functions are represented for the two types of firms for any industry. The traditional producers use a linear technique with slope 1, with each worker producing one unit of output. The modern firm requires F workers before it can produce anything, but after that, it has a linear technique with slope 1/c 7 1. Price is 1, so revenues PQ can be read off the Q axis. For the traditional firm, the wage bill line lies coincident with the production line (both start at the origin and have a slope of 1). For the modern firm, the wage bill line has slope W 7 1. At point A, we see the output that the modern firm will produce if it enters, provided there are traditional firms operating in the rest of the economy. Whether the modern firm enters depends, of course, on whether it is profitable to do so.

Using Figure 4.2, first consider a wage bill line like W1 passing below point A. With this relatively low modern wage, revenues exceed costs, and the modern firm will pay the fixed cost F and enter the market. In general, this outcome is more likely if the firm has lower fixed costs or lower marginal labor requirements as well as if it pays a lower wage. By assumption, production functions are the same for each good, so if a modern firm finds it profitable to produce one good, the same incentives will be present for producing all goods, and the whole economy will industrialize through market forces alone; demand is now high enough that we end up at point B for each product. This shows that a coordination failure need not always happen: It depends on the technology and prices (including wages) prevailing in the economy.

If a wage bill line like W2 holds, passing between points A and B, the firm would not enter if it were the only modern firm to do so in the economy because it would incur losses. But if modern firms enter in each of the markets, then wages are increased to the modern wage in all markets,

and income expands. We may assume that price remains 1 after industrialization. Note that the traditional technique still exists and would be profitable with a price higher than 1. So to prevent traditional firms from entering, modern firms cannot raise prices above 1.24 The modern firm can now sell all of its expanded output (at point B), produced by using all of its available labor allocation (L/N), because it has sufficient demand from workers and entrepreneurs in the other industrializing product sectors. As can be seen in Figure 4.2, with prevailing wage W2, point B is profitable after industrialization because it lies above the W2 line. Workers are also at least as well off as when they worked in the traditional sector because they can afford to purchase an additional quantity of goods in proportion to their increased wage, and they have changed sectors voluntarily. All of the output is purchased because all of national income is spent on output; national income is equal to wages plus profits, the value of which is output of each product times the number of products N.

A final possibility is found in a wage bill line like W3, passing above point B. In this case, even if a modern producer entered in all product sectors, all of these firms would still lose money, so again the traditional technique would continue to be used. In general, whenever the wage bill line passes below point A, the market will lead the economy to modernize, and whenever it passes above A, it will not. The steeper (i.e., more efficient) the modern-sector production technique or the lower the fixed costs, the more likely it is that the wage bill will pass below the corresponding point A. If the line passes above B, it makes no sense to industrialize. But if the wage line passes between points A and B, it is efficient to industrialize, but the market will not achieve this on its own. Be sure to note that these are three different wages that might exist depending on conditions in a particular economy at one point in time, not three wages that occur successively.

We could also have cases of semi-industrialization, in which benefits or costs accrue in different amounts to different product sectors or in which there are different types of spillovers from firm to firm. For example, this is plausible when the level of required fixed costs declines the more product sectors industrialize, because there are more local examples from which to learn.28 With this alternative type of externality, no wage premium is necessary for multiple equilibria to be present. In this case, if there are clusters of two or more firms that have large effects on each other's fixed costs F but not on firms outside of the cluster, the result could be an equilibrium in which only the industries in this cluster change to modern techniques. Thus in this circumstance, we could have three or more equilibria; we could also have enclave economies, in which a modern sector exists side by side with traditional cottage industries in other product sectors.

TECHNOLOGICAL EXTERNALITY

"A positive or negative spillover effect on a firm's production function through some means other than market exchange."

WHY THE PROBLEM CANNOT BE SOLVED BY A SUPER-ENTREPRENEUR

There are at least four significant theoretical answers and one decisive empirical answer.
First, there may be capital market failures. How could one agent assemble all the capital needed to play the super-entrepreneur role? Even if this were logistically imaginable, how would lenders have confidence in their investments? In particular, how could a penalty for default be imposed?

Second, there may be costs of monitoring managers and other agents and designing and implementing schemes to ensure compliance or provide incentives to follow the wishes of the employer; these are often referred to as agency costs. Monitoring is too expensive once the scale of a firm gets too large. Even if the plan is to sell off the industries, these industries must be developed simultaneously. The super-entrepreneur is likely to know more about the firms than the potential buyers will. In other words, if the firm is so profitable, why would its owners be selling? Thus potential purchasers of the industries face a problem of asymmetric information, often known as the “lemons problem".

Third, there may be communication failures. Suppose someone says to you, “I am coordinating investments, so work with me.” Should you do so? How do you know this person will eventually be the coordinator? There is a potentially huge profit to be made by assuming the super-entrepreneur role; so many agents might wish to play it. If many try to claim the role, with which one should you coordinate? Even if each agent personally encounters only one pretender to the super-entrepreneur role, that pretender may still not be the right one (i.e., the coordinator with whom you can make money).

Fourth, there are limits to knowledge. Even if we stipulate that the economy as a whole has access to modern technology ideas, this does not mean that one individual can gain sufficient knowledge to industrialize (or even gain enough knowledge about whom to hire to industrialize).

Finally, there is the empirical reason that no private agent has been observed playing the role of super-entrepreneur. Whether because of problems of monitoring, knowledge, capital markets, or other diseconomies of scope, “solving” problems with ever-larger firms clearly provides no answer. For example, it is rare enough to find a firm producing steel and even a significant fraction of the products using steel, let alone one firm owning all the industries backwardly linked from steel or forwardly linked from steel-using industries into industries further down the production chain. Nor can the problem be solved by direct government production (at least without unacceptable cost), as the extreme case of the former Soviet Union demonstrates. Rather, public coordination of actions of private investors is generally needed to solve the problem, a common interpretation of the role of industrial policy in East Asia.

Lesson 21

CONTEMPORARY MODELS OF DEVELOPMENT AND UNDERDEVELOPMENT (CONTINUED)

MICHAEL KREMER'S O-RING THEORY OF ECONOMIC DEVELOPMENT

The name comes from the 1986 Challenger shuttle disaster, a catastrophe caused by the failure of a single O-ring.

THE O-RING MODEL

The key feature of the O-ring model is the way it models production with strong complementarities among inputs. We start by thinking of the model as describing what is going on inside a firm, but as we will see, this model also provides valuable insights into the impact of complementarities across firms or industrial sectors of the economy.

O-RING PRODUCTION FUNCTION

"A production function with strong complementarities among inputs, based on the products of the input qualities"

Suppose that a production process is broken down into n tasks. There are many ways of carrying out these tasks, which for simplicity we order strictly by level of skill q required, where. The higher the skill, the higher the probability that the task will be "successfully completed" (which may mean, for example, that the part created in this task will not fail). Kremer's concept of q is quite flexible. Other interpretations may include a quality index for characteristics of the good: Consumers would be willing to pay more for higher-quality characteristics. For example, suppose that q = 0.95.

Among other interpretations, this could mean (1) that there is a 95% chance that the task is completed perfectly, so the product keeps maximum value, and a 5% chance that it is completed so poorly that it has no value; (2) that the task is always completed well enough that it keeps 95% of its maximum value; or (3) that the product has a 50% chance of having full value and a 50% chance of an error reducing the value of the product to 90%. For simplicity, assume that the probability of mistakes by different workers is strictly independent. The production function assumed is a simple one: Output is given by multiplying the q values of each of the n tasks together, in turn multiplied by a term, say, B, that depends on the characteristics of the firm and is generally larger with a larger number of tasks. Suppose also that each firm hires only two workers. Then the O-ring production function looks like this:

BF(qi qj) = qi qj

That is to make things simple, for this exposition we let the multiplier, B, equal 1. In addition to the form of the production function, we make three other significant types of simplifying assumptions: (1) Firms are risk-neutral, (2) labor markets are competitive and (3) workers supply labor inelastically (i.e., they work regardless of the wage). If we consider capital markets, we assume that they are competitive as well. For now, we also assume that the economy is closed.

One of the most prominent features of this type of production function is what is termed positive assortative matching. This means that workers with high skills will work together and workers with low skills will work together. When we use the model to compare economies, this type of matching means that high-value products will be concentrated in countries with high-value skills. In this model, everyone would like to work with the more productive workers, because if your efforts are multiplied by those of someone else, as they are in Equation 4.1, you will be more productive when working with a more productive person. In competitive markets, your pay is based on how productive you are.

A firm with a higher-productivity worker can more afford to pay a higher wage and has the incentive to bid higher to do so, because the value of output will be higher with two productive workers, say, than with one low- and one high-productivity worker. As a result, there will be a strong tendency for the most productive workers to work together.

This can be seen easily if we imagine a four-person economy. Suppose that this economy has two high-skill qH workers and two low-skill qL workers. The four workers can be arranged either as matched skill pairs or unmatched skill pairs. Total output will always be higher under a matching scheme because

$$q^2H + q^2L > 2_{qHqL}$$

The O-ring result of positive assortative matching relies on some rather strong assumptions. How important are each of these, and how much can they be relaxed? Two points are crucial: (1) Workers must be sufficiently imperfect substitutes for each other, and (2) we must have sufficient complementarity of tasks. As long as these conditions hold, the basic results will follow.

To see why we must have complementarity of tasks, suppose that there are two tasks indexed by g and h but with no complementarity between them. To be specific, suppose that our qH worker is hired for the g task, and a qL worker is hired for the h task; then

F(qHqL) = g(qH) + h(qL)

Here, skills are imperfect substitutes for each other, because only one type of worker can be hired for each task (i.e., no two-for-one type of substitution is possible here). However, because tasks are not complementary, the optimal choice of skill for the g task is independent of that of the h task, and again no strategic complementarities are present.

IMPLICATIONS OF THE O-RING THEORY

The analysis has several important implications:

- Where higher levels of technology uses they will involving people with higher skills.
- Higher level of wages for higher levels of skills.
- Workers performing in a certain production unit are able to generate more money as compared to the other people then workers will strived to acquire those skills that will enable them to earn relatively higher money.
- Because wages increase at an increasing rate, wages will be more than proportionally higher in developed countries than would be predicted from standard measures of skill.
- Workers performing the same task earn higher wages in a high-skill firm than in a low-skill firm.

- The overall productivity level can be increased by making people aware that they will be able to generate more money if they enrich them with high levels of skills.
- The Presence of complementarities in the factor inputs of the production function.
- The Presence of low productivity bottlenecks.
- Such bottlenecks have a multiplicative effect on other production levels.
- Bottlenecks also reduce the incentive for workers to invest in skills by lowering the expected return to these skills.

ECONOMIC DEVELOPMENT AS SELF-DISCOVERY

In simple models with perfect information, it is assumed that firms, and developing economies as a whole, already know their comparative advantage. But individuals must discover their own comparative advantage in labor markets; for example, no one is born knowing they are well suited to become an economist or international development specialist. Somewhat analogously, nations must learn what activities are most advantageous to specialize in. As Ricardo Hausmann and Dani Rodrik show, this is a complex task—and one prone to market failure.49 It is not enough to tell a developing nation to specialize in "labor- intensive products," because even if this were always true, there are a vast number of such products in the world economy of today, and underlying costs of production of specific products can differ greatly from country to country. So it is socially valuable to discover that the true direct and indirect domestic costs of producing a particular product or service in a given country are low or can be brought down to a low level. It is valuable in part because once an activity is shown to be profitable, it can usually be imitated, at least after some lag, spawning a new domestic industry.

An example is the ready-made garment industry in Bangladesh, which spread from the first pioneers as dozens of entrepreneurs entered the market. But as markets are eventually open to competing firms, they will take away potential profits from the original innovator. And since due to this information externality innovators do not reap the full returns generated by their search for profitable activities, there will be too little searching for the nation's comparative advantage—too much time carrying on with business as usual and too little time devoted to "self-discovery." The term self-discovery somewhat whimsically expresses the assumption that the products in question have already been discovered by someone else (either long ago, or recently in a developed economy); what remains to be discovered is which of these products a local economy is relatively good at making itself.

INFORMATION EXTERNALITY

The spillover of information— such as knowledge of a production process—from one agent to another, without intermediation of a market transaction; reflects the public good characteristic of information (and susceptibility to free riding)—it is neither fully excludable from other uses, nor non-rival (one agent's use of information does not prevent others from using it).

THE HAUSMANN-RODRIK-VELASCO GROWTH DIAGNOSTICS FRAMEWORK

Encouraging efficient investment and widespread entrepreneurship plays a prominent role in accelerating growth and promoting development more broadly. But the once popular idea of finding a "one size fits all" policy for economic development is now generally recognized as a myth. Different countries face different binding constraints on achieving faster rates of growth and economic development. A key mission for economic development specialists is to help determine the nature of the constraints for each country. Ricardo Hausmann, Dani Rodrik, and

Andrés Velasco (HRV) propose a growth diagnostics decision tree framework for zeroing in on a country's most binding constraints on economic growth. HRV explain that targeting the most binding constraint has important advantages over other approaches to policy selection.

GROWTH DIAGNOSTICS

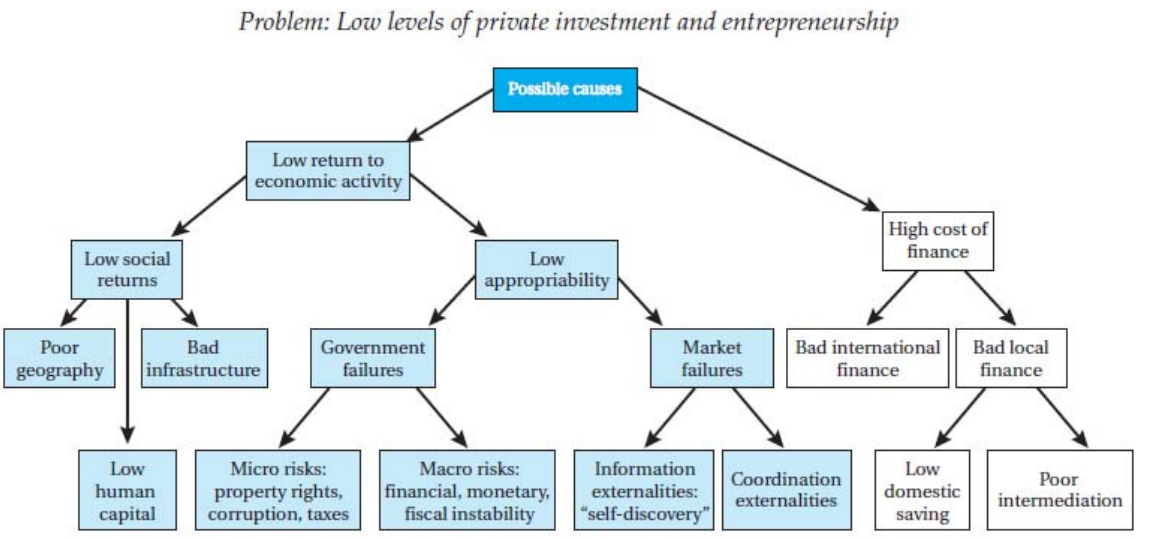
A decision tree framework for identifying a country's most binding constraints on economic growth.

SOCIAL RETURNS

The profitability of an investment in which both costs and benefits are accounted for from the perspective of the society as a whole.

If a developing nation experiences a relatively low level of private investment and entrepreneurship, what steps should it take? The basic decision tree for addressing this question is seen in Figure 4.3, with arrows leading to the ten bottom boxes (that is, the boxes from which no arrows extend further). At the first stage of the tree, the analyst seeks to divide countries between those for which the main problem is a low underlying rate of return and those for which the problem is an abnormally high cost of finance. Let us consider the former case first, following the left arrow pointing to Low return to economic activity.

FIGURE 4.3 Hausmann-Rodrik-Velasco Growth Diagnostics Decision Tree



Source: Ricardo Hausmann, Dani Rodrik, and Andrés Velasco, "Getting the diagnosis right," *Finance and Development* 43 (2006), available at http://www.inf.org/external/pubs/ft/fandd/2006/03/hausmann.htm. Used with permission.

Low returns to investors may be due to the fact that there are intrinsically low underlying social returns to economic activities. Alternatively, low returns may be caused by what is termed low private appropriability, meaning.

First, as noted in Chapter 2, poor geography such as tropical pests, mountains and other physical barriers, distance to world markets, and landlocked status (which may render port access politically dubious or economically costly) may limit the ability of a low-income country to initiate and sustain economic development, especially when other compounding factors are

present. When these constraints are most binding, development policy must initially focus on strategies for overcoming them. Second, low human capital— skills and education as well as health of workers—are complementary with other factors in production, affecting the returns to economic activity. For example, if economic returns are most affected by lack of literacy and numeracy, this becomes a development policy priority. (The importance of health and education was also stressed in Chapter 2, and this will be examined in depth in Chapter 8.) Third, every developing nation must provide the vital infrastructure needed to achieve and sustain a modern economy, beginning with basic physical structures such as roads, bridges, railroads, ports, telecommunications, and other utilities. With bad infrastructure, otherwise high-return economic activities may prove unprofitable. In some countries, inadequate and imbalanced infrastructure is the main factor preventing acceleration of growth, and in such cases, policies focusing on providing it would boost investment and growth the most.

But the problem may lie not with the underlying social return to economic activities but with low appropriability, meaning that investors cannot reap an adequate share of returns to investment. Low appropriability takes us to the box below the right arrow emanating from Low return to economic activity. In turn, appropriability problems could be due to either government failures or market failures. In the HRV diagram, government failures are divided between micro risks and macro risks. Micro risks address fundamental institutional weaknesses such as inadequacy of property rights, government corruption, and excessively high effective taxation. That is, the return to economic activity may be high enough, but elites rather than investors may capture a large fraction of the returns and make investments unattractive. Despite the difficulty of effectively reforming institutions when reform threatens the interests of elites (see Chapter 2), such reform must become the development priority when micro risks are binding.

In sum, one size does not fit all in development policy. Economic development strategies focusing on resource mobilization through foreign assistance and other capital flows, along with increased domestic national saving, can be most effective when domestic returns are both high and privately appropriable. In contrast, strategies focusing on market liberalization and opening up the economy can be most effective when social returns are high and the most serious obstacle to private appropriation is government-imposed excessive taxes and restrictions. Finally, strategies focusing on industrial policy (elaborated on in Chapter 12), can be most effective when private returns are low not because of what a government does (errors of commission) but because of what a government does not do (errors of omission).

Growth diagnostics has already had an effect on the work of development agencies. For example, the Inter-American Development Bank (IDB), the regional development bank for the western hemisphere, has been commissioning growth diagnostic studies of many member economies while training staff and nationals in the skills needed to conduct their own growth diagnostics. World Bank economists have applied the method in a series of a dozen country pilot studies in Africa, Asia, and Latin America. And developing country scholars have applied the approach to their countries. Although growth diagnostics might be criticized as “more art than science,” at the very least this new approach forces the analyst to focus on country-specific circumstances and thus to get to know the individual country very well. This is one of the reasons that growth diagnostics offers a valuable complement to econometric studies.

CASE OF EL SALVADOR

HRV argue that this economy is constrained by a lack of productive ideas. The binding constraint is a lack of innovation and demand for investment to replace the traditional cotton,

coffee, and sugar sectors, or low "self-discovery." So the best strategy focus for El Salvador would be to encourage more entrepreneurship and development of new business opportunities. Conclusion: They need to generate investments, innovation and adaptation of new ideas in order to utilize available resources.

CASE OF BRAZIL

- HRV identify the country's binding constraint as lack of sufficient funds to invest despite an abundance of productive ideas.
- Importance of "creating a financially viable state that does not over-borrow, over-tax or under-invest" to successfully raise domestic savings.
- Although Brazil could increase national savings to a degree by reducing government expenditure, this may not be politically feasible. If so, HRV suggest that higher taxes and user fees and lower infrastructure and human capital subsidies might work. "If the country can move to a faster growth path and if waste does not grow with GDP, it may outgrow its burdens and gradually improve its tax and spending system as fiscal resources become more abundant." In subsequent work, Hausmann has emphasized the importance of "creating a financially viable state that does not over-borrow, over-tax or under-invest" to successfully raise domestic savings.

CASE OF DOMINICAN REPUBLIC

HRV conclude that the Dominican Republic is constrained by core public goods in sectors key for growth. The country began a new reform sequence during the 1980s, after it could no longer rely on sugar and gold exports. It followed a narrow strategy of investing in needed public goods for two emerging sectors with high potential, tourism and maquila assembly manufacturing. The keys were security and infrastructure near the main tourist destinations and special trade policy benefits for the light manufacturing assembly (maquila) sector.

CASE STUDY: UNDERSTANDING A DEVELOPMENT MIRACLE: CHINA

- From 1978 to 2008, the economy of China grew at an average rate of approximately 9% a year.
- Dramatic reductions in poverty.
- Study by World Bank indicates the number of poor in China falling from 53% in 1981 to just 8% in 2001.

HOW?

- Manufactured exports are a key to China's growth, and market incentives have played a primary motivational role in business decisions.
- The presence of regional "demonstration" models has been crucial. Japan, Hong Kong, Taiwan, South Korea focused on export-oriented industrialization.
- China's one-child policy.
- Education, health, and eventually fertility helped set the stage for growth and poverty reduction when later combined with market incentives.
- The China case also illuminates complementarities.
- Reallocation of labor, particularly from agriculture to other activities.
- For the first nearly two decades of reform, from the late 1970s to the mid-1990s, at the local level, township and village enterprises (TVEs) were encouraged.

- Land reforms.

LIMITATIONS

- Environmental Issues
- middle income trap

"Real development is possible"

Lesson 22

URBANIZATION AND RURAL URBAN MIGRATION: THEORY AND POLICY

THE MIGRATION AND URBANIZATION DILEMMA

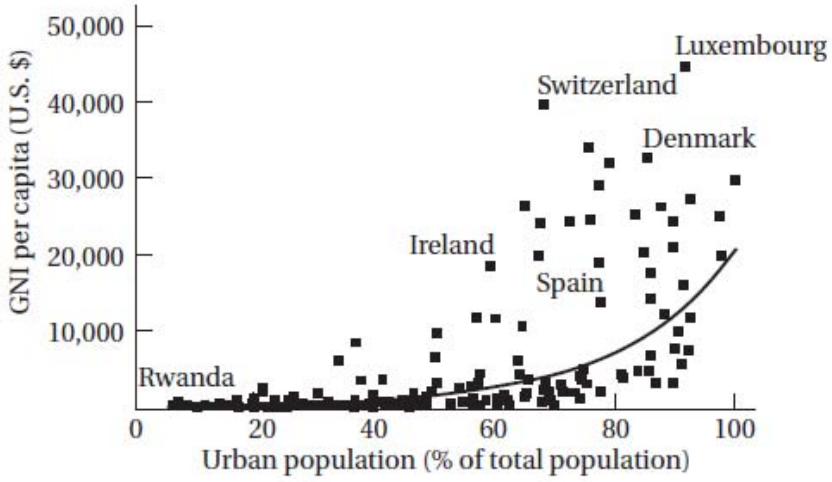
In this chapter, we focus on one of the most complex and nuanced dilemmas of the development process: the phenomenon of massive and historically unprecedented movements of people from the rural countryside to the burgeoning cities of Africa, Asia, and Latin America. In Chapter 6, we documented the extraordinary increase in world and especially developing-country population over the past few decades. By 2050, world population is expected to exceed 9 billion people, and nowhere will population growth be more dramatic than in the cities of the developing world. Indeed, according to United Nations estimates, the world became more urban than rural in 2008, for the first time in human history.

After reviewing trends and prospects for overall urban population growth, we examine in this chapter the potential role of cities—both the modern sector and the urban informal sector—in fostering economic development. We then turn to a well-known theoretical model of rural-urban labor transfer in the context of rapid growth and high urban unemployment. In the final section, we evaluate various policy options that governments in developing countries may wish to pursue in their attempts to moderate the heavy flow of rural-to-urban migration and to ameliorate the serious unemployment problems that continue to plague their crowded cities. This chapter's case study looks at patterns of migration in India and Botswana.

URBANIZATION: TRENDS AND PROJECTIONS

The positive association between urbanization and per capita income is one of the most obvious and striking "stylized facts" of the development process. Generally, the more developed the country, measured by per capita income, the greater the share of population living in urban

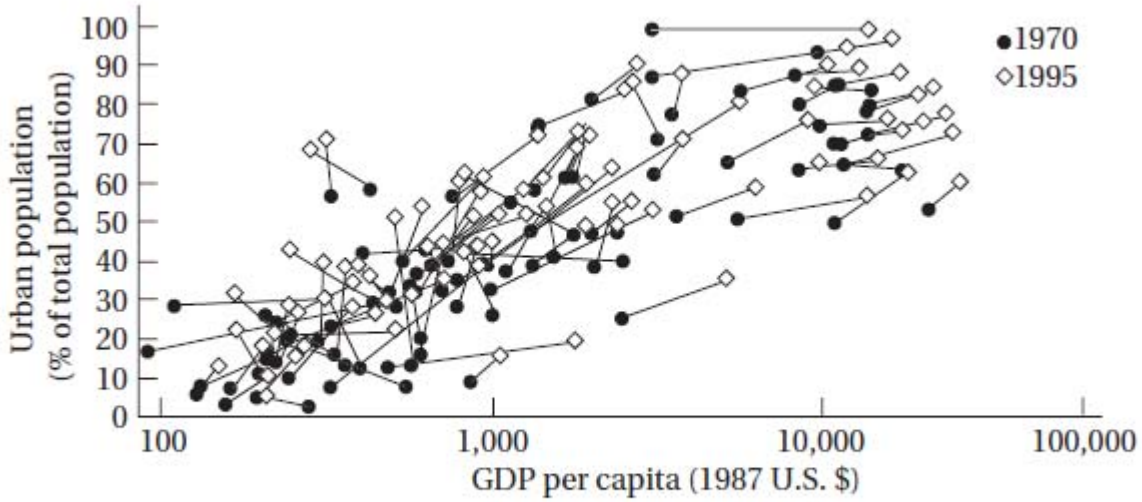
FIGURE 7.1 Urban Population and Per Capita Income across Selected Countries



Source: UN-Habitat, "State of the World's Cities, 2001," http://www.unchs.org/Istanbul+5/86.pdf. Reprinted with permission.

areas. Figure 7.1 shows urbanization versus GNI per capita; the highest-income countries, such as Denmark, are also among the most urbanized, while the very poorest countries, such as Rwanda, are among the least urbanized. At the same time, while individual countries become more urbanized as they develop, today's poorest countries are far more urbanized than today's developed countries were when they were at a comparable level of development, as measured by income per capita, and on average developing countries are urbanizing at a faster rate.

FIGURE 7.2 Urbanization across Time and Income Levels



Source: International Bank for Reconstruction and Development/The World Bank, *World Development Report, 1999–2000.* Reprinted with permission.

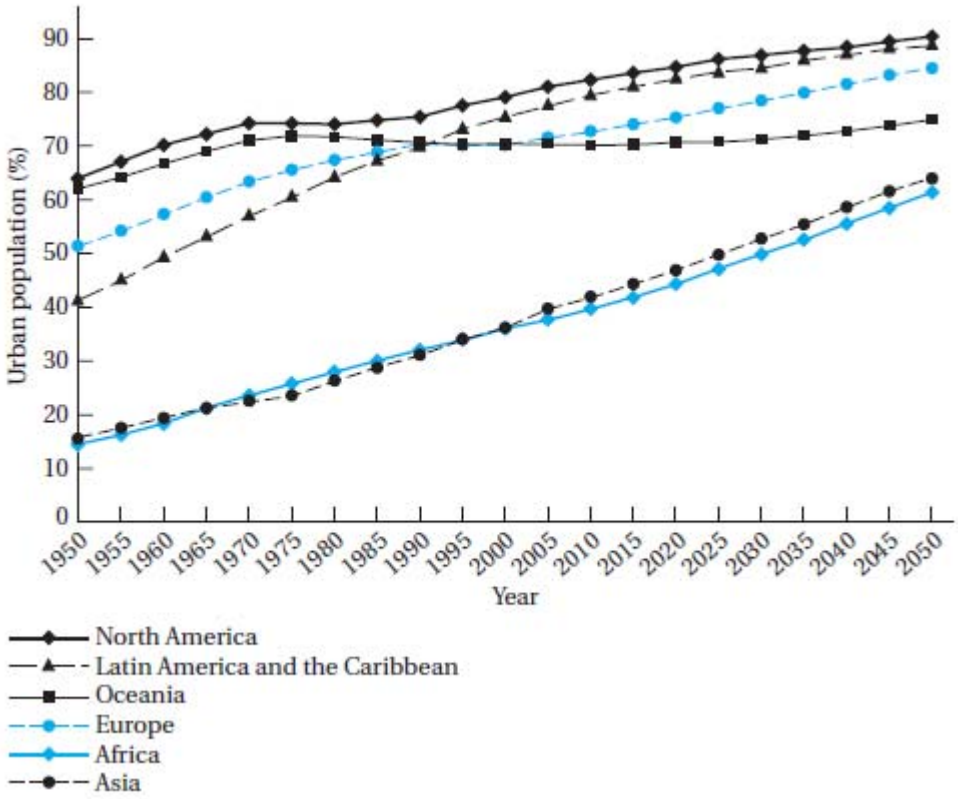
Figure 7.2 shows urbanization over time and across income levels over the quarter century from 1970 to 1995. Each line segment represents the trajectory of one country, starting from the solid dots, which represent the 1970 income and urbanization level for a given country and ending at the end of the line segments (marked by a diamond), which represent the corresponding 1995 income and urbanization level for the same country. Although the World Bank caption to the figure stated that "urbanization is closely associated with economic growth," the figure may also be interpreted as showing that urbanization is occurring everywhere, at high and low levels of income and whether growth is positive or negative. Even when the lines point to the left, indicating shrinking incomes per capita over the period, they still generally point upward, indicating that urbanization continued. In short, urbanization is happening everywhere in the world, although at differing rates. So we need to consider urbanization carefully—is it only correlated with economic development, or is causation also at work?

Indeed, one of the most significant of all modern demographic phenomena is the rapid growth of cities in developing countries. In 1950, some 275 million people were living in cities in the developing world, 38% of the 724 million total urban population, by 2010, the world's urban population had surpassed 3.4 billion, with over three-quarters of all urban dwellers living in metropolitan areas of low- and middle-income countries.

While in a significant number of cases the speed at which the share of urban population has increased in developing countries in the late twentieth and early twenty-first century is not much faster than in many of the developed countries when they were urbanizing in the late nineteenth century, nonetheless shares of urban population are being reached, particularly in Africa, at lower levels of per capita income than at a comparable stage in developed countries. Relatedly, urbanization in Africa is not associated with industrialization, as it was in the now-developed countries. Moreover, in most regions of the developing world, because population is so much larger, the sheer numbers of people coming into the city is unprecedented. Also unprecedented is the very large sizes of individual cities at such low levels of income per capita. The largest cities in developed countries in the past were much smaller than the large cities of developing countries today.

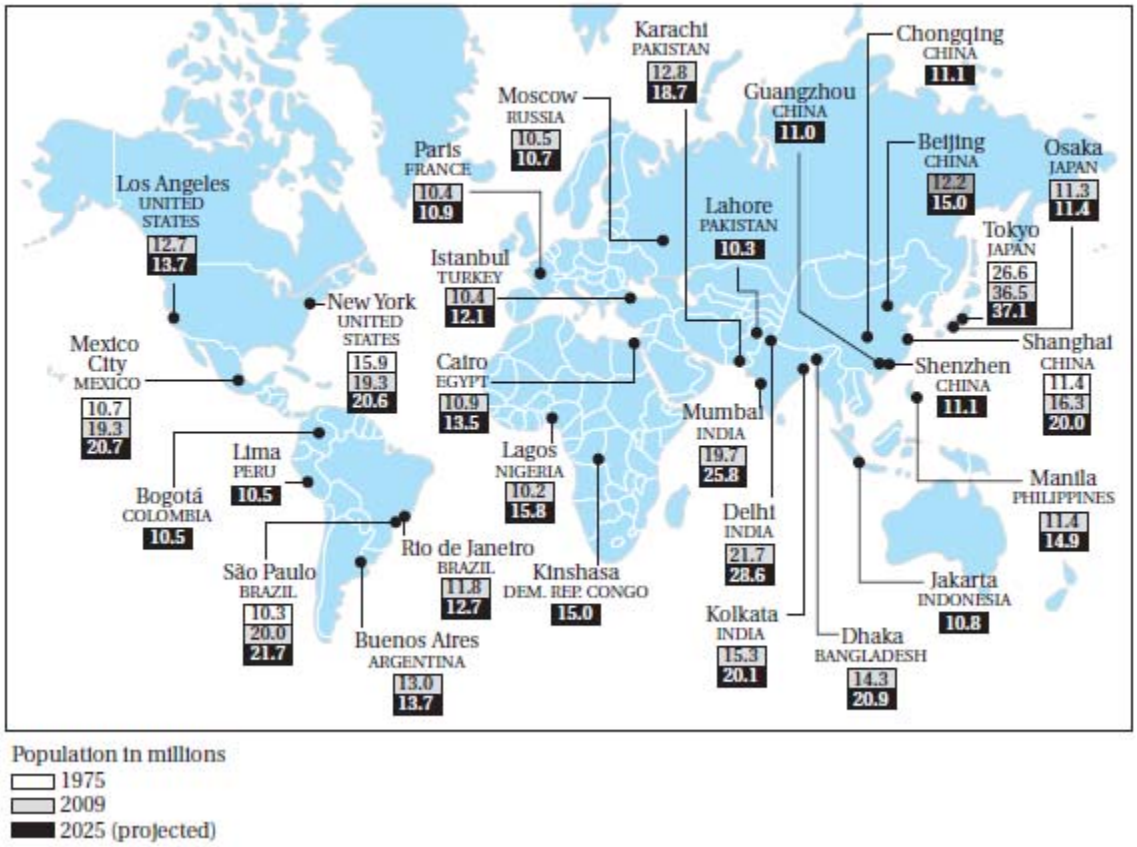
Figure 7.3 shows the growth of the proportion of the population living in urban areas by region.

FIGURE 7.3 Proportion of Urban Population by Region, 1950–2050



For the period 2005 to 2030, the UN projects that world population will grow at a 1.78% average annual rate. Accordingly, there will be almost 5 billion urban dwellers by 2030, nearly five-eighths of the projected 8.1 billion world population in that year. In fact, after 2015, the number of people living in rural areas in the world is projected to actually begin to decrease, by some 155 million people from 2015 to 2030, or an annual rate of -0.32%. The most rapid urbanization in now occurring in Asia and Africa; well before 2030, more than half of all people in these regions will live in urban areas. More than half the world's urban population will live in Asia, and the projected 2030 urban population of Africa of 748 million will be larger than the entire projected 685 million total population of Europe.

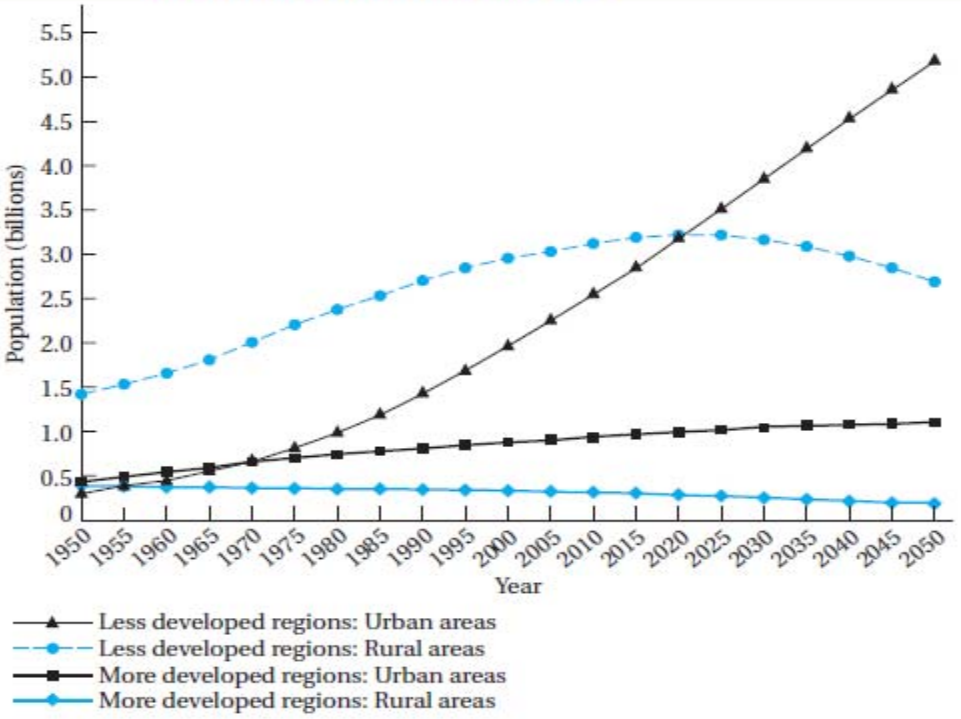
FIGURE 7.4 Megacities: Cities with 10 Million or More Inhabitants



Although a majority of developing-country urban growth will be found in cities of less than 5 million people, it is also the case that population growth in cities over 5 million in population is more rapid than growth of smaller cities (under 500,000) in the developing world. In fact, according to the UN, by 2025, only about half the urban population will be in cities with less than a half million people, the lowest fraction ever. Moreover, the developing world is also coming to dominate the world's largest cities, including the mega cities with over 10 million inhabitants. Figure 7.4 provides a map locating mega cities, the largest cities in the world containing a population of at least 10 million people. As the figure shows, in 1975, there were only 3 mega cities, but by 2009, there were 21 such metropolises. Of these 21, two-thirds were located in the developing world. By 2025, only 5 of the 29 largest cities will be in high-income countries. Moreover, as Figure 7.5 shows, almost all of the increments to the world's population will be accounted for by the growth of urban areas as migrants continue to stream into the cities from rural areas and as urbanization rates in the developing world continue to approach those of the developed world.

A central question related to the unprecedented size of these urban agglomerations is how these cities will cope—economically, environmentally, and politically— with such acute concentrations of people. While it is true that cities offer the cost-reducing advantages of agglomeration economies and economies of scale and proximity as well as numerous economic and social externalities (e.g., skilled workers, cheap transport, social and cultural amenities), the social costs of a progressive overloading of housing and social services, not to mention increased crime, pollution, and congestion, can outweigh these historical urban advantages.

FIGURE 7.5 Estimated and Projected Urban and Rural Population of the More and Less Developed Regions, 1950–2050

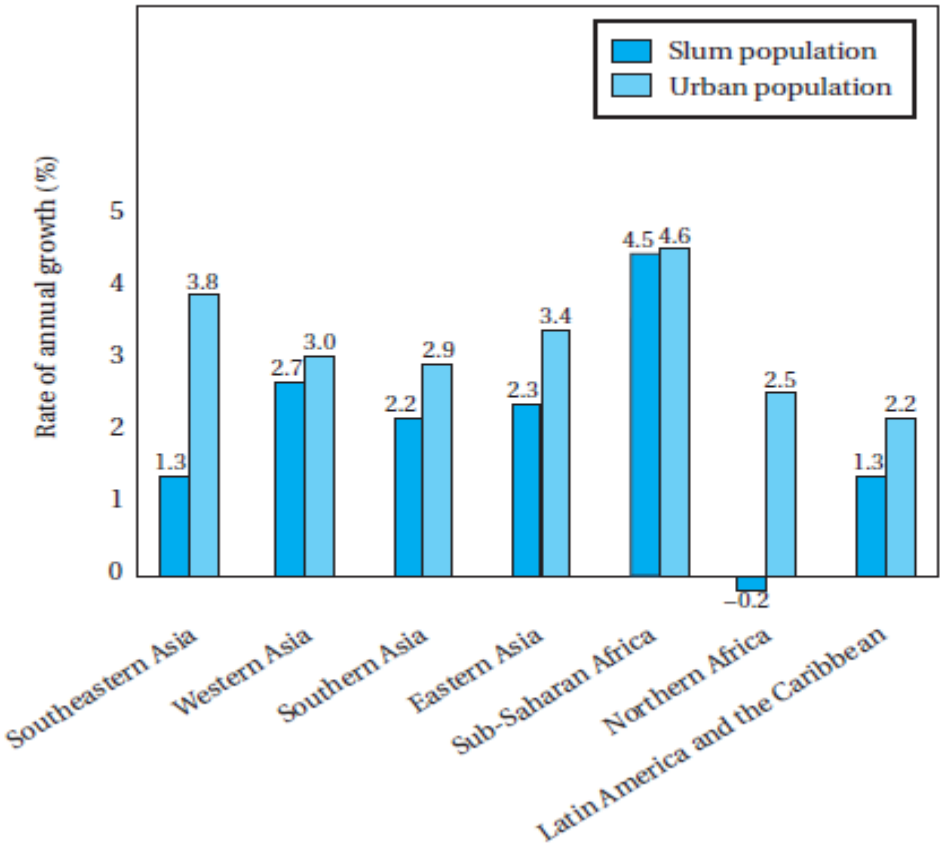


Along with the rapid spread of urbanization and the urban bias in development strategies has come this prolific growth of huge slums and shantytowns. From the favelas of Rio de Janeiro and the pueblos jovenes of Lima to the bustees of Kolkata and the bidonvilles of Dakar, such makeshift communities have been growing rapidly. Today, slum settlements represent over one-third of the urban population in all developing countries.

Figure 7.6 shows the annual growth of urban and slum populations in the 1990–2001 period, drawn from the 2006 United Nations Millennium Development Goals Report.

Although population growth and accelerated rural-urban migration are chiefly responsible for the explosion in urban shantytowns, part of the blame rests with governments. Their misguided urban-planning policies and outmoded building codes often means that 80% to 90% of new

FIGURE 7.6 Annual Growth of Urban and Slum Populations, 1990–2001



urban housing is “illegal.” For example, colonial era building codes in Nairobi, Kenya, have made it impossible to build an “official” house for less than $3,500. The law has also required every dwelling to be accessible by car. As a result, two-thirds of Nairobi’s land has been occupied by 10% of the population, while many slum dwellings cannot legally be improved. Similarly, in Manila, Philippines, a large majority of the population has historically been too poor to be able to buy or rent an officially “legal” house.

Statistics show that rural migrants constitute anywhere from 35% to 60% of recorded urban population growth. Accordingly, 90 out of 116 developing countries responding to a UN survey indicated that they had initiated policies to slow down or reverse their accelerating trends in rural-urban migration.

Given widespread dissatisfaction with the experience of rapid urban growth in developing countries, the critical issue that needs to be addressed is the extent to which national governments can formulate development policies that can have a definite impact on trends in and the character of urban growth. It is clear that the emphasis on industrial modernization, technological sophistication, and metropolitan growth created a substantial geographic imbalance in economic opportunities and contributed significantly to the accelerating influx of rural migrants into urban areas. Is it possible and or even desirable now to attempt to reverse these trends by pursuing a different set of population and development policies? With birth rates

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declining in many developing countries, rapid urban growth and accelerated rural-urban migration will undoubtedly be one of the most important development and demographic issues of the coming decades. And in urban areas, the growth and development of the informal sector, as well as its role and limitations for labor absorption and economic progress, will assume increasing importance.

Before examining conditions in developing-country cities more closely, let us first consider the potential advantages offered by cities. Urban areas have played a highly constructive role in the economies of today's developed countries, and they offer huge and still largely untapped potential to do the same for developing countries. A detailed look at the informal sector in developing cities will give an idea of its potential as an engine of growth. We also consider in more detail what has been different—and what has gone wrong—with urban development and the excessively rapid pace of rural-urban migration in many developing countries. We conclude with a look at constructive policies to help cities foster successful urban development while at the same time giving more balanced treatment to development in rural areas.

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Lesson 23

URBANIZATION AND RURAL URBAN MIGRATION: THEORY AND POLICY (CONTINUED1)

THE ROLE OF CITIES

What explains the strong association between urbanization and development? To a large degree, cities are formed because they provide cost advantages to producers and consumers through what are called agglomeration economies. As noted by Walter Isard, these agglomeration economies come in two forms. As noted by Walter Isard, these agglomeration economies come in two forms. Urbanization economies are effects associated with the general growth of a concentrated geographic region. Localization economies are effects captured by particular sectors of the economy, such as finance or automobiles, as they grow within an area. Localization economies often take the form of backward and forward linkages of the type introduced in Chapter 4. When transportation costs are significant, users of the outputs of an industry may benefit from a nearby location to save on these costs. This benefit is a type of forward linkage. In addition, firms of the same or related industries may benefit from being located in the same city, so they can all draw on a large pool of workers with the specific skills used in that sector or from specialized infrastructure. This is a type of backward linkage. Workers with specialized skills appropriate to the industry prefer to be located there as well so that they can easily find a new job or be in a position to take advantage of better opportunities.

URBANIZATION ECONOMIES

Agglomeration effects associated with the general growth of a concentrated geographic region.

LOCALIZATION ECONOMIES

Agglomeration effects captured by particular sectors of the economy, such as finance or autos, as they grow within an area.

INDUSTRIAL DISTRICTS

An economic definition of a city is “an area with relatively high population density that contains a set of closely related activities.” Firms often also prefer to be located where they can learn from other firms doing similar work. Learning takes place in both formal relationships, such as joint ventures, and informal ones, such as from tips learned in evening social clubs or over lunch. These spillovers are also agglomeration economies, part of the benefits of what Alfred Marshall called “industrial districts,” and they play a big role in Michael Porter’s “clusters” theory of competitive advantage. Firms located in such industrial districts also benefit from the opportunity to contract out work easily when an unusually large order materializes. Thus a firm of modest size does not have to turn down a big job due to lack of capacity, an arrangement that provides “flexible specialization.” Further, firms may wish to operate in well-known districts for the marketing advantages of locating where company procurers and household consumers of their goods know to shop to get the best selection.

SOCIAL CAPITAL

The productive value of a set of social institutions and norms, including group trust, expected cooperative behaviors with predictable punishments for deviations, and a shared history of

successful collective action, that raises expectations for participation in future cooperative behavior.

THE EMERGENCE OF INDUSTRIAL DISTRICTS OR CLUSTERS IN CHINA

Prior to the 1980s, industry in China was state owned, and factories were dispersed geographically for military defense. Beginning in 1980, Special Economic Zones such as Shenzhen were created to attract foreign firms in many industries; domestic firms sold inputs to them, but not as clusters. Township and village enterprises (TVEs) then emerged, initiated outside of local governments but "vaguely owned" by them. TVE managers usually tried a variety of activities, and early 1990s field research found little evidence that firms in the same or related industries were locating in close proximity to each other. But starting in the mid-1990s, TVEs rapidly privatized, and a combination of competition, responses to credit constraints, an abundance of entrepreneurial talent, and supportive local policies led to the emergence of localized industrial clusters. But like other Chinese institutions, some may ultimately prove "transitional."

CONGESTION COST

An action taken by one agent that decreases the incentives for other agents to take similar actions. Compare to the opposite effect of a complementarity.

THE URBAN GIANTISM PROBLEM

In the case of developing countries, the main transportation routes are often a legacy of colonialism. Theorists of the dependence school (see Chapter 3) have compared colonial transportation networks to drainage systems, emphasizing ease of extraction of the country's natural resources. In many cases, the capital city will be located near the outlet of this system on the seacoast. This type of transportation system is also called a "hub-and-spoke system," which is especially visible when the capital city is located in the interior of the country. Many nations inherited a hub-and-spoke system from colonial times, including many in Africa and Latin America, which also facilitated movement of troops from the capital to the outlying towns to suppress revolts.
In the pursuit of high level of wage, better employment opportunity and an improved standard of living , large number of people move from rural areas to urban areas, but when they land there only some of them are able to find out employment opportunities the way they are wanted, but rest are unable to find a perfect match and could end up in disaster.

FIRST-CITY BIAS

A form of urban bias that has often caused considerable distortions might be termed first-city bias. The country's largest or "first-place" city receives a disproportionately large share of public investment and incentives for private investment in relation to the country's second-largest city and other smaller cities. As a result, the first city receives a disproportionately—and inefficiently—large share of population and economic activity.

Table 7.1 shows the largest and second-largest cities in the United States, Canada, and major Latin American countries. Notice that in all of the outsized capital cities—Buenos Aires, Santiago, Mexico City, and Lima—the first city also serves as the capital. Some other

TABLE 7.1 Population of the Largest and Second-Largest Cities in Selected Countries (millions)

Country	Largest-City Population	Second-Largest-City Population	Ratio
Canada	Toronto, 5.035	Montreal, 3.603	1.40
United States	New York, 18.727	Los Angeles, 12.303	1.52
Argentina	Buenos Aires, 12.551	Cordoba, 1.423	8.82
Brazil	São Paulo, 18.647	Rio de Janeiro, 11.368	1.64
Chile	Santiago, 5.605	Valparaiso, 0.837	6.70
Mexico	Mexico City, 18.735	Guadalajara, 4.057	4.62
Peru	Lima, 8.081	Arequipa, 0.732	11.04

Source: From *UN World Urbanization Prospects 2009 Revision*, 2005 data (most recent non-projected year).
Note: Definitions of city size differ across studies.

developing countries have remarkably outsized first cities, notably Thailand, where Bangkok has a population about 20 times the size of the second city. Further examples can be found in the

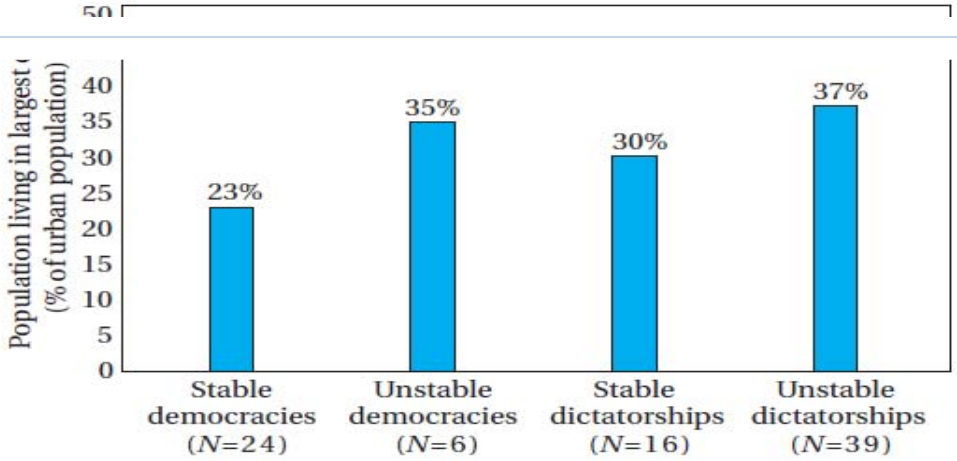
Philippines (where Manila has over seven times the population of the second city), and Congo (where Kinshasa has more than five times the second city's population). There are at least ten other examples of relatively large first (primate) cities in developing nations with sizeable populations.

CAUSES OF URBAN GIANTISM

Why have first cities often swelled to such a large multiple of second cities in developing countries? Overall, urban giantism probably results from a combination of a hub-and-spoke transportation system and the location of the political capital in the largest city. This is further reinforced by a political culture of rent seeking and the capital market failures that make the creation of new urban centers a task that markets cannot complete. Other more detailed explanations also generally involve unfortunate consequences of political economy (see Chapter 11). One argument, featured in the work of Paul Krugman, stresses that under import substitution industrialization (see Chapter 12), with a high level of protection, there is much less international trade, and population and economic activity have an incentive to concentrate in a single city, largely to avoid transportation costs. Thus firms wish to set up operations in the city where the most consumers already live, which attracts more people to the region in search of jobs and perhaps lower prices (made possible because there are fewer transport costs to be passed on to consumers and perhaps by economies of larger store size and specialized sales districts); this concentration in turn attracts still more firms and consumers in a circle of causation. However, when trade barriers are reduced, the incentive to focus production on the home market is also reduced, and exporters and their suppliers have much less incentive to be located in the country's biggest population center. This moves production toward ports and borders, or elsewhere in the country, to escape the excessive congestion costs of the largest city.

Another explanation for urban giants focuses on the consequences of dictators' efforts to remain in power. As Figure 7.7 shows, on average, a much larger share of a country's urbanized population (37%) lives in the first city in unstable dictatorships than in stable democracies (23%). In interpreting this finding, Alberto Ades and Edward Glaeser argue that unstable dictatorships (fearing overthrow) must provide "bread and circuses" for the first city (usually the capital) to prevent unrest; this extreme urban bias in turn attracts more migrants to the favored city and a still larger need for bread and circuses. It should be noted that although the authors attempt to control for reverse causality, it may still be the case that unstable dictatorships also tend to emerge in countries with high first city concentrations.

FIGURE 7.7 Politics and Urban Concentration



Source: Data from Alberto F. Ades and Edward L. Glaeser, "Trade and circuses: Explaining urban giants," *Quarterly Journal of Economics* 110 (1995): 196. Copyright © 1995 by the President and Fellows of Harvard College and the Massachusetts Institute of Technology.
Note: N = number of countries in group.

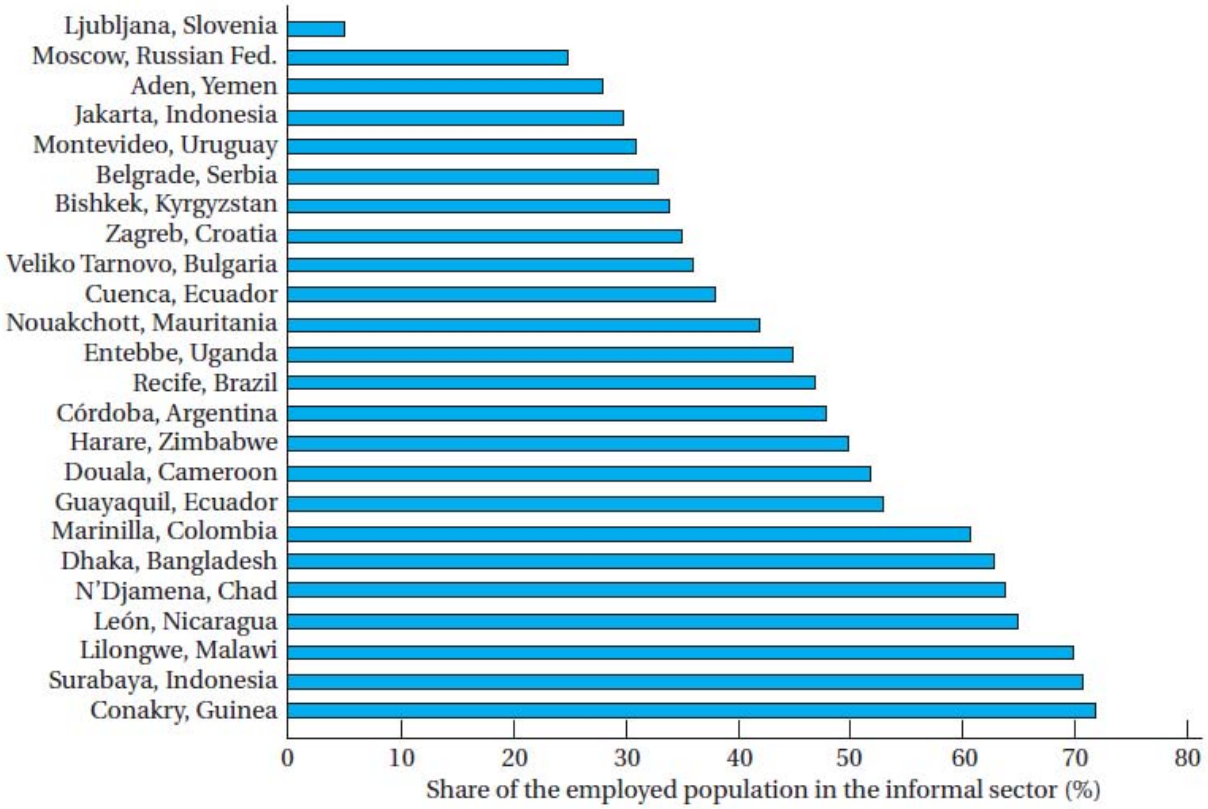
THE URBAN INFORMAL SECTOR

INFORMAL SECTOR

The part of the urban economy of developing countries characterized by small competitive individual or family firms, petty retail trade and services, labor-intensive methods, free entry, and market-determined factor and product prices.

As noted in Chapter 3, a focus of development theory has been on the dualistic nature of developing countries' national economies—the existence of a modern urban capitalist sector geared toward capital-intensive, large-scale production and a traditional rural subsistence sector geared toward labor-intensive, small-scale production. This dualistic analysis has also been applied specifically to the urban economy, which has been decomposed into a formal and an informal sector.

FIGURE 7.8 Importance of Informal Employment in Selected Cities



The informal sector continues to play an important role in developing countries, despite decades of benign neglect and even outright hostility. In many developing countries, about half of the employed urban population works in the informal sector. Figure 7.8 shows the relative importance of informal unemployment in selected cities. Most of these cities reflect the typical range of informal sector employment share, from about 30% to 70%. (The only exception is Ljubljana, a virtually developed city near Austria and Italy.) We find a similar pattern of high informal-sector employment in cities throughout the developing world. For example, in India, the urban informal sector comprises 28.5% of employment in Kolkata, 46.5% in Ahmedabad, 49.5% in Mumbai, 53.8% in Chennai, 61.4% in Delhi, and 65.5% in Bangaluru.

POLICIES FOR THE URBAN INFORMAL SECTOR

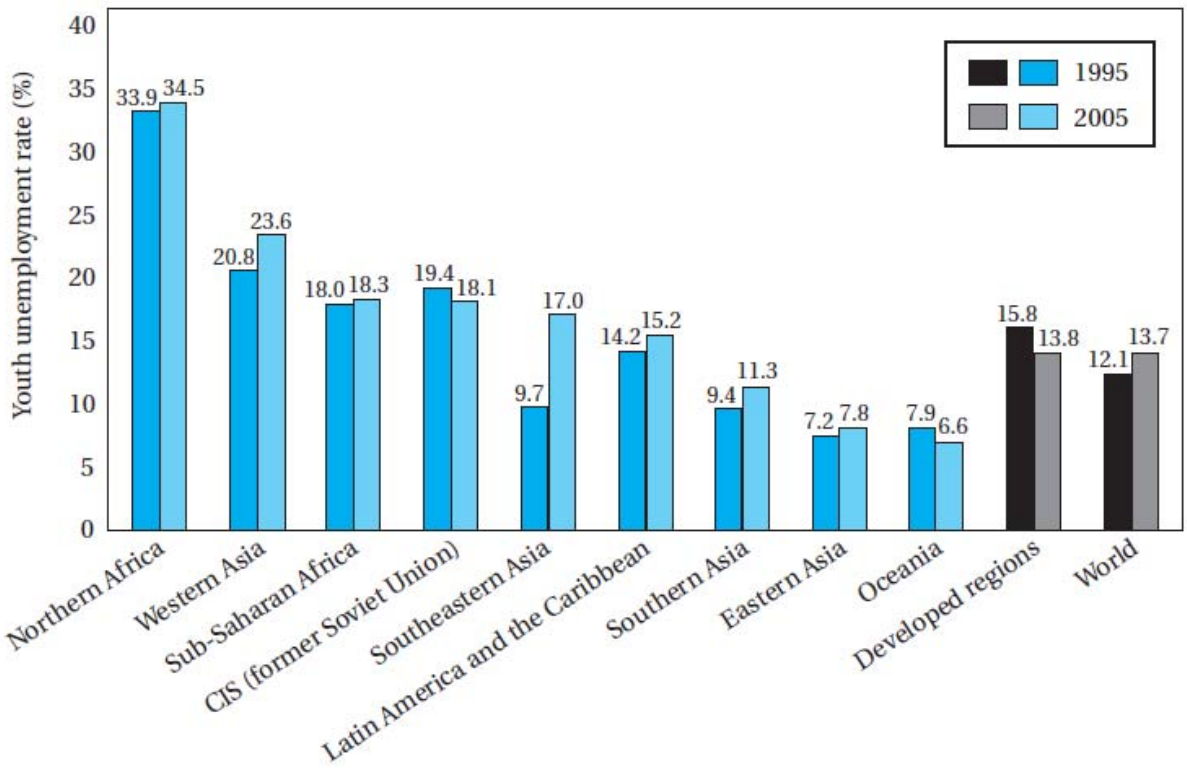
In terms of its relationship with other sectors, the informal sector is linked with the rural sector in that it allows excess labor to escape from extreme rural poverty and underemployment, although under living and working conditions and for incomes that are often not much better. It is closely connected with the formal urban sector: The formal sector depends on the informal sector for cheap inputs and wage goods for its workers, and the informal sector in turn depends on the growth of the formal sector for a good portion of its income and clientele.

The important role that the informal sector plays in providing income opportunities for the poor is clear. There is some question, however, as to whether the informal sector is merely a holding ground for people awaiting entry into the formal sector and as such is a transitional phase that must be made as comfortable as possible without perpetuating its existence until it is itself

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absorbed by the formal sector or whether it is here to stay and should in fact be promoted as a major source of employment and income for the urban labor force.
In support of the latter view, the formal sector in developing countries often has a small base in terms of output and employment. To absorb future additions to the urban labor force, the formal sector must be able to generate employment at a very high rate. This means that output must grow at an even faster rate, since employment in this sector increases less than proportionately in relation to output. This sort of growth seems highly unlikely in view of current trends. Thus the burden on the informal sector to absorb more labor will continue to grow unless other solutions to the urban unemployment problem are provided. But young people face increasingly difficult job prospects, as can be seen in Figure 7.9.

FIGURE 7.9 Youth Unemployment Rates, 1995 and 2005



The informal sector has demonstrated its ability to generate employment and income for the urban labor force. As pointed out earlier, it is already absorbing an average of 50% of the urban labor force. Some studies have shown the informal sector generating almost one-third of urban income.

WOMEN IN THE INFORMAL SECTOR

In some regions of the world, women predominate among rural-urban migrants and may even comprise the majority of the urban population. Though historically, many of these women were simply accompanying their spouses, a growing number of women in Latin America, Asia, and Africa migrate to seek economic opportunity. With the exception of the export enclaves of East Asia and a few other cities, where everything from computers to running shoes are manufactured, few of these migrants are able to find employment in the formal sector, which is generally dominated by men. As a consequence, women often represent the bulk of the

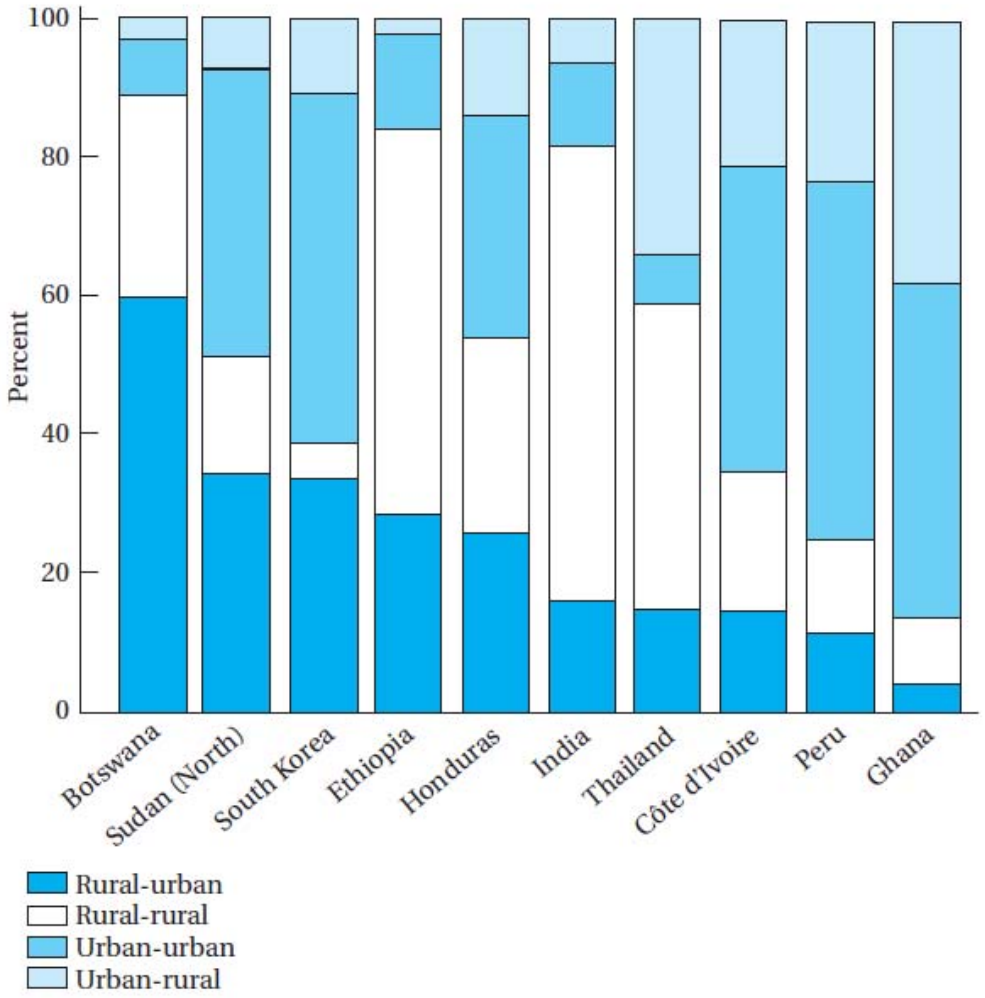
informal-sector labor supply, working for low wages at unstable jobs with no employee or social security benefits. The increase in the number of single female migrants has also contributed to the rising proportion of urban households headed by women, which tend to be poorer, experience tighter resource constraints, and retain relatively high fertility rates. The changing composition of migration flows has important economic and demographic implications for many urban areas of the developing world.

MIGRATION AND DEVELOPMENT

As noted earlier in the chapter, rural-urban migration has been dramatic, and urban development plays an important role in economic development. Rates of rural-urban migration in developing countries have exceeded rates of urban job creation and thus surpassed greatly the absorption capacity of both industry and urban social services.

Migration worsens rural-urban structural imbalances in two direct ways. First, on the supply

FIGURE 7.10 Components of Migration in Selected Countries



side, internal migration disproportionately increases the growth rate of urban job seekers relative to urban population growth, which itself is at historically unprecedented levels because of the high proportion of well-educated young people in the migrant system. Their presence tends to swell the urban labor supply while depleting the rural countryside of valuable human

capital. Second, on the demand side, urban job creation is generally more difficult and costly to accomplish than rural job creation because of the need for substantial complementary resource inputs for most jobs in the industrial sector. Moreover, the pressures of rising urban wages and compulsory employee fringe benefits in combination with the unavailability of appropriate, more labor-intensive production technologies means that a rising share of modern-sector output growth is accounted for by increases in labor productivity. Together this rapid supply increase and lagging demand growth tend to convert a short-run problem of resource imbalances into a long-run situation of chronic and rising urban surplus labor.

Migration patterns are complex. The most important type of migration from the standpoint of long-run development is rural-urban migration, but a great deal of rural-rural, urban-urban, and even urban-rural migration also takes place. Rural-urban migration is most important because the population share of cities is growing, despite the fact that fertility is much lower in urban areas, and the difference is accounted for by rural-urban migration. It is also important because of the potential development benefits of economic activity of cities, due to agglomeration economies and other factors. However, urban-rural migration is important to understand because it usually occurs when hard times in cities coincide with increases in output prices from the country's cash crops, as occurred in Ghana not long ago. Thus the overall picture is one of a remarkable amount of "churning," or continuous movements of people within developing countries, especially over short distances. These movements contradict the popular image of stasis in traditional societies. The composition of internal migration for several countries is shown in Figure 7.10.

Lesson 24

URBANIZATION AND RURAL URBAN MIGRATION: THEORY AND POLICY (CONTINUED2)

TOWARD AN ECONOMIC THEORY OF RURAL-URBAN MIGRATION

The economic development of Western Europe and the United States was closely associated with the movement of labor from rural to urban areas. For the most part, with a rural sector dominated by agricultural activities and an urban sector focusing on industrialization, overall economic development in these countries was characterized by the gradual reallocation of labor out of agriculture and into industry through rural-urban migration, both internal and international. Urbanization and industrialization were in essence synonymous. This historical model served as a blueprint for structural change in developing countries, as evidenced, for example, by the original Lewis theory of labor transfer (see Chapter 3). But the overwhelming evidence of the past several decades, when developing nations witnessed a massive migration of their rural populations into urban areas despite rising levels of urban unemployment and underemployment, lessens the validity of the Lewis two-sector model of development. An explanation of the phenomenon, as well as policies to address the resulting problems, must be sought elsewhere. One theory to explain the apparently paradoxical relationship of accelerated rural-urban migration in the context of rising urban unemployment has come to be known as the Todaro migration model and in its equilibrium form as the Harris-Todaro model.

TODARO MIGRATION MODEL

A theory that explains rural-urban migration as an economically rational process despite high urban unemployment. Migrants calculate (present value of) urban expected income (or its equivalent) and move if this exceeds average rural income.

HARRIS-TODARO MODEL

An equilibrium version of the Todaro migration model that predicts that expected incomes will be equated across rural and urban sectors when taking into account informal sector activities and outright unemployment.

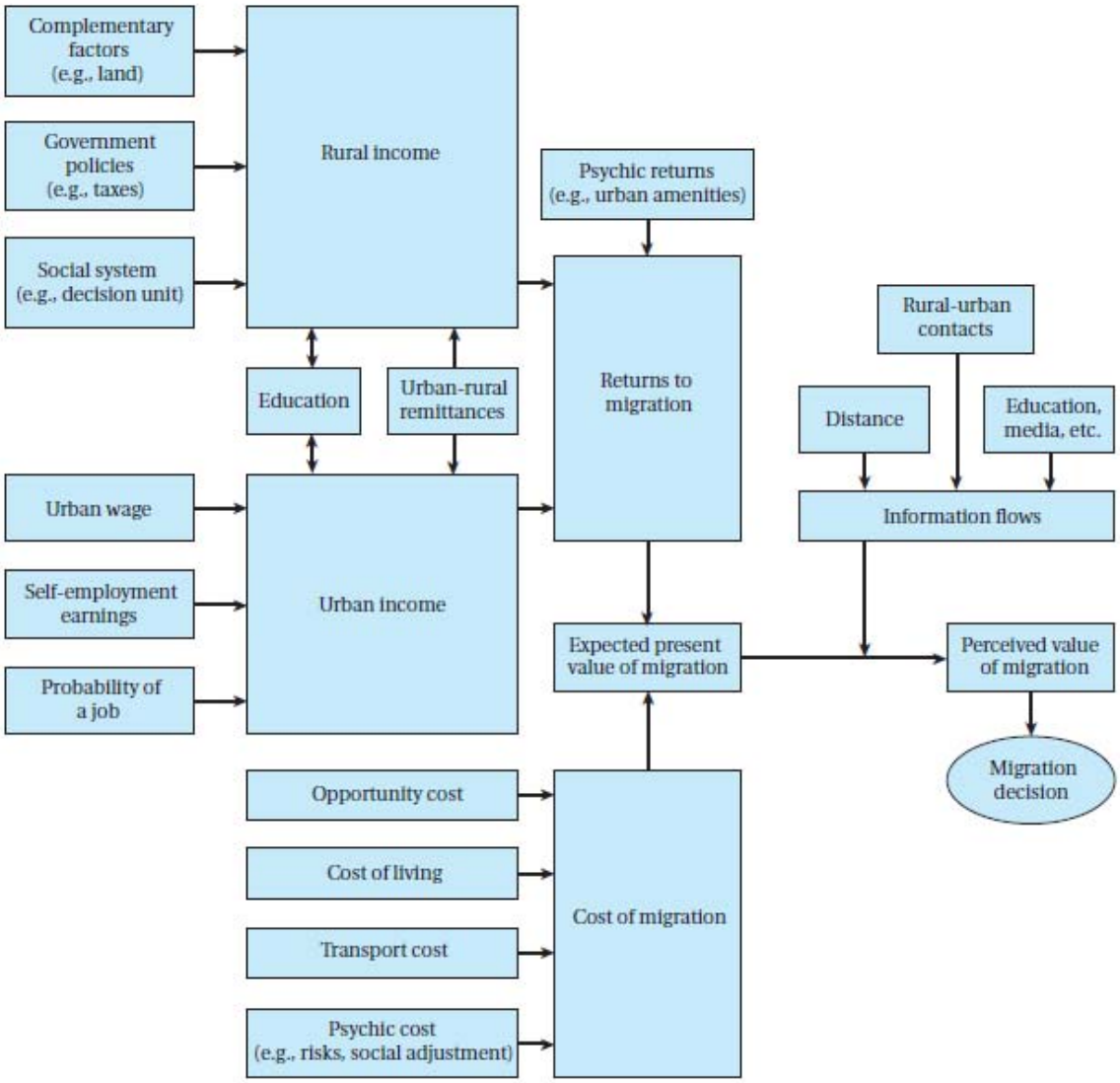
A VERBAL DESCRIPTION OF THE TODARO MODEL

Starting from the assumption that migration is primarily an economic phenomenon, which for the individual migrant can be a quite rational decision despite the existence of urban unemployment, the Todaro model postulates that migration proceeds in response to urban-rural differences in expected income rather than actual earnings. The fundamental premise is that migrants consider the various labor market opportunities available to them in the rural and urban sectors and choose the one that maximizes their expected gains from migration. A schematic framework showing how the varying factors affecting the migration decision interact is given in Figure 7.11.

In essence, the theory assumes that members of the labor force, both actual and potential, compare their expected incomes for a given time horizon in the urban sector (the difference between returns and costs of migration) with prevailing average rural incomes and migrate if the former exceeds the latter.

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FIGURE 7.11 Schematic Framework for Analyzing the Rural-to-Urban Migration Decision



Consider the following illustration. Suppose that the average unskilled or semiskilled rural worker has a choice between being a farm laborer (or working his own land) for an annual average real income of, say, 50 units or migrating to the city, where a worker with his skill or educational background can obtain wage employment yielding an annual real income of 100 units. The more commonly used economic models of migration, which place exclusive emphasis on the income differential factor as the determinant of the decision to migrate, would indicate a clear choice in this situation. The worker should seek the higher-paying urban job. It is important to recognize, however, that these migration models were developed largely in the context of advanced industrial economies and hence implicitly assume the existence of full or near-full employment. In a full-employment environment, the decision to migrate can be based solely on the desire to secure the highest-paid job wherever it becomes available. Simple economic theory would then indicate that such migration should lead to a reduction in wage differentials through the interaction of the forces of supply and demand, in areas of both emigration and immigration.

Unfortunately, such an analysis is not realistic in the context of the institutional and economic framework of most developing nations. First, these countries are beset by a chronic unemployment problem, which means that a typical migrant cannot expect to secure a high-paying urban job immediately. In fact, it is much more likely that on entering the urban labor market, many uneducated, unskilled migrants will either become totally unemployed or will seek casual and part-time employment as vendors, hawkers, repairmen, and itinerant day laborers in the urban traditional or informal sector, where ease of entry, small scale of operation, and relatively competitive price and wage determination prevail. In the case of migrants with considerable human capital in the form of a secondary or university certificate, opportunities are much better, and many will find formal-sector jobs relatively quickly. But they constitute only a small proportion of the total migration stream.

Consequently, in deciding to migrate, the individual must balance the probabilities and risks of being unemployed or underemployed for a considerable period of time against the positive urban rural real income differential. The fact that a typical migrant who gains a modern- sector job can expect to earn twice the annual real income in an urban area than in a rural environment may be of little consequence if the actual probability of his securing the higher-paying job within, say, a one-year period is one chance in five. Thus, the actual probability of his being successful in securing the higher-paying urban job is 20%, and therefore his expected urban income for the one-year period is in fact 20 units and not the 100 units that an urban worker in a full-employment environment would expect to receive. So with a one-period time horizon and a probability of success of 20%, it would be irrational for this migrant to seek an urban job, even though the differential between urban and rural earnings capacity is 100%. However, if the probability of success were 60% and the expected urban income therefore 60 units, it would be entirely rational for our migrant with his one-period time horizon to try his luck in the urban area, even though urban unemployment may be extremely high.

If we now approach the situation by assuming a considerably longer time horizon—a more realistic assumption, especially in view of the fact that the vast majority of migrants are between the ages of 15 and 24—the decision to migrate should be represented on the basis of a longer-term, more permanent income calculation. If the migrant anticipates a relatively low probability of finding regular wage employment in the initial period but expects this probability to increase over time as he is able to broaden his urban contacts, it would still be rational for him to migrate, even though expected urban income during the initial period or periods might be lower than expected rural income. As long as the present value of the net stream of expected urban income over the migrant's planning horizon exceeds that of the expected rural income, the decision to migrate is justifiable. This, in essence, is the process depicted in Figure 7.11.

Rather than equalizing urban and rural wage rates, as would be the case in a competitive model, we see that rural-urban migration in our model equates rural and urban expected incomes. For example, if average rural income is 60 and urban income is 120, a 50% urban unemployment rate would be necessary before further migration would no longer be profitable. Because expected incomes are defined in terms of both wages and employment probabilities, it is possible to have continued migration despite the existence of sizable rates of urban unemployment. In our example, migration would continue even if the urban unemployment rate were 30% to 40%.

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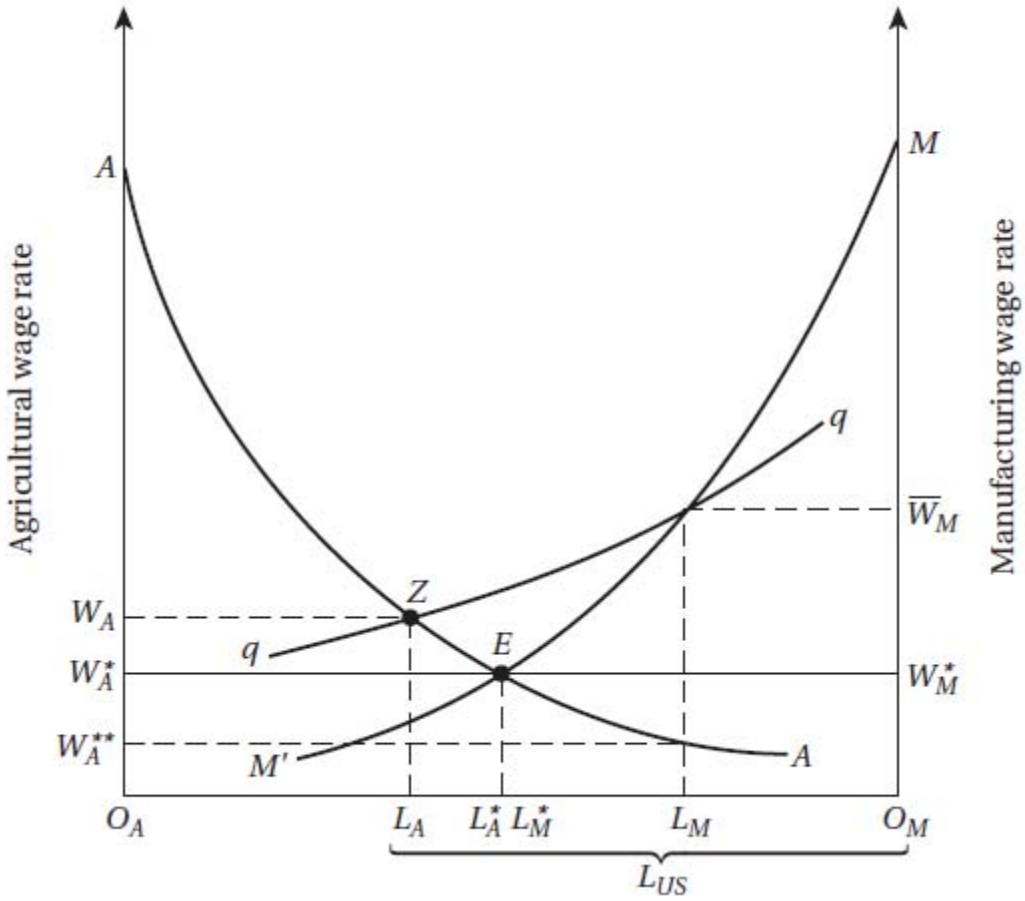
THE HARRIS-TODARO MIGRATION MODEL

A DIAGRAMMATIC PRESENTATION

This process of achieving unemployment equilibrium between urban expected wages and average rural income rather than an equalized rural-urban wage as in the traditional neoclassical free-market model can also be explained by a diagrammatic portrayal of the basic Harris-Todaro model. This is done in Figure 7.12. Assume only two sectors, rural agriculture and urban manufacturing. The demand for labor (the marginal product of labor curve) in agriculture is given by the negatively sloped line **AA'**. Labor demand in manufacturing is given by **MM'** (reading from right to left). The total labor force is given by line $\mathbf{O_AO_M}$. In a neoclassical, flexible-wage, full-employment market economy, the equilibrium wage would be established at $\mathbf{W_{A^*} = W_{M^*}}$, $\mathbf{O_AL_{A^*}}$ with workers in agriculture and $\mathbf{O_AL_{M^*}}$ workers employed in urban manufacturing. All available workers are therefore employed.

But what if urban wages are institutionally determined (inflexible downward) as assumed by

FIGURE 7.12 The Harris-Todaro Migration Model



Todaro at a level $\overline{W}_M$, which is at a considerable distance above W_{A^*}? If for the moment we continue to assume that there is no unemployment, $\mathbf{O_ML_M}$ workers would get urban jobs, and the rest, $\mathbf{O_AL_M}$, would have to settle for rural employment at $O_A\overline{W}_A$ wages. So now we have an urban-rural real wage gap of $\overline{W}_M$ $\overline{W}_A$, with $\overline{W}_M$ institutionally fixed. If rural workers were free

to migrate (as they are almost everywhere except China), then despite the availability of only $O_M L_M$ jobs, they are willing to take their chances in the urban job lottery. If their chance (probability) of securing one of these favored jobs is expressed by the ratio of employment in manufacturing, L_M, to the total urban labor pool, L_{US}, then the expression:

$$W_A = \frac{L_M}{L_{US}(W_M)}$$

Shows the probability of urban job success necessary to equate agricultural income W_A with urban expected income (L_M/L_{US})(W_M), thus causing a potential migrant to be indifferent between job locations. The locus of such points of indifference is given by the curve **qq'** in Figure 7.12. The new unemployment equilibrium now occurs at point **Z**, where the urban-rural actual wage gap is W_M -$W_A O_A L_A$ workers are still in the agricultural sector, and $O_M L_M$ of these workers have modern (formal)-sector jobs paying W_M wages. The rest, $O_M L_A$-$O_M L_M$, are either unemployed or engaged in low-income informal-sector activities. This explains the existence of urban unemployment and the private economic rationality of continued rural-to-urban migration despite this high unemployment. However, although it may be privately rational from a cost-benefit perspective for an individual to migrate to the city despite high unemployment, it can, as will soon become clear, be socially very costly.

There are many ways to extend the model; here we mention four. First, Equation 7.1 simplifies by assuming that those who migrate and do not get a modern job receive no income; but if they instead receive urban informal-sector income, we modify expected income accordingly.26 Second, note that if instead of assuming that all urban migrants are the same, we incorporate the reality of different levels of human capital (education), we can understand why a higher proportion of the rural educated migrate than the uneducated—because they have a better chance (a higher probability) of earning even higher urban wages than unskilled migrants.

Third, we often observe that migrants from the same rural region tend to settle in common cities, even the same neighborhoods of cities that are relatively distant from the migrants' place of origin. In a model proposed by William Carrington, Enrica Detragiache, and Tara Vishwanath, earlier migrants create a positive externality for later potential migrants from their home region by lowering their costs of moving by helping with resettlement and lowering their probability of unemployment by providing them with jobs or information about available jobs. Thus the search for employment, selection into the migration decision, and forward-looking behavior may all be incorporated into an equilibrium migration model.

Fourth, The Todaro and Harris-Todaro models are relevant to developing countries even if the wage is not fixed by institutional forces, such as a minimum wage. Recent theoretical research on rural-urban migration has confirmed that the emergence of a high modern-sector wage alongside unemployment or an urban traditional sector as seen in these models can also result from market responses to imperfect information, labor turnover, efficiency wage payments, and other common features of labor markets.

LABOR TURNOVER

Worker separations from employers, a concept used in theory that the urban-rural wage gap is partly explained by the fact that urban modern-sector employers pay higher wages to reduce labor turnover rates and retain trained and skilled workers.

EFFICIENCY WAGE

The notion that modern-sector urban employers pay a higher wage than the equilibrium wage rate in order to attract and retain a higher-quality workforce or to obtain higher productivity on the job.

To sum up, the Todaro migration model has four basic characteristics:

1. Migration is stimulated primarily by rational economic considerations of relative benefits and costs, mostly financial but also psychological.
2. The decision to migrate depends on expected rather than actual urban rural real-wage differentials where the expected differential is determine by the interaction of two variables, the actual urban-rural wage differential and the probability of successfully obtaining employment in the urban sector.
3. The probability of obtaining an urban job is directly related to the urban employment rate and thus inversely related to the urban unemployment rate.
4. Migration rates in excess of urban job opportunity growth rates are not only possible but also rational and even likely in the face of wide urban rural expected income differentials. High rates of urban unemployment are therefore inevitable outcomes of the serious imbalance of economic opportunities between urban and rural areas in most underdeveloped countries.

FIVE POLICY IMPLICATIONS

Although the Todaro theory might at first seem to devalue the critical importance of rural-urban migration by portraying it as an adjustment mechanism by which workers allocate themselves between rural and urban labor markets, it does have important policy implications for development strategy with regard to wages and incomes, rural development, and industrialization.

First, imbalances in urban-rural employment opportunities caused by the urban bias, particularly first-city bias, of development strategies must be reduced. Because migrants are assumed to respond to differentials in expected incomes, it is vitally important that imbalances between economic opportunities in rural and urban sectors be minimized. When urban wage rates rise faster than average rural incomes, they stimulate further rural-urban migration in spite of rising levels of urban unemployment. This heavy influx of people into urban areas not only gives rise to socioeconomic problems in the cities but may also eventually create problems of labor shortages in rural areas, especially during the busy seasons. These social costs may exceed the private benefits of migration.

Second, urban job creation is an insufficient solution for the urban unemployment problem. The traditional (Keynesian) economic solution to urban unemployment (the creation of more urban modern-sector jobs without simultaneous attempts to improve rural incomes and employment opportunities) can result in the paradoxical situation where more urban employment leads to higher levels of urban unemployment! Once again, the imbalance in expected income-earning opportunities is the crucial concept. Because migration rates are assumed to respond positively to both higher urban wages and higher urban employment opportunities (or probabilities), it follows that for any given positive urban-rural wage differential (in most developing countries, urban wages are typically three to four times as large as rural wages), higher urban employment rates will widen the expected differential and induce even higher rates of rural-urban migration. For every new job created, two or three migrants who were productively occupied in rural areas

may come to the city. Thus, if 100 new jobs are created, there may be as many as 300 new migrants and therefore 200 more urban unemployed. Hence a policy designed to reduce urban unemployment may lead not only to higher levels of urban unemployment but also to lower levels of agricultural output due to induced migration.

Third, indiscriminate educational expansion will lead to further migration and unemployment. The Todaro model also has important policy implications for curtailing public investment in higher education. The heavy influx of rural migrants into urban areas at rates much in excess of new employment opportunities necessitates rationing in the selection of new employees. Although within each educational group such selection may be largely random, many observers have noted that employers tend to use educational attainment or number of years of completed schooling as the typical rationing device. For the same wage, they will hire people with more education in preference to those with less, even though extra education may not contribute to better job performance. Jobs that could formerly be filled by those with a primary education (sweepers, messengers, filing clerks, etc.) now require secondary training; those formerly requiring a secondary certificate (clerks, typists, bookkeepers, etc.) must now have a university degree. It follows that for any given urban wage, if the probability of success in securing a modern-sector job is higher for people with more education, their expected income differential will also be higher, and they will be more likely to migrate to the cities. The basic Todaro model therefore provides an economic explanation for the observed fact in most developing countries that rural inhabitants with more education are more likely to migrate than those with less.

Fourth, wage subsidies and traditional scarcity factor pricing can be counterproductive. As noted in Chapter 5 and Appendix 5.1, a standard economic policy prescription for generating urban employment opportunities is to eliminate factor price distortions by using “correct” prices, perhaps implemented by wage subsidies (fixed government subsidies to employers for each worker employed) or direct government hiring. Because actual urban wages generally exceed the market or “correct” wage as a result of a variety of institutional factors, it is often argued that the elimination of wage distortions through price adjustments or a subsidy system will encourage more labor-intensive modes of production. Although such policies can generate more labor-intensive modes of production, they can also lead to higher levels of unemployment in accordance with our argument about induced migration. The overall welfare impact of a wage subsidy policy when both the rural and urban sectors are taken into account is not immediately clear. Much will depend on the level of urban unemployment, the size of the urban-rural expected-income differential, and the magnitude of induced migration as more urban jobs are created.

Finally, programs of integrated rural development should be encouraged. Policies that operate only on the demand side of the urban employment picture, such as wage subsidies, direct government hiring, elimination of factor price distortions, and employer tax incentives, are probably far less effective in the long run in alleviating the unemployment problem than policies designed directly to regulate the supply of labor to urban areas. Clearly, however, some combination of both kinds of policies is most desirable.

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Lesson 25

AGRICULTURAL TRANSFORMATION AND RURAL DEVELOPMENT

THE IMPERATIVE OF AGRICULTURAL PROGRESS AND RURAL DEVELOPMENT

If the migration of people with and without school certificates to the cities of Africa, Asia, and Latin America is proceeding at historically unprecedented rates, a large part of the explanation can be found in the economic stagnation of outlying rural areas. Despite real progress, nearly 2 billion people in the developing world grind out a meager and often inadequate existence in agricultural pursuits. Over 3.1 billion people lived in rural areas in developing countries in 2010, a quarter of them in extreme poverty. People living in the countryside make up more than half of the population of such diverse Latin American and Asian nations as Haiti, Guatemala, India, Indonesia, Myanmar, Honduras, Sri Lanka, Pakistan, Bangladesh, the Philippines, Thailand, and China. In sub-Saharan Africa, the ratios are much higher, with rural dwellers constituting 65% of the total population.

Of greater importance than sheer numbers is the fact that well over two thirds of the world's poorest people are also located in rural areas and engaged primarily in subsistence agriculture. Their basic concern is survival. Many hundreds of millions of people have been bypassed by whatever economic progress their nations have attained. The United Nations Food and Agriculture Organization estimated that in 2009, for the first time, over 1 billion people did not have enough food to meet their basic nutritional needs. In the daily struggle to subsist, farmer behavior in developing countries often seemed irrational to many observers who until recently had little comprehension of the precarious nature of subsistence living and the importance of avoiding risks. If development is to take place and become self-sustaining, it will have to include the rural areas in general and the agricultural sector in particular. The core problems of widespread poverty, growing inequality, and rapid population growth all originate in the stagnation and often retrogression of economic life in rural areas, particularly in Africa.

Traditionally in economic development, agriculture has been assumed to play a passive and supportive role. Its primary purpose was to provide sufficient low-priced food and manpower to the expanding industrial economy, which was thought to be the dynamic "leading sector" in any overall strategy of economic development. Lewis's famous two-sector model, discussed in Chapter 3, is an example of a theory of development that places heavy emphasis on rapid industrial growth with an agricultural sector fueling this industrial expansion by means of its cheap food and surplus labor. Nobel laureate Simon Kuznets introduced an early schema, noting that agriculture made four "contributions to economic development": the product contribution of inputs for industry such as textiles and food processing, the foreign-exchange contribution of using agricultural export revenues to import capital equipment, the market contribution of rising rural incomes creating more demand for consumer products, and the factor market contribution, divided between the labor contribution (Lewis's manpower)— workers not needed on farms after agricultural productivity was raised could then work in industry—and the capital contribution (some farm profits could be reinvested in industry as agriculture became a steadily smaller fraction of national income). The capital contribution has been misapplied as a "squeezing of the peasantry," but it meant investing first in agriculture and later reaping profits that would be partially reinvested in industry. As can be seen from this description, however, the framework implicitly— and ironically—still treats industrialization rather than rural modernization as the core development goal.

Today, most development economists share the consensus that far from playing a passive, supporting role in the process of economic development, the agricultural sector in particular and the rural economy in general must play an indispensable part in any overall strategy of economic progress, especially for the low-income developing countries.

An agriculture- and employment-based strategy of economic development requires three basic complementary elements: (1) accelerated output growth through technological, institutional, and price incentive changes designed to raise the productivity of small farmers; (2) rising domestic demand for agricultural output derived from an employment-oriented urban development strategy; and (3) diversified, nonagricultural, labor-intensive rural development activities that directly and indirectly support and are supported by the farming community. To a large extent, therefore, agricultural and rural development has come to be regarded by many economists as the sine qua non of national development. Without such integrated rural development, in most cases, industrial growth either would be stultified or, if it succeeded, would create severe internal imbalances in the economy.

Six main questions, therefore, need to be asked about agricultural and rural development as it relates to overall national development:

1. How can total agricultural output and productivity per capita be substantially increased in a manner that will directly benefit the average small farmer and the landless rural dweller while providing a sufficient food surplus to promote food security and support a growing urban, industrial sector?
2. What is the process by which traditional low-productivity peasant farms are transformed into high-productivity commercial enterprises?
3. When traditional family farmers and peasant cultivators resist change, is their behavior stubborn and irrational, or are they acting rationally within the context of their particular economic environment?
4. What are the effects of the high risks faced by farmers in low-income countries, how do farm families cope with these risks, and what policies are appropriate to lessen risk?
5. Are economic and price incentives sufficient to elicit output increases among peasant agriculturalists, or are institutional and structural changes in rural farming systems also required?
6. Is raising agricultural productivity sufficient to improve rural life, or must there be concomitant off-farm employment creation along with improvements in educational, medical, and other social services? In other words, what do we mean by rural development, and how can it be achieved?

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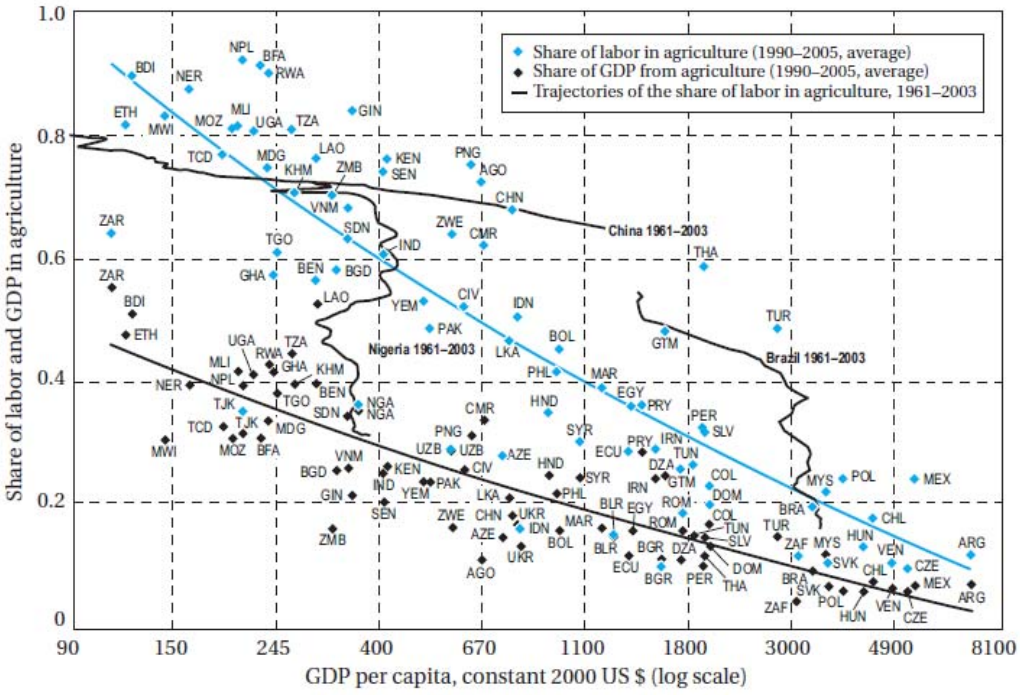
AGRICULTURAL GROWTH: PAST PROGRESS AND CURRENT CHALLENGES

TRENDS IN AGRICULTURAL PRODUCTIVITY

The ability of agricultural production to keep pace with world population growth has been impressive, defying some neo-Malthusian predictions that global food shortages would have emerged by now. And it has actually been output gains in the developing world that have led the way. According to World Bank estimates, the developing world experienced faster growth in the value of agricultural output (2.6% per year) than the developed world (0.9% per year) over the period 1980 to 2004. Correspondingly, developing countries' share of global agricultural GDP rose from 56% to 65% in this period, far higher than their 21% share of world nonagricultural GDP. And research by International Food Policy Research Institute points up that a wide range of successful programs have reduced hunger while raising agricultural productivity over the last several decades, including Green Revolution successes in Asia; containment of wheat rusts; improved maize and pest-resistant cassavas in sub-Saharan Africa; shallow tube wells for rice and homestead food production in Bangladesh; hybrid rice and mung bean improvement in East Asia; pearl millet and sorghum and smallholder dairy marketing in India; improved tilapia in the Philippines; successful land tenure reform in China and Vietnam; cotton reforms in Burkina Faso; and improvements of markets in Kenya.

As Figure 9.1 shows, low-income countries tend to have the highest share of the labor force in agriculture, sometimes as much as 80% to 90%. The share of agriculture in GDP is lower but can represent as much as half of the value of output. These shares both tend to fall as GDP per capita rises: This is one of the broad patterns of economic development (see Chapter 3). But

FIGURE 9.1 As Countries Develop, the Shares of GDP and Labor in Agriculture Tend to Decline, but with Many Idiosyncrasies

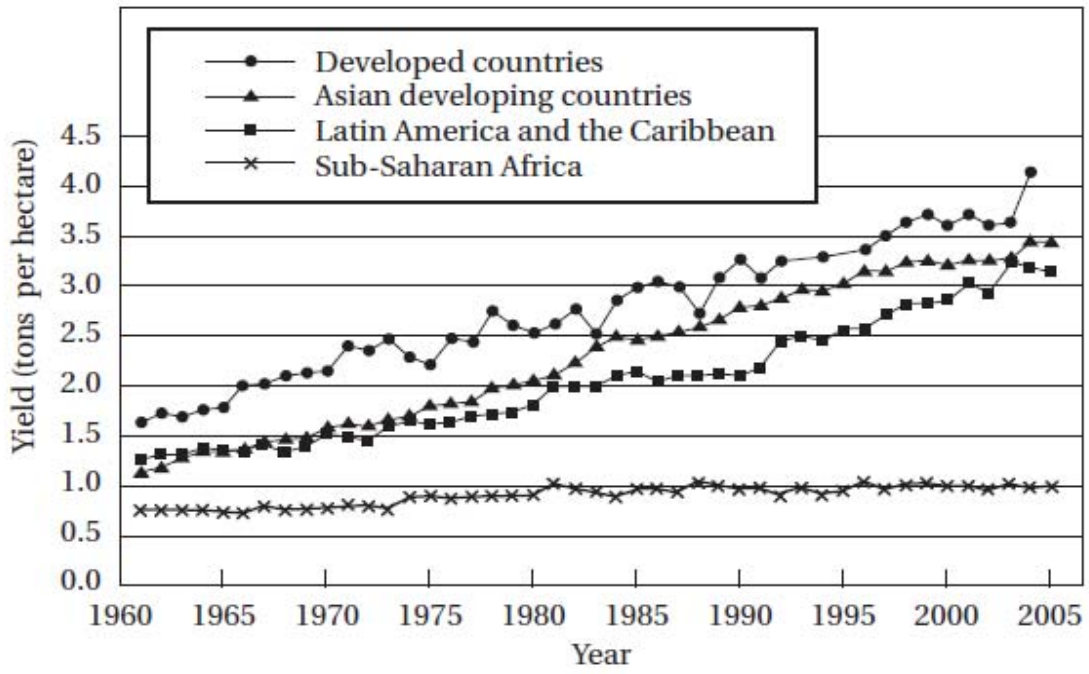


attention to the time paths of the share of agriculture in specific countries reveals a great deal of variation, which is also informative. In particular, sometimes the share of labor in agriculture

declines greatly even when GDP per capita does not increase much if at all; examples are seen in the time paths of Nigeria and Brazil, as traced out in Figure 9.1. This finding parallels the observation in the Chapter 7, that urbanization is proceeding in many countries even when per capita income is falling or not rising much. Problems in the agricultural sector can suppress incomes, encouraging more migration to the urban informal sector. We will review the most important problems of developing country agriculture in this chapter. Figure 9.1 also illustrates the time path of China, in which growth has been extremely rapid but the fall of the share of labor in agriculture has been unusually slow due in significant part to restrictions on rural-urban migration (after 2004, the pace of urbanization increased).

In marked contrast to the historical experience of advanced countries' agricultural output in their early stages of growth, which always contributed at least as much to total output as the share of the labor force engaged in these activities, the fact that contemporary agricultural employment in developing countries is much higher than agricultural output reflects the relatively low levels of labor productivity compared with those in manufacturing and commerce. Agricultural production continues to rise around the world, broadly keeping pace with the rising population. But progress has been very uneven, as seen in Figure 9.2. In Asian developing countries, cereal yields per hectare in 2005 were nearly triple their 1960 levels. Production in Latin America also posted strong gains. Hunger in China fell. Agriculture in South Asia performed well, although hunger is thought to have increased in India in recent years. And in sub- Saharan Africa, yields increased by only about one-third. One of the causes is that in many areas of Africa, the population has reached a size where traditional slash-and-burn agricultural practices

FIGURE 9.2 Cereal Yields by World Region, 1960–2005



are no longer feasible without reusing land after too little rest, resulting in significant deterioration of soil nutrients. But subsistence farmers cannot purchase improved seeds, fertilizers, and other essentials of modern agriculture; the result can be a poverty trap in which farmers must work harder and harder just to stay in place.

The United Nations Food and Agriculture Organization (FAO) has repeatedly warned of catastrophic food shortages. It has estimated that of Africa's 750 million people, more than 270 million suffer from some form of malnutrition associated with inadequate food supplies. The severe famine of 1973–1974 took the lives of hundreds of thousands and left many more with permanent damage from malnutrition across the continent in the Sahelian belt that stretches below the Sahara from Cape Verde, off the coast of Senegal in the west, all the way to Ethiopia in the east.

Four times in the 1980s and 1990s, at least 22 African nations faced severe famine. In the 2000s, famine again seriously affected African countries as widely separated as Mauritania in the northwest, Ethiopia and Eritrea in the east, and Angola, Zambia, Zimbabwe, Malawi, and Mozambique across the south. By 2007, calls to mount a new green revolution in Africa like the successful one in Asia, which had been falling on deaf ears, were starting to get the hearing they deserved, with public, private, and nonprofit sector actors getting involved—including major support from the Alliance for a Green Revolution in Africa (AGRA), chaired by former UN secretary general Kofi Annan. Technical advances are clearly needed, and institutional and social transformation on the ground will also be needed to achieve the goals of rural development. The African Union's peer-review NEPAD initiative developed the Comprehensive Africa Agricultural Development Program to emphasize investments and regional cooperation in agriculture-led growth as a main strategy to achieve the first Millennium Development Goal of halving hunger and poverty. It targets the allocation of 10% of national budgets to agriculture and a 6% rate of growth in the agriculture sector at the national level.

One early success is in work at the Africa Rice Center in Benin to develop varieties of New Rice for Africa (NERICA). These have so far proven beneficial in Benin, Uganda, and The Gambia, with apparently greater impact on women farmers than men farmers. It is not easy to replicate successes across Africa, however; for example NERICA varieties have not helped in Guinea and Côte d'Ivoire. And food production will not automatically solve the problems of hunger among people living in poverty. The food price spike of 2007–2008 highlighted the continuing vulnerabilities, and the number of the world's malnourished surpassed the billion mark for the first time. Some of the causes were temporary factors. But expert predictions are for high food prices in the longer term.

As Nora Lustig has summarized, some of the causes of the 2007–2008 food price spike also reflect longer-term forces that will lead to high future food prices, including diversion of food to biofuels production, increase in food demand including land using meat production due to higher incomes in China and elsewhere, the slowdown in productivity growth of agricultural commodities, higher energy prices affecting agricultural input costs, running out of new land to be brought into farming, and the negative impact of climate change on developing- country food production. These are exacerbated by a number of unfavorable policies including various forms of interference with food prices. Furthermore, there is not a large global market for food in relation to total demand. Most countries strive for food self-sufficiency, largely for national security reasons. Embargoes of food exports by such countries as Egypt, Vietnam, and Russia reflect this reluctance. The world will soon find itself having to manage to feed over 9 billion people. While highlighting impressive successes, we must also keep in mind looming challenges.

MARKET FAILURES AND THE NEED FOR GOVERNMENT POLICY

A major reason for the relatively poor performance of agriculture in low income regions has been the neglect of this sector in the development priorities of their governments, which the

initiatives just described, are intended to overcome. This neglect of agriculture and the accompanying bias toward investment in the urban industrial economy can in turn be traced historically to the misplaced emphasis on rapid industrialization via import substitution and exchange rate overvaluation (see Chapter 12) that permeated development thinking and strategy during the postwar decades.

If agricultural development is to receive a renewed emphasis, what is the proper role for government? In fact, one of the most important challenges for agriculture in development is to get the role of government right. A major theme of development agencies in the 1980s was to reduce government intervention in agriculture. Indeed, many of the early interventions did more harm than good; an extreme example is government requirements for farmers to sell at a low price to state marketing boards, an attempt to keep urban food prices low. Production subsidies, now spreading like a contagion from high-income to middle-income countries, are costly and inefficient. Agriculture is generally thought of as a perfectly competitive activity, but this does not mean that there are no market failures and no role for government. In fact, market failures in the sector are quite common and include environmental externalities, the public good character of agricultural research and development and extension services, economies of scale in marketing, information asymmetries in product quality, and monopoly power in input supply, in addition to the more general government roles of providing institutions and infrastructure. Despite many failures, sometimes government has been relatively effective in these roles, as in Asia during its green revolution.

But government also has a role in agriculture simply because of its necessary role in poverty alleviation—and a large majority of the world's poor are still farmers. Poverty itself prevents farmers from taking advantage of opportunities that could help pull them out of poverty. Lacking collateral, they cannot get credit. Lacking credit, they may have to take their children out of school to work, transmitting poverty across generations. Lacking health and nutrition, they may be unable to work well enough to afford better health and nutrition. With a lack of information and missing markets, they cannot get insurance. Lacking insurance, they cannot take what might seem favorable risks for fear of falling below subsistence. Without middlemen, they cannot specialize (and without specialization, middlemen lack incentives to enter). Being socially excluded because of ethnicity, caste, language, or gender, they are denied opportunities, which keep them excluded. These poverty traps are often all but impossible to escape without assistance. In all of these areas, NGOs can and do step in to help (Chapter 11), but government is needed to at least play a facilitating role.

These two functions are closely related. Many market failures, such as missing markets and capital market failures, sharply limit the ability of poor farmers to take advantage of opportunities of globalization when governments liberalize trade, for example. If these problems are not addressed prior to deregulation or making other structural changes, the poor can remain excluded and even end up worse off. A key role for government, then, is to ensure that growth in agriculture is shared by the poor. In some countries, impressive agricultural growth has occurred without the poor receiving proportional benefits. Examples include Brazil, with its extremely unequal land distribution, and Pakistan, with its social injustices and inequality of access to key resources such as irrigation. But by including the poor, the human and natural resources of a developing nation are more fully employed, and that can result in an increased rate of growth as well as poverty reduction.

Lesson 26

AGRICULTURAL TRANSFORMATION AND RURAL DEVELOPMENT (CONTINUED1)

THE STRUCTURE OF AGRARIAN SYSTEMS IN THE DEVELOPING WORLD

THREE SYSTEMS OF AGRICULTURE

A first step toward understanding what is needed for further agricultural and rural development progress is a clear perspective of the nature of agricultural systems in diverse developing regions and, in particular, of the economic aspects of the transition from subsistence to commercial agriculture.



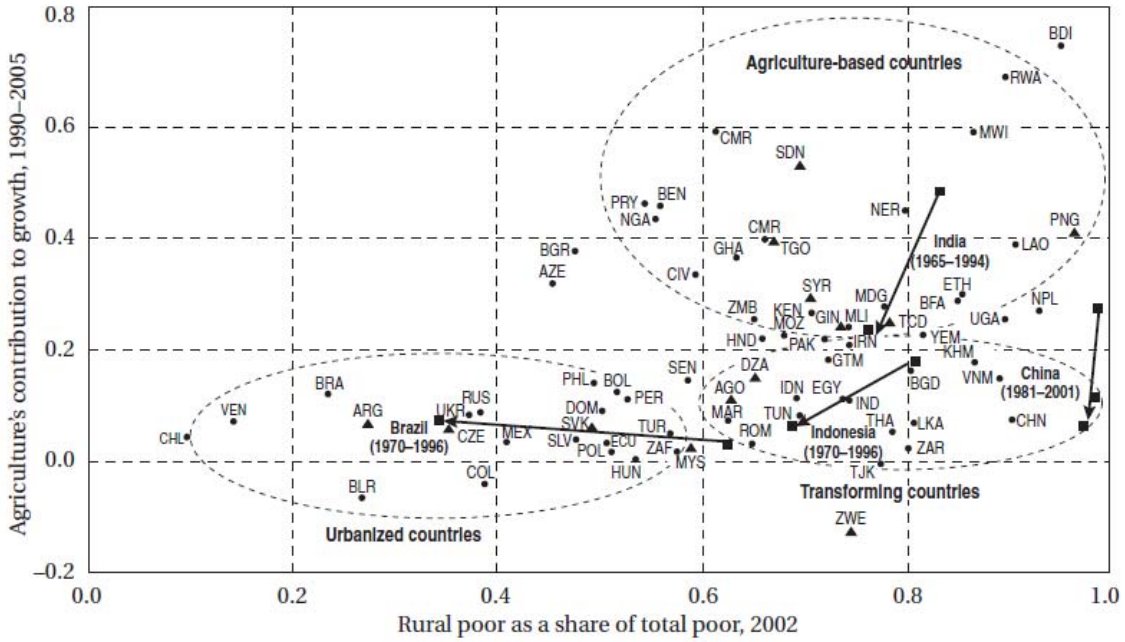
One helpful way to categorize world agriculture, proposed by the agricultural development economist Alain de Janvry and his colleagues in the World Bank's 2008 World Development Report, is to see that alongside advanced agricultural systems in developed countries, three quite different situations are found among developing countries.

First, in what the report terms agriculture-based countries, agriculture is still a major source of economic growth—although mainly because agriculture makes up such a large share of GDP. The World Bank estimates that agriculture accounts for some 32% of GDP growth on average in these countries, in which 417 million people live. More than two-thirds of the poor of these countries live in rural areas. Some 82% of the rural population of sub-Saharan Africa lives in these countries. It also includes a few countries outside the region, such as Laos. And a few African countries, such as Senegal, are undergoing transformation.

Second, most of the world's rural people—some 2.2 billion—live in what the report categorizes as transforming countries, in which the share of the poor who are rural is very high (almost 80% on average) but agriculture now contributes only a small share to GDP growth (7% on average). Most of the population of South and East Asia, North Africa, and the Middle East lives in these countries, along with some outliers such as Guatemala. Third, in what the report calls urbanized countries, rural-urban migration has reached the point at which nearly half, or more, of the poor are found in the cities, and agriculture tends to contribute even less to output growth. The urbanized countries are largely found in Latin America and the Caribbean, along with developing Eastern Europe and Central Asia, and contain about 255 million rural dwellers.

In many cases, the position of countries within these groups is not stagnant. Many countries that were in the agriculture-based category moved to the transforming category in recent decades, most prominently India and China. Figure 9.3 shows some of the country positions in each group, along with the movement over time for four major countries over an approximately three-decade period: China, India, Indonesia, and Brazil. For example, Brazil has moved from being a borderline transforming country to a solidly urbanized one according to the World Bank classification.

FIGURE 9.3 Agriculture's Contribution to Growth and the Rural Share in Poverty in Three Types of Countries



Agricultural productivity varies dramatically across countries. Table 9.1 shows variations in land productivity (measured as kilograms of grain harvested per hectare of agricultural land) between three developed countries (United Kingdom, Japan, and United States) and nine developing countries. Despite the far smaller number of farm workers per hectare in the United Kingdom, its grain yield per hectare was 3 times that of India, 6 times that of Nigeria, and almost 12 times that of Sudan.

TABLE 9.1 Land Productivity in Developed and Developing Countries

Country	Agricultural Productivity (value added per worker, U.S. $,2005–2007)	Average Grain Yield (kilograms per hectare, 2006–2008)	Population (millions), 2008
Developed			
United States	45,015	6,578	304
Japan	39,368	5,977	128
United Kingdom	28,065	7,110	61
Developing			
Brazil	3,315	3,531	192
Mexico	3,022	3,341	106
Russian Federation	2,914	2,092	142
Sudan	844	600	41
Indonesia	657	4,508	227
India	460	2,574	1,140
Bangladesh	387	3,896	160
Kenya	367	1,621	39
Dem. Rep. of Congo	162	772	64

It is also important to note that regional disparities can be quite large within countries. India has regions that fall within each of the three classifications, from modernized Punjab to semi-feudal Bihar. Even upper-middle-income, urbanized Mexico has regions in the south with substantial poverty and high dependence on agriculture. Moreover, within regions, large and small, rich and poor often exist side by side—though large does not necessarily mean efficient. Let us look at agricultural issues facing countries in Latin America, Asia, and sub-Saharan Africa in more detail.

PEASANT AGRICULTURE IN LATIN AMERICA, ASIA, AND AFRICA

In many developing countries, various historical circumstances have led to a concentration of large areas of land in the hands of a small class of powerful landowners. This is especially true in Latin America and parts of the Asian subcontinent. In Africa, both historical circumstances and the availability of relatively more unused land have resulted in a different pattern and structure of agricultural activity.

TABLE 9.2 Distribution of Farms and Farmland by Operational Farm Size and Land Tenure Status in Selected Developing Countries in Asia and Latin America

Country	Average Operational Farm Size (hectares)	Percentage of Farms and Farmland				Gini Coefficient of Land Concentration	Percentage of Tenanted Area in Total Farmland		Percentage of Share Tenancy in Tenanted Land[b]
		Below 5 Hectares		Above 50 Hectares			Pure Tenancy	Total[a]	
		Farms	Area	Farms	Area				
Asia									
Bangladesh	1.6	90.6	67.6	N.A.	N.A.	0.42	N.A.	20.9	91.0
India	2.3	88.7	46.7	0.1	3.7	0.62	2.4	8.5	48.0
Indonesia	1.1	97.9	68.7	0.0[c]	13.6	0.56	2.1	23.6	60.0
Nepal	1.0	97.2	72.1	0.0[c]	0.8	0.56	1.5	13.2	48.3
Philippines	3.6	84.8	47.8	0.2	13.9	0.51	21.4	32.8	79.3
Thailand	3.7	72.3	39.4	0.0[c]	0.9	0.45	6.0	15.5	29.0
Latin America									
Brazil	59.7	36.8	1.3	16.3	84.6	0.84	6.1	10.2	N.A.
Costa Rica	38.1	48.9	1.9	14.5	79.7	0.82	1.2	9.0	9.4
Colombia	26.3	59.6	3.7	8.4	77.7	0.86	5.3	11.5	49.4
Peru	16.9	78.0	8.9	1.9	79.1	0.91	4.5	13.6	0.0[c]
Uruguay	214.1	14.3	0.2	37.6	95.8	0.82	19.1	46.3	4.7
Venezuela	91.9	43.8	0.9	13.6	92.5	0.91	4.5	2.4	N.A.

Although the day-to-day struggle for survival permeates the lives and attitudes of impoverished peasants in both Latin America and Asia (and also Africa, although the rural structure and institutions are considerably different), the nature of their agrarian systems differs markedly. In Latin America, in a number of poorer and more backward areas, the peasants' plight is rooted in the latifundio–minifundio system (to be explained shortly). In Asia, it lies primarily in fragmented and heavily congested dwarf parcels of land. As Table 9.2 shows, the average farm size in Latin America is far larger than in Asia; in all the Asian countries surveyed, average-operation farm size was under 4 hectares, with farm size in Indonesia just 1.1 hectares. In contrast, average-operation farm size ranged from 16.9 to 214.1 hectares in the Latin American countries surveyed. Nevertheless, a substantial number of farms in Latin America consisted of less than 5 hectares, including 36.8% of farms in Brazil and 78.0% of farms in Peru. This is possible because of the huge farmlands controlled by the largest farms in Latin America.

Just as we can draw income Lorenz curves from data on the distribution of income (see Figure 5.1), we can draw land Lorenz curves from data on the distribution of farm holdings among farmers. In this case, the x-axis reports the proportion of total holdings, and the y-axis reports the proportion of total area. Aland Gini may be calculated in a manner analogous to that of the income Gini: It is the ratio of the area between the land Lorenz curve and the 45-degree line, and the whole triangle. Table 9.2 presents land Ginis for representative countries in Asia and Latin America.

The number of farms, the farmed area, and inequality in the distribution of land is not completely rigid but changes over time. Several examples for various periods (depending on available data) are given in Table 9.3. One of the broadest trends is for farm sizes to become smaller over time in Asia as land is subdivided, and this trend is seen increasingly also in Africa.

AGRARIAN PATTERNS IN LATIN AMERICA: PROGRESS AND REMAINING POVERTY CHALLENGES

In Latin America, as in Asia and Africa, agrarian structures are not only part of the production system but also a basic feature of the entire economic, social, and political organization of rural life. The agrarian structure that has existed in Latin America since colonial times and is still widespread in a substantial part of the region is a pattern of agricultural dualism known as latifundio minifundio. Basically, latifundios are very large landholdings. They are usually defined as farms large enough to provide employment for more than 12 people, though some employ thousands. In contrast, minifundios are the smallest farms. They are defined as farms too small to provide employment for a single family (two workers) with the typical incomes, markets, and levels of technology and capital prevailing in each country or region.

Using Gini coefficients to measure the degree of land concentration, as seen in Table 9.2, researchers report that the coefficient for Colombia is 0.86, for Costa Rica 0.82, for Uruguay 0.82, for Peru 0.91, and for Venezuela 0.91. Although estimates vary, changes in land inequality are limited in the case of Latin America (see Table 9.3). Other countries are even more unequal; the Gini for Paraguay is an almost perfectly unequal 0.94. These are the highest regional Gini coefficients in the world, and they dramatically reflect the degree of land ownership inequality (and thus, in part, income inequality) throughout Latin America.

But latifundios and minifundios do not constitute the entirety of Latin American agricultural holdings. A considerable amount of production occurs on family farms and medium-size farms. The former provide work for two to four people (recall that the minifundio could provide work for fewer than two people), and the latter employ 4 to 12 workers (just below the latifundio). In Venezuela, Brazil, and Uruguay, these intermediate farm organizations account for almost 50% of total agricultural output and employ similar proportions of agricultural labor. These farms use a more efficient balance between labor and land, and studies show that they have a much higher total factor productivity than either latifundios or minifundios, as the law of diminishing returns would suggest. Indeed, evidence from a wide range of developing countries, demonstrates that smaller farms are more efficient (lower-cost) producers of most agricultural commodities.

A major explanation for the relative economic inefficiency of farming the fertile land on the latifundios is simply that the wealthy landowners often value these holdings not for their potential contributions to national agricultural output but rather for the considerable power and prestige that they bring. Much of the land is left idle or farmed less intensively than on smaller farms. Also, latifundio transaction costs, especially the cost of supervising hired labor, are much

higher than the low effective cost of using family labor on family farms or minifundios. It follows that raising agricultural production and improving the efficiency of Latin American agrarian systems in traditional areas will require much more than direct economic policies that lead to the provision of better seeds, more fertilizer, less distorted factor prices, higher output prices, and improved marketing facilities. It will also require a reorganization of rural social and institutional structures to provide Latin American peasants, particularly indigenous people who find it more challenging to migrate, a real opportunity to lift themselves out of their present state of economic subsistence and social subservience.

- **Latifundio:**
  A very large landholding found particularly in the Latin American agrarian system, capable of providing employment for more than 12 people, owned by a small number of landlords, and comprising a disproportionate share of total agricultural land.
- **Minifundio:**
  A landholding found particularly in the Latin American agrarian system considered too small to provide adequate employment for a single family.
- **Family farm:**
  A farm plot owned and operated by a single household. Medium-size farm A farm employing up to 12 workers.
- **Transaction costs:**
  Costs of doing business related to gathering information, monitoring, establishing reliable suppliers, formulating contracts, obtaining credit, etc.

SUBSISTENCE AGRICULTURE AND EXTENSIVE CULTIVATION IN AFRICA

Subsistence farming on small plots of land is the way of life for the majority of African people living in agriculture-based economies. The great majority of farm families in tropical Africa still plan their output primarily for their own subsistence. (The main exceptions are in former colonial settlement areas like the White Highlands of Kenya; sugar, cocoa, coffee, and other plantations in East and West Africa; and farms devoted to such export crops as green beans in Niger, cut flowers in Kenya and Ethiopia, and legumes in Tanzania.)
Since the basic variable input in African agriculture is farm family and village labor, African agriculture systems are dominated by three major characteristics: (1) the importance of subsistence farming in the village community; (2) the existence of some (though rapidly diminishing) land in excess of immediate requirements, which permits a general practice of shifting cultivation and reduces the value of land ownership as an instrument of economic and political power; and (3) the rights of each family (both nuclear and extended) in a village to have access to land and water in the immediate territorial vicinity, excluding from such access use by families that do not belong to the community even though they may be of the same tribe. Where traditional systems are breaking down, inequality is often increasing further.

- **Subsistence farming:**
  Farming in which crop production, stock rearing, and other activities are conducted mainly for personal consumption.
- **Shifting cultivation:**
  Tilling land until it has been exhausted of fertility and then moving to a new parcel of land, leaving the former one to regain fertility until it can be cultivated again.

Lesson 27

AGRICULTURAL TRANSFORMATION AND RURAL DEVELOPMENT (CONTINUED2)

THE STRUCTURE OF AGRARIAN SYSTEMS IN THE DEVELOPING WORLD

TRANSFORMING ECONOMIES: PROBLEMS OF FRAGMENTATION AND SUBDIVISION OF PEASANT LAND IN ASIA

If the major agrarian problem of Latin America, at least in traditional areas, can be identified as too much land under the control of too few people, the basic problem in Asia is one of too many people crowded onto too little land. For example, the per capita availability of arable land as early as 1994 in India, China, and Bangladesh was 0.19, 0.08, and 0.07 hectares, respectively. The land is distributed more equally in Asia than in Latin America but still with substantial levels of inequality. As seen in Table 9.2, the estimated Gini coefficients for land distribution in Asia range from 0.42 in Bangladesh and 0.45 in Thailand to 0.62 in India and 0.56 in Indonesia and Nepal. (Later estimates show no significant change in Thailand, a rise in inequality to about 0.48 in Bangladesh, and a smaller level of inequality in India of about 0.45; see Table 9.3.)

Throughout much of the twentieth century, rural conditions in Asia typically deteriorated. Nobel

TABLE 9.3 Changes in Farm Size and Land Distribution

		Land Distribution Gini (percent)		Average Farm Size (hectares)		Change (%)		
Country	Period	Start	End	Start	End	Total Number of Farms	Total Area	Farm Size Definition Used
Smaller farm size, more inequality								
Bangladesh	1977–1996	43.1	48.3	1.4	0.6	103	–13	Total land area
Pakistan	1990–2000	53.5	54.0	3.8	3.1	31	6	Total land area
Thailand	1978–1993	43.5	46.7	3.8	3.4	42	27	Total land area
Ecuador	1974–2000	69.3	71.2	15.4	14.7	63	56	Total land area
Smaller farm size, less inequality								
India	1990–1995	46.6	44.8	1.6	1.4	8	–5	Total land area
Egypt	1990–2000	46.5	37.8	1.0	0.8	31	5	Total land area
Malawi	1981–1993	34.4	33.2[a]	1.2	0.8	37	–8	Cultivated crop area
Tanzania	1971–1996	40.5	37.6	1.3	1.0	64	26	Cultivated crop area
Chile	1975–1997	60.7	58.2	10.7	7.0	6	–31	Arable land area
Panama	1990–2001	77.1	74.5	13.8	11.7	11	–6	Total land area
Larger farm size, more inequality								
Botswana	1982–1993	39.3	40.5	3.3	4.8	–1	43	Cultivated crop area
Brazil	1985–1996	76.5	76.6	64.6	72.8	–16	–6	Total land area
Larger farm size, less inequality								
Togo	1983–1996	47.8	42.1	1.6	2.0	64	105	Cultivated crop area
Algeria	1973–2001	64.9	60.2	5.8	8.3	14	63	Arable land area

laureate Gunnar Myrdal identified three major interrelated forces that molded the traditional pattern of land ownership into its present fragmented condition: (1) the intervention of European

rule, (2) the progressive introduction of monetized transactions and the rise in power of the moneylender, and (3) the rapid growth of Asian populations.

The traditional Asian agrarian structure before European colonization was organized around the village. Local chiefs and peasant families each provided goods and services—produce and labor from the peasants to the chief in return for protection, rights to use community land, and the provision of public services. Decisions on the allocation, disposition, and use of the village's most valuable resource, land, belonged to the tribe or community, either as a body or through its chief. Land could be redistributed among village members as a result of either population increase or natural calamities such as drought, flood, famine, war, or disease. Within the community, families had a basic right to cultivate land for their own use, and they could be evicted from their land only after a decision by the whole village.

The arrival of the Europeans (mainly the British, French, and Dutch) led to major changes in the traditional agrarian structure, some of which had already begun. As Myrdal points out, "Colonial rule acted as an important catalyst to change, both directly through its effects on property rights and indirectly through its effects on the pace of monetization of the indigenous economy and on the growth of population." In the area of property rights, European land tenure systems of private property ownership were both encouraged and reinforced by law.

Contemporary landlords in India and Pakistan are able to avoid much of the taxation on income derived from their ownership of land. There are variations, but landlords in South Asia are often absentee owners who live in the town and turn over the working of the land to sharecroppers and other tenant farmers. Sharecropping is widespread in both Asia and Latin America but more pervasive in Asia. It has been estimated that of all tenanted land, some 84.5% is sharecropped in Asia but only 16.1% in Latin America. The institution is almost unknown in Africa, where the typical arrangement continues to be farms operated under tribal or communal tenures. For example, as shown in Table 9.2, about 48% of all tenanted land is sharecropped in India, 60% in Indonesia, and 79% in the Philippines. Though common in Colombia, sharecropping is unusual elsewhere in Latin America; for example, it has all but disappeared in Peru.

The creation of individual titles to land made possible the rise to power of another dubious agent of change in Asian rural socioeconomic structures, the moneylender. Once private property came into effect, land became a negotiable asset that could be offered by peasants as security for loans and, in the case of default, could be forfeited and transferred to the often unscrupulous moneylender. At the same time, Asian agriculture was being transformed from a subsistence to a commercial orientation, both as a result of rising local demand in new towns and, more important, in response to external food demands of colonial European powers.

With this transition from subsistence to commercial production, the role of the moneylender changed drastically. In the subsistence economy, his activities had been restricted to supplying the peasant with money to tide him over a crop failure or to cover extraordinary ceremonial expenditures such as family weddings or funerals. Most of these loans were paid in kind (in the form of food) at very high rates of interest. With the development of commercial farming, however, the peasant's cash needs grew significantly. Money was needed for seeds, fertilizer, and other inputs. It was also needed to cover his food requirements if he shifted to the production of cash crops such as tea, rubber, or jute. Often moneylenders were more interested in acquiring peasant lands as a result of loan defaults than they were in extracting high rates of interest. By charging exorbitant interest rates or inducing peasants to secure larger credits than they could manage, moneylenders were often able to drive the peasants off their land. They

could then reap the profits of land speculation by selling this farmland to rich and acquisitive landlords.

- **Landlord:**
  The proprietor of a freehold interest in land with rights to lease out to tenants in return for some form of compensation for the use of the land.
- **Sharecropper:**
  A tenant farmer whose crop has to be shared with the landlord, as the basis for the rental contract.
- **Tenant farmer:**
  One who farms on land held by a landlord and therefore lacks ownership rights and has to pay for the use of that land, for example, by giving a share of output to the owner.
- **Moneylender:**
  A person who lends money at high rates of interest, for example to peasant farmers to meet their needs for seeds, fertilizers, and other inputs.

Largely as a consequence of the moneylenders' influence, Asian peasant cultivators saw their economic status deteriorate. And rapid population growth often led to fragmentation and impoverishment.
Again, as noted in Chapter 2, colonial practices often had long-lasting influences. In the case of India, regions in which property rights to land were given to landlords had significantly lower productivity and agricultural investments— and significantly lower investments in health and education—in the post independence period than regions in which property rights were given to cultivators.

THE IMPORTANT ROLE OF WOMEN

A major and until recently often overlooked feature of agrarian systems in the developing world, particularly in Africa and Asia, is the crucial role played by women in agricultural production. In Africa, where subsistence farming is predominant and shifting cultivation remains important, nearly all tasks associated with subsistence food production are performed by women. Although men who remain home generally perform the initial task of cutting trees and bushes on a potentially cultivable plot of land, women are typically responsible for all subsequent operations, including removing and burning felled trees, sowing or planting the plot, weeding, harvesting, and preparing the crop for storage or immediate consumption. In her pioneering work on women and development, Ester Boserup examined many studies on African women's participation in agriculture and found that in nearly all cases recorded, women did most of the agricultural work. In some cases, they were found to do around 70% and in one case nearly 80% of the total. Typically, these tasks are performed only with primitive tools and require many days of long, hard labor simply to produce enough output to meet the family's subsistence requirements, while the men often attempt to generate cash income through work on nearby plantations or in the cities. Recent research confirms women's "time poverty" predicament.

Women do much of the labor for cash crop production, cultivate food for household consumption, raise and market livestock, generate additional income through cottage industries, collect firewood and water, and perform household chores, including the processing and cooking of food. Due to the time-consuming nature of their diverse responsibilities—and no doubt to their limited household bargaining power—women tend to work longer hours than their male counterparts. Studies concerning the allocation of women's time among different activities have greatly increased recognition of the importance of rural women's economic contribution. It

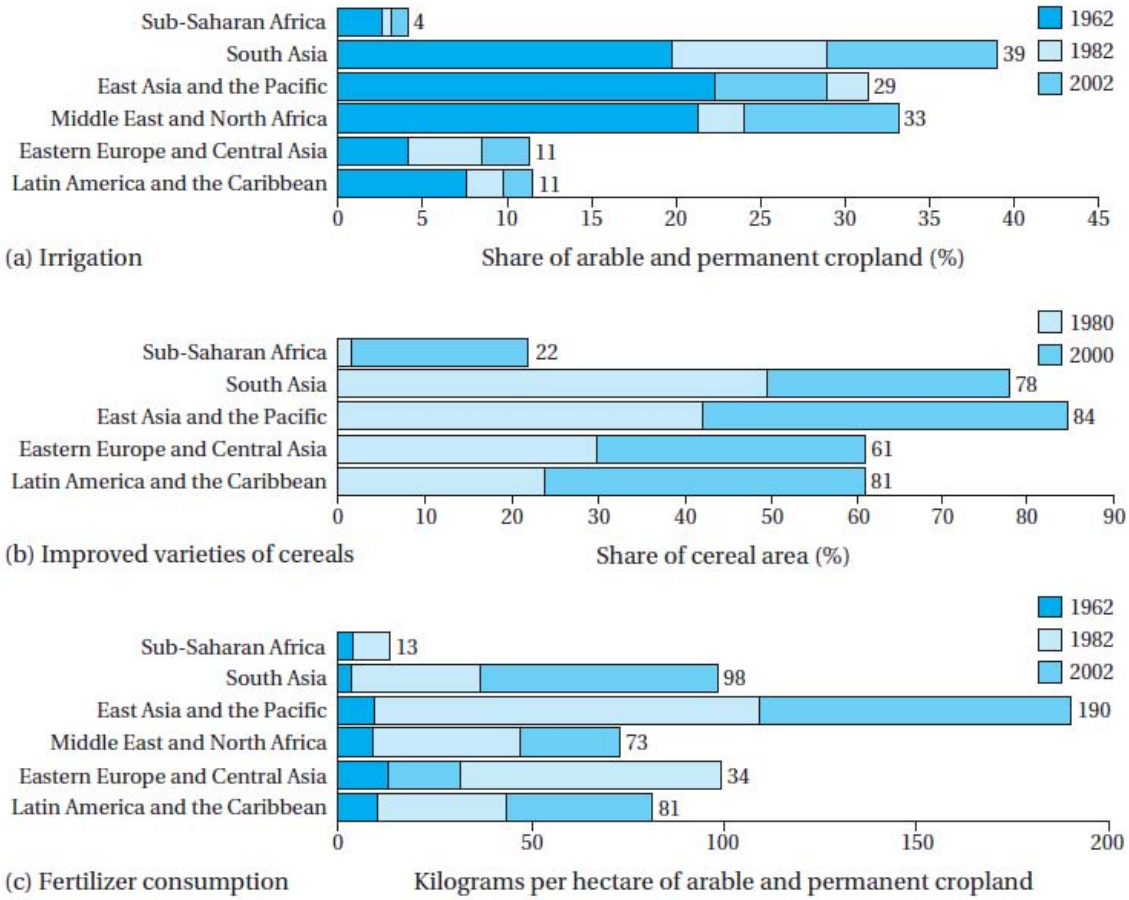
has become clear that since women produce a large share of agricultural output, and supply a large share of the labor—a share that has actually been increasing over time—successful agricultural reform will require raising women's productivity and ensuring that gender-specific policies are at the core of rural development strategy. The necessity of starting with women's activity when agricultural policy is designed is captured by the maxim of feminist economists that "you cannot just add women and stir."

The diversity of women's duties makes it difficult to determine their share of agricultural production, much less place an economic value on their work. However, current estimates underscore the importance of women's agricultural labor. It is estimated that in addition to work in the household, women provide 60% to 80% of agricultural labor in Africa and Asia and about 40% in Latin America. Much of this work, however, is statistically "invisible" in that women often receive no payment for the work they perform. Women make an important contribution to the agricultural economy through the labor they supply in the cultivation of cash crops. Though the production and profits from commercial crops are generally controlled by men, women are usually responsible for the strenuous jobs of weeding and transplanting. As population density increases and land becomes more fragmented, the length of time that women must spend walking to and from the fields increases, often in very hot climates that make strenuous work exceedingly difficult. In addition to commercial crops, women frequently cultivate small vegetable gardens that provide food for family consumption. Though the cash value of produce from these gardens may be small, it often represents an important component of the total resources available to women.

Women's work in the low-income household involves a range of demanding tasks including processing and pounding raw grains, tending livestock, cooking, and caring for children. Collecting increasingly scarce firewood and water from distant sources may add several hours to the workday. To raise additional income, it is common for women to engage in household production of goods for sale in village markets. These items are specific to each region, but a few examples are homemade beer, processed foods, handicrafts, and textiles.

Perhaps the most important role of women is providing food security for the household. This is accomplished through the supplementation of household earnings, diversification of household income sources, and raising of livestock to augment household assets. The production of vegetables for household consumption helps insulate households from swings in food prices and reduces cash outlays for the purchase of household necessities. Women's investments in revenue-generating projects and livestock are crucial to stabilizing household income, especially but not only in female-headed households, where resource constraints are the most severe.
However, financial investments are inherently risky, and the poorer the household, the more averse its members are to taking any kind of risk. When credit and resources are unavailable,

FIGURE 9.4 Expansion of Modern Inputs in the World's Developing Regions



reducing the variability of household earnings generally entails choosing less efficient methods of production and thus lower average income. This trade-off occurs most frequently in female headed households, where resource constraints are greatest. Thus as a consequence of their restricted range of choices, women tend to retain traditional modes of economic activity. The upshot is that their productivity has stagnated while that of men has continued to improve.

Government extension programs that provide resources exclusively to men tend to exacerbate existing disparities between men's and women's access to resources (see the case study at the end of this chapter). If credit is provided solely or preferentially to men for the purpose of cash cropping, commercial production will increase at the expense of women's vegetable gardens. Since homegrown vegetables must be replaced by purchased substitutes, significant increases in a male spouse's cash contribution are necessary to offset a woman's losses. If the market

price of vegetables increases markedly (there are now fewer producers) and the increase in the husband's contribution is not sufficient to compensate for the increased need for cash, the welfare of the woman and her children will decline.

Although efforts to increase the income of women by providing direct access to credit and inputs have experienced considerable success, programs that work indirectly with women have frequently fallen short of their stated goals. Studies have found that projects are most likely to elicit the engagement of women when resources are placed directly under their control. Clearly, projects that depend on the unremunerated labor of women are likely to obtain only minimal support. Adoption of new crops and technologies will be more effective where patterns of production are consistent with the interests of female household members. Because the active participation of women is critical to agricultural prosperity, policy design should ensure that women benefit equally from development efforts.

THE MICROECONOMICS OF FARMER BEHAVIOR AND AGRICULTURAL DEVELOPMENT

THE TRANSITION FROM PEASANT SUBSISTENCE TO SPECIALIZED COMMERCIAL FARMING

For expository convenience, we can identify three broad stages in the evolution of agricultural production. The first is the pure, low-productivity, mostly subsistence-level peasant farm, still prevalent in Africa. The second stage is what might be called diversified or mixed family agriculture, where a small part of the produce is grown for consumption and a significant part for sale to the commercial sector, as in much of Asia. The third stage represents the modern farm, exclusively engaged in high-productivity specialized agriculture geared to the commercial market, as in developed countries and often found in the highly urbanized developing countries. Agricultural modernization in mixed-market developing economies may be described in terms of the gradual but sustained transition from subsistence to diversified and specialized production. But such a transition involves much more than reorganizing the structure of the farm economy or applying new agricultural technologies.

Transforming traditional agriculture often requires, in addition to adapting the farm structure to meet the demand for increased production, profound changes affecting the entire social, political, and institutional structure of rural societies. Without such changes, agricultural development will either continue to lag greatly behind or, more likely, simply widen the already sizable gap between the few wealthy large landholders and the masses of impoverished tenant farmers, smallholders, and landless laborers. We first consider the evolution of the agricultural system of a developing nation over time from a predominantly subsistence-level and small-scale peasant orientation to more diversified operations and eventually to the rise of fully commercial enterprises, though still often family-based.

SUBSISTENCE FARMING: RISK AVERSION, UNCERTAINTY, AND SURVIVAL

On the classic peasant subsistence farm, most output is produced for family consumption (although some may be sold or traded in local markets), and a few staple foods (usually including cassava, wheat, barley, sorghum, rice, potatoes, or corn) are the chief sources of nutrition. Output and productivity are low, and only the simplest traditional methods and tools are used. Capital investment is minimal; land and labor are the principal factors of production. The law of diminishing returns is in operation as more labor is applied to shrinking (or shifting) parcels of land. The failure of the rains, the appropriation of his land, and the appearance of the

moneylender to collect outstanding debts are the banes of the peasant's existence. Labor is underemployed for most of the year, although workers may be fully occupied at seasonal peak periods such as planting and harvest. The peasant usually cultivates only as much land as his family can manage without the need for hired labor, although many peasant farmers intermittently employ one or two landless laborers. Much of the cash income that is generated comes from non-farm wage labor.

In much of sub-Saharan Africa, agriculture is still largely in this subsistence stage, as it is in pockets in Asia and even Latin America. The green revolution has bypassed much of Africa. But in spite of the relative backwardness of production technologies and the misguided convictions of some foreigners who attribute the peasants' resistance to change as a sign of incompetence or irrationality, the fact remains that given the nature of the peasants' environment, the uncertainties that surround them, the need to meet minimum survival levels of output, and the rigid social institutions into which many peasants, but particularly women, are locked, most farmers do behave in an economically rational manner when confronted with alternative opportunities. Some insight into the economics of subsistence agriculture is provided by the traditional two-factor neoclassical theory of production in which land (and perhaps capital) is fixed, labor is the only variable input, and profit is maximized. Specifically, the theory provides an economic rationale for the observed low productivity of traditional agriculture in the form of the law of diminishing marginal productivity.

Unfortunately, this theory does not satisfactorily explain why small-scale farmers are often resistant to technological innovation in farming techniques or to the introduction of new seeds or different cash crops. According to the standard theory, a rational income or profit-maximizing farm or firm will always choose a method of production that will increase output for a given cost (in this case, the available labor time) or lower costs for a given output level. But the theory is based on the crucial assumption that farmers possess "perfect knowledge" of all technological input-output relationships as well as current information about prevailing factor and product prices. This is the point at which the simple theory loses a good deal of its validity when applied to the environment of subsistence agriculture. Furthermore, when access to information is highly imperfect, the transaction costs of obtaining this information are usually very high. Given price uncertainty, peasant farmers often face a wide range of possible prices rather than a single input price. Along with limited access to credit and insurance, such an environment is not conducive to the type of behavior posited by neoclassical theory and goes a long way toward explaining the actual risk-averse behavior of peasant farmers, including their caution in the use of purchased inputs such as fertilizer.

Subsistence agriculture is thus a highly risky and uncertain venture. It is made even more so by the fact that human lives are at stake. In regions where farms are extremely small and cultivation is dependent on the uncertainties of variable rainfall, average output will be low, and in poor years, the peasant family will be exposed to the very real danger of starvation. In such circumstances, the main motivating force in the peasant's life may be the maximization not of income but of the family's chances of survival. Accordingly, when risk and uncertainty are high, small farmers may be very reluctant to shift from a traditional technology and crop pattern that over the years they have come to know and understand to a new one that promises higher yields but may entail greater risks of crop failure. When sheer survival is at stake, it is more important to avoid a bad year (total crop failure) than to maximize the output in better years. Risk-avoiding peasant farmers are likely to prefer a technology of food production that combines a low mean per-hectare yield with low variance (fluctuations around the average) to alternative technologies and crops that may promise a higher mean yield but also present the risk of a greater variance.

FIGURE 9.5 Small-Farmer Attitudes toward Risk: Why It Is Sometimes Rational to Resist Innovation and Change

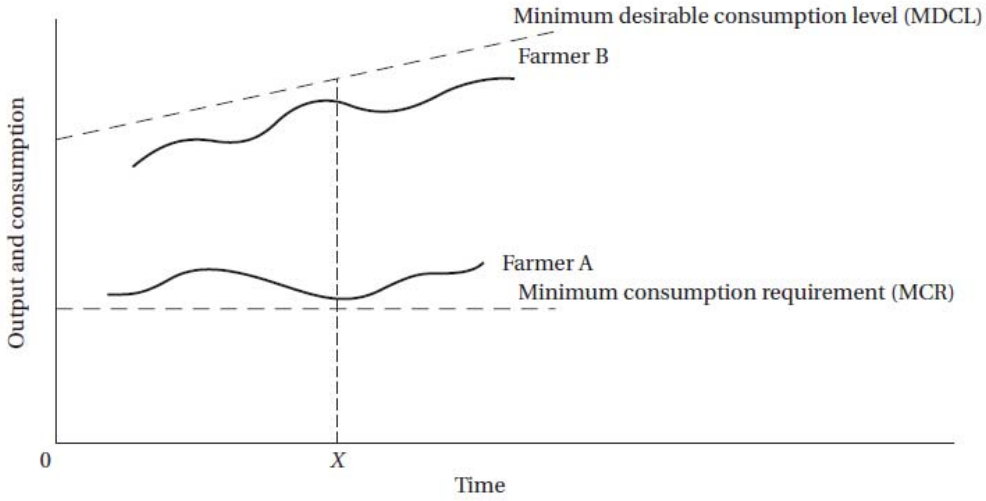


Figure 9.5 provides a simple illustration of how attitudes toward risk among small farmers may militate against apparently economically justified innovations. In the figure, levels of output and consumption are measured on the vertical axis and different points in time on the horizontal axis, and two straight lines are drawn. The lower horizontal line measures the minimum consumption requirements (MCR) necessary for the farm family's physical survival. This may be taken as the starvation minimum fixed by nature. Any output below this level would be catastrophic for the peasant family. The upper, positively sloped straight line represents the minimum level of food consumption that would be desirable given the prevailing cultural or potential productivity factors affecting village consumption standards. It is assumed that this line rises over time.

Looking at Figure 9.5, we see that at time X, farmer A's output levels have been very close to the MCR. She is barely getting by and cannot take a chance of any crop failure. She will have a greater incentive to minimize risk than farmer B, whose output performance has been well above the minimum subsistence level and is close to the minimum desired consumption level (MDCL). Farmer B will therefore be more likely than farmer A to innovate and change. The result may be that farmer A remains in a self-perpetuating poverty trap. Moreover, inequality is growing.

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Lesson 28

AGRICULTURAL TRANSFORMATION AND RURAL DEVELOPMENT (CONTINUED3)

THE ECONOMICS OF SHARECROPPING AND INTERLOCKING FACTOR MARKETS

The phenomenon of risk aversion among peasant farmers in the presence of high land inequality also helps explain the prevalence of sharecropping throughout much of Asia and parts of Latin America. Although different types of relationships may arise between the owners of land and the people who work on them (e.g., the farmers could rent or act as wage laborers), sharecropping is widespread. Sharecropping occurs when a peasant farmer uses the landowner's farmland in exchange for a share of food output, such as half of the rice or wheat grown. The landlord's share may vary from less than a third to more than two-thirds of output, depending on local labor availability and the other inputs (such as credit, seeds, and tools) that the landlord provides.

The poor incentive structure of sharecropping lends itself to inefficiency. Alfred Marshall observed that the farmer was in effect paid only part, rather than all, of his marginal product and would rationally reduce work effort accordingly. This effect can be seen graphically in Figure 9.7. Labor input is found along the x-axis, which may be interpreted as number of hours of work, or of total effort; output per unit of labor is found along the y-axis. A farmer who owned his own farm would work until his value marginal product of labor **(VMP_L)** was equal to his alternative wage, or opportunity cost of labor, w^A, and so would put in an efficient amount of labor effort L^F. However, a sharecropper receives only a fraction, γ, of his effort; for example, under 50–50 sharecropping, the sharecropper's share would be $\gamma = 0.5$. Thus the sharecropper would receive only γ of his value marginal product, or γVMP_L. As a result, the sharecropper would have an incentive to put in an inefficiently low level of effort L^S, as seen in Figure 9.7.

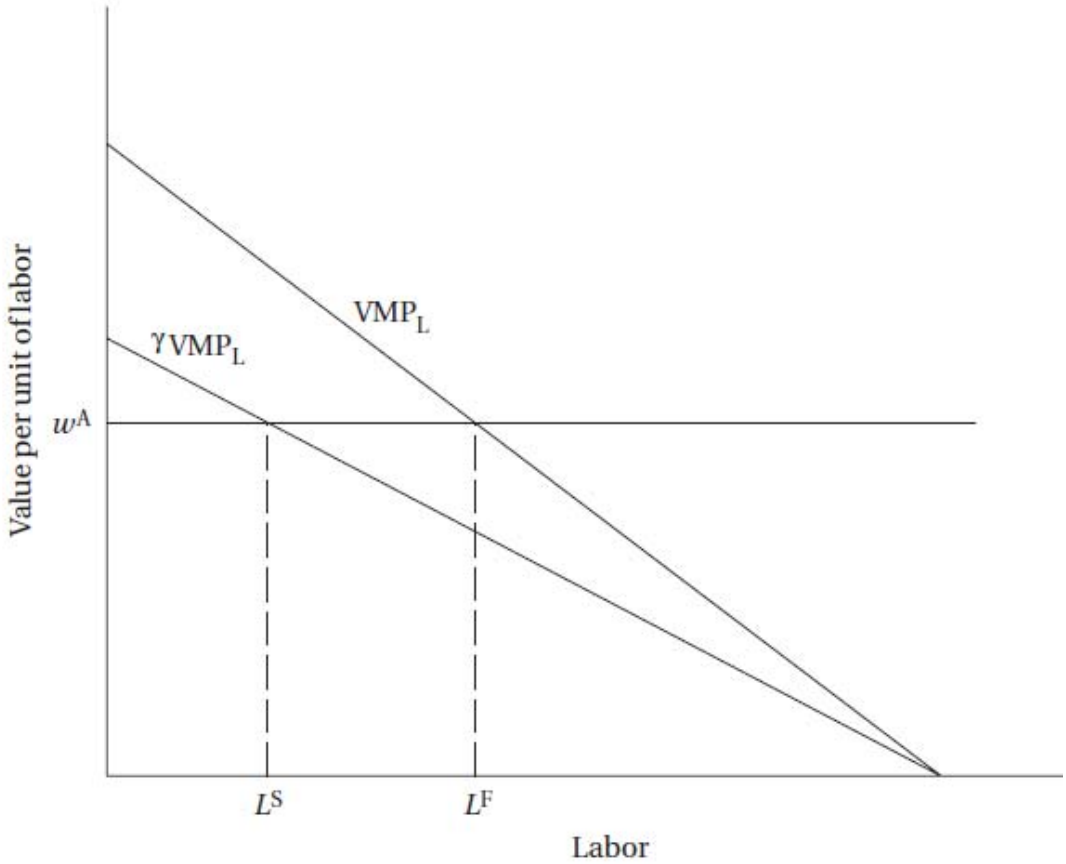
This view was challenged in the 1960s by Steven Cheung, who argued that profit-maximizing landlords would establish contracts requiring adequate work effort from the tenant as well as stipulating each party's share of the output. If, as Cheung argued, effort is not too difficult to monitor, then if one tenant failed to live up to his part of the bargain, he would be replaced by another tenant who was willing to work harder; as a result, sharecropping would be as efficient as any other contractual form. Cheung's theory is known as the monitoring approach, in contrast to the Marshallian approach to the analysis of sharecropping illustrated in Figure 9.7; Cheung argued that labor effort LF would also obtain under sharecropping.

The monitoring approach was popular for two decades, and it was difficult to test because of endogeneity. For example, only low-productivity people may choose to enter into sharecropping contracts. In fact, some scholars believe that landlords may offer tenants an option of either sharecropping or pure rental contracts precisely because higher-ability people more often choose pure rental arrangements: High-ability farmers are able to get the full value of their high marginal product, while this is not as attractive to lower-ability farmers. If landlords are not sure which farmers have high ability, they may find out by observing which ones choose the pure rental contract. The motivation may be to enable landlords to squeeze more profits out of the renters, charging higher effective rents for pure rental contracts than for sharecropping contracts—but not too high or even high-ability farmers would choose sharecropping. This approach is known as the screening hypothesis of sharecropping.

However, Radwan Ali Shaban identified farmers who farmed plots that they owned and who also leased out additional farmland under a sharecropping contract. By comparing the same farmers' behavior under different contractual arrangements, Ali Shaban controlled for factors specific to individual farmers that cannot be easily observed. He found that farmers used fewer inputs and produced less output on the sharecropped land than on their own land, all else being equal. These results provide evidence that sharecropping is less efficient than farming one's own land, just as Marshall predicted.

A final approach suggests that sharecropping is relatively efficient after all, in that it makes the best out of an inherently uncertain and risky situation for both parties. If the landlord pays the tenant a straight wage, which would be efficient if the tenant always gave his full effort and it didn't cost the landlord anything to make sure of this, the tenant has every incentive to accept the money and not work hard. If the tenant pays a straight rent for the land, he faces the appalling risk that there will be a particularly lean year, such as a drought, and there will not be enough food left after the rent is paid to prevent starvation. Thus sharecropping represents a compromise between the risk to the landlord that the tenant will not do much work and the risk to the tenant that a fixed rent will in some years leave him no income. So even though

FIGURE 9.7 Incentives under Sharecropping



sharecropping, with its poor work incentives, would be inefficient in a world of perfect certainty, in the real world, with inequality in land ownership as well as uncertainty, it is "as efficient as we can get." However, this arrangement is necessary only because of extreme inequality of land ownership. Farmers who own their own farms do not generally choose sharecropping contracts

for themselves. As a result, the enormous efficiency loss, as seen in Figure 9.7, is not negated by this important explanation of why sharecropping arises.

More broadly, the economic and social framework in which sharecropping takes place is one of extraordinary social inequality and far-reaching market failure. When the peasant faces his landlord, he often faces not only the individual whom he must persuade to rent him productive land but at the same time his prospective employer, his loan officer, and even his ultimate customer for any crops he wishes to sell. Such conditions, an example of interlocking factor markets, provide the rural landlord with abundant sources of monopoly and monopsony power. Under some conditions—in particular, the availability of a perfectly elastic supply of tenants and the ability of the landlord to subdivide his land into as many plots as he chooses—the peasant is forced to his reservation utility level, or next-best income opportunity. (In practice, on one hand, peasants are sometimes prevented from learning about some of the alternatives available to them; on the other hand, subdivision may be restricted.)

Interlocked-factor-market sharecropping does have the resource allocation advantage that it is in the landlord's interest to see to it that his sharecropper receives credit from the lowest-cost source. At the same time, the personal nature of interlinks age gives the dominant party far-ranging leverage and acts as a barrier to entry that restricts competition that might ultimately benefit the peasant. In this regard, as an observation applying to interlink age and to other rural institutions, Pranab Bardhan and Chris Udry make the important point that "the thin line between understanding an institution and justifying it is often blurred, particularly by careless interpreters of the theory."

THE TRANSITION TO MIXED OR DIVERSIFIED FARMING

It is neither realistic nor necessarily desirable to think of instantly transforming a traditional agrarian system that has prevailed for many generations into a highly specialized commercial farming system. Attempts to introduce cash crops indiscriminately in subsistence farms have often resulted in the peasants' loss of land to moneylenders or landlords. Subsistence living is merely substituted for subsistence production. For small farmers, exclusive reliance on cash crops can be even more precarious than pure subsistence agriculture because the risks of price fluctuations are added to the uncertainty of nature.

Diversified or mixed farming therefore represents a logical intermediate step in the transition from subsistence to specialized production. In this stage, the staple crop no longer dominates farm output, and new cash crops such as fruits, vegetables, coffee, tea, and pyrethrum are established, together with simple animal husbandry. These new activities can take up slack in farm workloads during times of the year when disguised unemployment is prevalent. For example, if the staple crop occupies the land only during parts of the year, new crops can be introduced in the slack season to take advantage of both idle land and family labor. And where labor is in short supply during peak planting seasons, simple laborsaving devices (such as small tractors, mechanical seeders, or animal-operated steel plows) can be introduced to free labor for other farm activities. Finally, the use of better seeds, fertilizers, and simple irrigation to increase yields of staple crops such as wheat, maize, and rice can free part of the land for cash crop cultivation while ensuring an adequate supply of the staple food. The farm operator can thus have a marketable surplus, which she can sell to raise her family's consumption standards or invest in farm improvements. Diversified farming can also minimize the impact of staple crop failure and provide a security of income previously unavailable.

FROM DIVERGENCE TO SPECIALIZATION: MODERN COMMERCIAL FARMING

The specialized farm represents the final and most advanced stage of individual holding in a mixed market economy. It is the most prevalent type of farming in advanced industrial nations. It has evolved in response to and parallel with development in other areas of the national economy. General rises in living standards, biological and technical progress, and the expansion of national and international markets have provided the main impetus for its emergence and growth.

In specialized farming, the provision of food for the family with some marketable surplus is no longer the basic goal. Instead, pure commercial profit becomes the criterion of success, and maximum per-hectare yields derived from synthetic (irrigation, fertilizer, pesticides, hybrid seeds, etc.) and natural resources become the object of farm activity. Production, in short, is entirely for the market. Economic concepts such as fixed and variable costs, saving, investment and rates of return, optimal factor combinations, maximum production possibilities, market prices, and price supports take on quantitative and qualitative significance. The emphasis in resource utilization is on capital formation, technological progress, and scientific research and development in stimulating higher levels of output and productivity.

Specialized farms vary in both size and function. They range from intensively cultivated fruit and vegetable farms to the vast wheat and corn fields of North America. In most cases, sophisticated laborsaving mechanical equipment, ranging from huge tractors and combine harvesters to airborne spraying techniques, permits a single family to cultivate many thousands of hectares of land.

LEARNING ABOUT FARMING: THE DIFFUSION OF PINEAPPLE GROWING IN GHANA

Agricultural experts cannot train millions of farmers— who sometimes also know constraints and opportunities that trainers do not. So farmers must partly learn new products and techniques from each other, and social learning is very difficult to identify. But Timothy Conley and Christopher Udry collected detailed information from farmers in the Akwapim South district of Ghana, asking them whom they know and talk to about farming, to better understand and test for “social learning in the diffusion of a new agricultural technology.”

Important findings include the following:

- A farmer is “more likely to change his fertilizer use after his information neighbors who use similar amounts of fertilizer achieve lower than expected profits.”
- A farmer “increases (decreases) his use of fertilizer after his information neighbors achieve unexpectedly high profits when using more (less) fertilizer than he did.”
- A farmer’s “responsiveness to news about the productivity of fertilizer in his information neighborhood is much greater if he has only recently begun cultivating pineapple.”
- A farmer “responds more to news about the productivity of fertilizer on plots cultivated by veteran farmers and farmers with wealth similar to his.”

CORE REQUIREMENTS OF A STRATEGY OF AGRICULTURAL AND RURAL DEVELOPMENT

If the major objective of agricultural and rural development in developing nations is the progressive improvement in rural levels of living achieved primarily through increases in small-farm incomes, output, and productivity, along with genuine food security, it is important to identify the principal sources of agricultural progress and the basic conditions essential to its achievement.

IMPROVING SMALL-SCALE AGRICULTURE

TECHNOLOGY AND INNOVATION

In most developing countries, new agricultural technologies and innovations in farm practices are preconditions for sustained improvements in levels of output and productivity. In many parts of Africa, however, increased output in earlier years was achieved without the need for new technology simply by extending cultivation into unused but potentially productive lands. Almost all of these opportunities have by now been exploited, and there is little scope for further significant or sustainable expansion. Two major sources of technological innovation can increase farm yields. Unfortunately, both have somewhat problematic implications for agricultural development. The first is the introduction of mechanized agriculture to replace human labor. The introduction of laborsaving machinery can have a dramatic effect on the volume of output per worker, especially where land is extensively cultivated and labor is scarce. For example, one man operating a huge combine harvester can accomplish in a single hour what would require hundreds of workers using traditional methods.

But in the rural areas of many developing nations, where land parcels are small, capital is scarce, and labor is abundant, the introduction of heavily mechanized techniques is often ill suited to the physical environment and has the effect of creating more rural unemployment without necessarily lowering per-unit costs of food production. Importation of such machinery can require large tracts of land (and thus the consolidation of small holdings) and tends to exacerbate the already serious problems of rural poverty and underemployment. And if mechanized techniques exclude women, the male-female productivity gap could widen further, with serious repercussions.

INSTITUTIONAL AND PRICING POLICIES: PROVIDING THE NECESSARY ECONOMIC INCENTIVES

Unfortunately, although the green revolution varieties of wheat, corn, and rice, together with needed irrigation and chemicals, are scale neutral and thus offer the potential for continued small-farm progress, the social institutions and government economic policies that accompany their introduction into the rural economy are often not scale-neutral. On the contrary, they often merely serve the needs and vested interests of the wealthy landowners. Because the new hybrid seeds require access to complementary inputs such as irrigation, fertilizer, insecticides, credit, and agricultural extension services, if these are provided only to a small minority of large landowners, one impact of the green revolution can be (as in parts of South Asia and Mexico) the further impoverishment of many peasants.

Large landowners, with their disproportionate access to these complementary inputs and support services, are able to gain a competitive advantage over smallholders and eventually drive them out of the market. Large-scale farmers obtain access to low-interest government credit, while smallholders are forced to turn to moneylenders. The result has all too often been the further widening of the gap between rich and poor and the increased consolidation of

agricultural land in the hands of a very few so-called progressive farmers. A developmental innovation with great potential for alleviating rural poverty and raising agricultural output can thus turn out to be anti developmental if public policies and social institutions militate against the active participation of the small farmer in the evolving agrarian structure.

Another critical area of many past and some continued failures in government policies relates to the pricing of agricultural commodities, especially food grains and other staples produced for local markets. Many governments in developing nations, in their headlong pursuit of rapid industrial and urban development, maintained low agricultural prices in an attempt to provide cheap food for the urban modern sector. Farmers were paid prices below either world competitive or free-market internal prices. The relative internal price ratio between food and manufactured goods (the domestic terms of trade) thus turned against farmers and in favor of urban manufacturers. With farm prices so low—in some cases below the costs of production—there was no incentive for farmers to expand output or invest in new productivity raising technology. As a result, local food supplies continually fell short of demand, and many developing nations, especially in sub-Saharan Africa, that were once self-sufficient in food production had to import food.

ADAPTING TO NEW OPPORTUNITIES AND NEW CONSTRAINTS

As a route out of poverty and toward genuine rural development, enhanced cereal productivity (the classic green revolution characteristic) represents only a small part of the agricultural opportunities. The best opportunities for sales to growing urban areas are generally found in higher value-added activities, particularly horticulture (fruits, vegetables, and cut flowers) and aquaculture. These products, along with organic and perhaps Fair Trade versions of some otherwise traditional developing country exports such as coffee and spices, also provide good opportunities for higher-value exports. But small farmers will need special organization and assistance to take advantage of new opportunities. As the 2008 World Development Report concluded, “Smallholders can bargain better as a group than as individuals. So a high priority is to facilitate collective action through producer organizations to reach scale in marketing and bargain for better prices.” Otherwise, the risk is large that these developments will benefit mainly the larger farmers.

CONDITIONS FOR RURAL DEVELOPMENT

We can draw three conclusions regarding the necessary conditions for the realization of a people-oriented agricultural and rural development strategy.

- **Land Reform**
  Conclusion 1: Farm structures and land tenure patterns must be adapted to the dual objectives of increasing food production and promoting a wider distribution of the benefits of agrarian progress, allowing further progress against poverty.
- **Supportive Policies**
  Conclusion 2: The full benefits of small-scale agricultural development cannot be realized unless government support systems are created that provide the necessary incentives, economic opportunities, and access to needed credit and inputs to enable small cultivators to expand their output and raise their productivity.
- **Integrated Development Objectives**
  Conclusion 3: Rural development, though dependent primarily on small-farmer agricultural progress, implies much more. It encompasses (a) efforts to raise both farm

and non-farm rural real incomes through job creation, rural industrialization, and other non-farm opportunities and the increased provision of education, health and nutrition, housing, and a variety of related social and welfare services; (b) a decreasing inequality in the distribution of rural incomes and a lessening of urban rural imbalances in incomes and economic opportunities; (c) successful attention to the need for environmental sustainability—limiting the extension of farmland into remaining forests and other fragile areas, promoting conservation, and preventing the harmful misuse of agrochemicals and other inputs; and (d) the capacity of the rural sector to sustain and accelerate the pace of these improvements over time.

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Lesson 29

THE ENVIRONMENT AND ECONOMIC DEVELOPMENT

ECONOMICS AND THE ENVIRONMENT

The livelihood of more than half of the economically active population in the developing world directly depends in whole or part on the environment through agriculture, as well as animal husbandry, hunting, fishing, forestry, and foraging. This alone underscores the importance of the seventh Millennium Development Goal: to "ensure environmental sustainability." Environmental quality affects, and is affected by, economic development. In recent years, economists have increasingly focused on the important implications of environmental issues for the success of development efforts. It is clear that classic market failures lead to too much environmental degradation. We now also understand that the interaction between poverty and environmental degradation can lead to a self-perpetuating process in which, as a result of ignorance or economic necessity, communities may inadvertently destroy or exhaust the resources on which they depend for survival. Rising pressures on environmental resources in developing countries can have severe consequences for self-sufficiency, income distribution, and future growth potential.

Environmental degradation can also detract from the pace of economic development by imposing high costs on developing countries through health related expenses and the reduced productivity of resources. The poorest 20% of the poor in both rural and urban areas will experience the consequences of environmental ills most acutely. Severe environmental degradation, due to population pressures on marginal land, has led to falling farm productivity and per capita food production. Since the cultivation of marginal land is largely the domain of lower-income groups, the losses are suffered by those who can least afford them. Similarly, the inaccessibility of sanitation and clean water mainly affects the poor and is believed to be responsible for a preponderance of infectious disease worldwide. Because the solutions to these and many other environmental problems involve enhancing the productivity of resources and improving living conditions among the poor, achieving environmentally sustainable growth is synonymous with our definition of economic development.

Although the environmental costs associated with various economic activities are disputed, development economists agree that environmental considerations should form an integral part of policy initiatives. The exclusion of environmental costs from calculations of GNI is a major factor in the historical absence of environmental considerations from development economics. Damage to soil, water supplies, and forests resulting from unsustainable methods of production can greatly reduce long-term national productivity but will have a positive impact on current GNI figures. It is thus very important that the long-term implications of environmental quality be considered in economic analysis. Rapid population growth and expanding economic activity in the developing world are likely to do extensive environmental damage unless steps are taken to mitigate their negative consequences.

The growing consumption needs of people in developing countries may have global implications as well. There is increasing concern that the destruction of the world's remaining forests, which are concentrated in a number of highly indebted developing countries in Africa as well as such countries as Indonesia, Brazil, Peru, and the Philippines, will greatly contribute to climate change caused by global warming through the greenhouse effect. At the same time, developing countries, particularly those in sub-Saharan Africa and South Asia, are predicted by climate models to suffer most from future global warming and climate change. Yet to date, most of the greenhouse gases causing the problem were emitted in developed countries, creating what may

be termed environmental dependence: Developing nations will be reliant on the developed world to take immediate steps to reduce emissions, as well as to develop new technologies that will enable further reductions and successful adaptation to the already inevitable warming and resulting climate change. However, developing countries, most prominently China at this stage, will also have to reduce emissions well below current forecasts, or any reductions in the developed world will only delay the possibly catastrophic consequences. In this chapter, we examine the economic causes and consequences of environmental crises and explore potential solutions to the cycle of poverty and resource degradation.

We begin with a survey of basic issues, including discussions of sustainable development and the linkages among population, poverty, economic growth, rural development, urbanization, and the environment in developing countries. We next look at the applicability of traditional economic models of the environment, depict some typical environmental situations, and provide some relevant data. We then broaden our scope to examine the global environment and explore policies for seeking worldwide sustainable development. The end-of-chapter comparative case study of Haiti and the Dominican Republic—two nations sharing one island—examines the role of environment as one of the dimensions of their very different development outcomes.

Eight basic issues define the environment of development. Many grow out of the discussions in the preceding chapters. The first is the concept of sustainable development; the others involve linkages between the environment and population and resources, poverty, economic growth, rural development, urbanization, the global economy, and the nature and pace of greenhouse gas–induced climate change. We briefly discuss each in turn.

GLOBAL WARMING

Increasing average air and ocean temperatures. Used in reference to the trend that began in the mid-twentieth century and attributed largely to human industrial, forestry and agricultural activities emitting greenhouse gases.

CLIMATE CHANGE

Non transient altering of underlying climate, such as increased average temperature, decreased annual precipitation or greater average intensity of droughts or storms. Used in reference to the impact of the global warming phenomenon. Note the distinction between changes in weather (which varies within a climate), and change in climate that alter underlying probabilities of weather outcomes.

SUSTAINABLE DEVELOPMENT AND ENVIRONMENTAL ACCOUNTING

The term sustainability reflects the need for careful balance between economic growth and environmental preservation. Although many definitions exist, sustainability generally refers to “meeting the needs of the present generation without compromising the needs of future generations.” In a classic definition, a development path is sustainable “if and only if the stock of overall capital assets remains constant or rises over time.” But in this regard, natural resources and other forms of capital are substitutes only at a limited scale and to a limited degree. Rather, after the environment has been degraded to some extent, natural resources and other forms of capital likely act as complements. Manufactured capital is generally unproductive without a minimum of available environmental services. While future technological fixes may be imagined, there is certainly no guarantee that they will emerge.

Implicit in these statements is the fact that future growth and overall quality of life are critically dependent on the quality of the environment. The natural resource base of a country and the quality of its air, water, and land represent a common heritage for all generations. To destroy that endowment indiscriminately in the pursuit of short-term economic goals penalizes both present and, especially, future generations.

It is therefore important that development policymakers incorporate some form of environmental accounting into their decisions. For example, the preservation or loss of valuable environmental resources should be factored into estimates of economic growth and human well-being. Alternatively, policymakers may set a goal of no net loss of environmental assets. In other words, if an environmental resource is damaged or depleted in one area, a resource of equal or greater value should be regenerated elsewhere.

Overall capital assets are meant to include not only manufactured capital (machines, factories, roads) but also human capital (knowledge, experience, skills) and environmental capital (forests, soil quality, range land). By this definition, sustainable development requires that these overall capital assets not be decreasing and that the correct measure of sustainable net national income (NNI*) is the amount that can be consumed without diminishing the capital stock. Symbolically,

$$NNI^{*} = GNI - D_m - D_n$$

Where, NNI* is sustainable national income, Dm is depreciation of manufactured capital assets, and Dn is depreciation of environmental capital—the monetary value of environmental decay over the course of a year. NNI* includes costs of activities to reverse or avert environmental decay. An even better measure, though more difficult to calculate with present data collection methods, would be:

$$NNI^{**} = GNI - D_m - D_n - R - A$$

Where, Dm and Dn are as before, R is expenditure required to restore environmental capital (forests, fisheries, etc.), and A is expenditure required to avert destruction of environmental capital (air pollution, water and soil quality, etc.). In light of rising consumption levels worldwide combined with high rates of population growth, the realization of sustainable development will be a major challenge. We must ask ourselves, what are realistic expectations about sustainable standards of living? From present information concerning rapid destruction of many of the world's resources, it is clear that meeting the needs of a world population that is projected to grow by over 2 billion in the next 40 years will require radical and early changes in consumption and production patterns.

- **Environmental accounting**
  The incorporation of environmental benefits and costs into the quantitative analysis of economic activities.
- **Environmental capital**
  The portion of a country's overall capital assets that directly relate to the environment—for example, forests, soil quality, and ground water.
- **Sustainable development**
  A pattern of development that permits future generations to live at least as well as the current generation, generally requiring at least a minimum environmental protection.

- **Sustainable net national income (NNI*)**
  An environmental accounting measure of the total annual income that can be consumed without diminishing the overall capital assets of a nation (including environmental capital).

POPULATION, RESOURCES, AND THE ENVIRONMENT

Much of the concern over environmental issues stems from the perception that we may reach a limit to the number of people whose needs can be met by the earth's finite resources. We may or may not reach this point, given the potential for new technological discoveries, but it is clear that continuing on our present path of accelerating environmental degradation would severely compromise the ability of present and future generations to meet their needs. A slowing of population growth rates would help ease the intensification of many environmental problems. However, the rate and timing of fertility declines, and thus the eventual size of world population, will largely depend on the commitment of governments to creating economic and institutional conditions that are conducive to limiting fertility.

Rapidly growing populations have led to land, water, and fuel wood shortages in rural areas and to urban health crises stemming from lack of sanitation and clean water. In many of the poorest regions of the globe, it is clear that increasing population density has contributed to severe and accelerating degradation of the very resources that these growing populations depend on for survival. To meet expanding needs in developing countries, environmental devastation must be halted and the productivity of existing resources stretched further so as to benefit more people. If increases in GNI and food production are slower than population growth, per capita levels of production and food self-sufficiency will fall. Ironically, the resulting persistence of poverty would be likely to perpetuate high fertility rates, given, as noted in Chapter 6, that the poor are often dependent on large families for survival.

POVERTY AND THE ENVIRONMENT

The poor are usually the main victims of environmental degradation. The poor suffer more from environmental decay because they must often live on degraded lands that are less expensive because the rich avoid them. Moreover, people living in poverty have less political clout to reduce pollution where they live. And living in less productive polluted lands gives the poor less opportunity to work their way out of poverty. But in some cases they are also its agents, typically as a result of the constraints of their poverty. Too often, again, high fertility is blamed for problems that are attributable to poverty itself. For example, China's population density per acre of arable land is twice that of India, yet yields are also twice as high. Though it is clear that environmental destruction and high fertility go hand in hand, they are both direct outgrowths of a third factor, absolute poverty. For environmental policies to succeed in developing countries, they must first address the issues of landlessness, poverty, and lack of access to institutional resources. Insecure land tenure rights, lack of credit and inputs, and absence of information often prevent the poor from making resource-augmenting investments that would help preserve the environmental assets from which they derive their livelihood. Hence preventing environmental degradation includes as a key component the provision of institutional support to the poor, rather than fighting an inevitable process of decay. For this reason, many goals on the international environmental agenda are very much in harmony with the three objectives of development articulated in Chapter 1.

GROWTH VERSUS THE ENVIRONMENT

If, in fact, it is possible to reduce environmental destruction by increasing the incomes of the poor, is it then possible to achieve growth without further damage to the environment? Evidence indicates that the very poor cause considerable environmental destruction as a direct result of their poverty. It follows that increasing the economic status of the poorest group would provide an environmental windfall. However, as the income and consumption levels of everyone else in the economy also rise, there is likely to be a net increase in environmental destruction. Meeting increasing consumption demand while keeping environmental degradation at a minimum will be no small task.

At one point, it was widely believed that as per capita incomes rose, pollution and other forms of environmental degradation would first rise and then fall in an inverted-U pattern. (This idea is referred to as the environmental Kuznets curve because Kuznets's hypothesis that inequality would first rise and then fall as incomes increased, as detailed in Chapter 5, also traces such an inverted-U pattern.) According to the theory, as incomes rise, societies will have both the means and the willingness to pay for environmental protection. Indeed, there is good evidence that this inverted-U relationship holds for some local pollutants such as particulate matter in the air, sulfur dioxide, and nitrogen oxides. However, there is no convincing evidence that other environmental damage decreases with higher incomes. As we will see, this is a particular problem when it comes to global public goods, such as greenhouse gases. Even if the environmental Kuznets curve relationship does hold in the very long term, some damage, such as loss of biodiversity, may well prove to be irreversible.

Active international policy will be needed. "Green growth"—partly involving lower greenhouse gas emissions—is a major policy initiative in many nations. For example, South Korea has been largely basing its recent development strategy around this approach; most of its stimulus budget following the 2008 financial crisis was invested toward achieving a green economy.

- **Environmental Kuznets curve**
  A graph reflecting the concept that pollution and other environmental degradation first rises and then falls with increases in income per capita. There is evidence that this holds for some pollutants, such as sulfur dioxide and particulate matter in the air, but not for others, such as emissions of greenhouse gases.

Lesson 30

THE ENVIRONMENT AND ECONOMIC DEVELOPMENT (CONTINUED1)

RURAL DEVELOPMENT AND THE ENVIRONMENT

To meet the expanded food needs of rapidly growing populations, it is estimated that food production in developing countries will have to increase by at least 50% in the next three decades. Because land in many areas of the developing world is being unsustainably overexploited by existing populations, meeting this output target will require radical changes in the distribution, use, and quantity of resources available to the agricultural sector. And because women are frequently the caretakers of rural resources such as forests and water supplies and provide much of the agricultural supply of labor, it is of primary importance that environmental programs be designed around their role—not considered as an afterthought. In addition, poverty alleviation efforts must target women's economic status in particular to reduce their dependence on unsustainable methods of production.

The increased accessibility of agricultural inputs to small farmers and the introduction (or reintroduction) of sustainable methods of farming will help create attractive alternatives to current environmentally destructive patterns of resource use. Land-augmenting investments can greatly increase the yields from cultivated land and help ensure future food self-sufficiency.

URBAN DEVELOPMENT AND THE ENVIRONMENT

Chapter 7 demonstrated that rapid population increases accompanied by heavy rural-urban migration is leading to unprecedented rates of urban population growth, sometimes at twice the rate of national growth. Consequently, few governments are prepared to cope with the vastly increased strain on existing urban water supplies and sanitation facilities. The resulting environmental ills pose extreme health hazards for the growing numbers of people exposed to them. Such conditions threaten to precipitate the collapse of the existing urban infrastructure and create circumstances ripe for epidemics and national health crises. These conditions are exacerbated by the fact that under existing legislation, much urban housing is illegal. This makes private household investments risky and renders large portions of urban populations ineligible for government services.

Congestion, vehicular and industrial emissions, and poorly ventilated household stoves also inflate the tremendously high environmental costs of urban crowding. Lost productivity of ill or diseased workers, contamination of existing water sources, and destruction of infrastructure, in addition to increased fuel expenses incurred by people's having to boil unsafe water, are just a few of the costs associated with poor urban conditions. Research reveals that the urban environment appears to worsen at a faster rate than urban population size increases, with the result that the marginal environmental cost of additional residents rises over time. However, for a given income, the carbon footprint of a city resident tends to be lower than that of a suburban or rural resident. The importance of urban as well as rural environmental protection is recognized in the seventh Millennium Development Goal.

THE GLOBAL ENVIRONMENT AND ECONOMY

As total world population grows and incomes rise, net global environmental degradation is likely to worsen. Some trade-offs will be necessary to achieve sustainable world development. By

using resources more efficiently, a number of environmental changes will actually provide economic savings, and others will be achieved at relatively minor expense. However, because many essential changes will require substantial investments in pollution abatement technology and resource management, significant trade-offs between output and environmental improvements will occasionally become necessary. The poorer the country, the more difficult it will be to absorb these costs. Yet a number of issues, including biodiversity, rain forest destruction, and population growth, will focus international attention on some of the most economically strapped countries in the world. In the absence of substantial assistance to low-income countries, environmental efforts will necessarily have to be funded at the expense of other social programs, such as education, health services, and employment schemes, that themselves have important implications for the preservation of the global environment.

Most cumulative environmental destruction to date has been caused by the developed world. However, with high fertility rates, rising average incomes, and increasing greenhouse gas emissions in the developing world, this pattern is likely to reverse in the coming years. China is now the world's largest greenhouse gas emitter, albeit still lower on a per capita basis than most rich countries. It is a matter of ongoing debate how the costs of global reform should be divided, as witnessed in the climate change summit in Copenhagen in December 2009, and Cancun in December 2010.

THE NATURE AND PACE OF GREENHOUSE GAS–INDUCED CLIMATE CHANGE

Environmental scientists and economists are increasingly appreciating that the impacts of global warming are likely to be felt earlier than expected—indeed, are already beginning to be felt in parts of Africa—and that the window within which very large future costs can be averted is starting to close. The developed countries will have to take the lead and bear most of the costs in funding both remediation and adaptation in low-income countries, but developing countries will also need to play a significant role in limiting global warming to safeguard their own futures. We examine this issue in greater depth later in the chapter.

NATURAL RESOURCE–BASED LIVELIHOODS AS A PATHWAY OUT OF POVERTY: PROMISE AND LIMITATIONS

As noted at the start of this chapter, more than half of the economically active people in the developing world depend on agriculture, hunting, fishing, or forestry. This environmental income, along with foraging and other activities, is vitally important to a majority of the poor and under the right policy conditions can offer a pathway out of poverty. But access to the benefits of environmental resources is often highly inequitable and in some cases increasingly so. In many countries, the poor have been losing control of some of their traditional natural resource commons, including forests, fields, and fishing areas, to new private property rights arrangements or to corrupt public land management. This trend is being widely resisted by communities and their supporters in NGOs, agencies, and local governments. Many of the rural poor lacking access to adequate farmland or to resources for earning adequate livelihoods from nature, such as access to forests, cattle to graze, or boats and equipment for fishing, have seen few gains or suffered setbacks.

In developing countries, much natural resource exploitation has been locally unsustainable and has occurred in a manner and on a scale that often bypasses the poor. In Africa and Asia, what had been common village lands may be "spontaneously" privatized. Governments may grant or allow (or overlook) foreign or national companies' logging, fishing, and mining without regard to the people who depend on these lands and resources for their livelihoods and way of life. Or

they may designate common lands used by the poor to be “protected” areas—although corruption and poaching may negate any ecological gains—thereby banning the livelihood and way of life of the poor, giving them no incentive to take part in protection. Part of the solution is “pro-poor governance,” with the genuine empowerment of poor people and their communities to assert their rights. This magnifies the impact of training that helps fuse scientific management with traditional community practices. The empowerment of women in their communities is often a key aspect of program success. Many outstanding examples, such as the Suledo Forest Community and the HASHI project in Tanzania, are found among winners and runners-up of the United Nations Equator Prize, which recognizes “local efforts to reduce poverty through the conservation and sustainable use of biodiversity.”

THE SCOPE OF DOMESTIC-ORIGIN ENVIRONMENTAL DEGRADATION: AN OVERVIEW

Environmental challenges in developing countries caused by poverty include health hazards created by lack of access to clean water and sanitation, indoor air pollution from biomass stoves, and deforestation and severe soil degradation— all most common where households lack economic alternatives to unsustainable patterns of living. The principal health and productivity consequences of environmental damage include water pollution and scarcity, air pollution, solid and hazardous wastes, soil degradation, deforestation, loss of biodiversity, and global warming–caused climate change. It is estimated that over 60% of the poorest people residing in developing countries struggle for survival on agriculturally marginal soils. This trend is greatly worsened in some areas of the developing world by strong inequalities in the distribution of land, which force an ever-growing class of landless workers onto increasingly taxed, ecologically sensitive soils. The growing intensification of cultivation on fragile lands leads to rapid soil degradation and loss of productivity. It has been estimated that roughly 270,000 square kilometers of soil lose virtually all of their productivity each year. An area greater than the size of India and China combined has been significantly degraded.

The resulting annual loss in agricultural productivity is estimated to be between 0.5% and 1.5% of annual worldwide GNI. As a result of rapid population increases and the failure of agricultural production to keep pace, per capita food production declined in sub-Saharan Africa during the 1980s and 1990s (see Chapter 9). The higher commodity prices of this century have apparently encouraged poaching and illegal logging in countries such as Indonesia. High fish prices have been associated with over-fishing in restricted areas and environmentally destructive fishing practices. Runoffs and collateral damage have resulted from expansion of mining activities into sensitive areas. In many of these cases, indigenous and poor people dependent on natural resources for their survival have suffered.

An environmental problem shared by both the urban and the rural poor is the prevalence of unhealthy conditions created by the lack of clean water and sanitation. This in turn contributes greatly to the spread of infectious diseases. It has been estimated that waterborne pathogens that cause typhoid, cholera, amoebic infections, bacillary dysentery, and diarrhea account for 80% of all disease in developing countries and at least in part for up to 90% of the nearly 9 million child deaths each year. Deteriorating environmental conditions were cited as a contributing factor to the spread of cholera epidemics and other health problems in a number of countries in Latin America and Africa in the 1990s (see Chapter 8). And as noted in Chapter 7, rapid population growth and heavy rural-urban migration make it difficult to extend urban services to many people who need them. Airborne pollutants also take a high toll on the health of citizens in developing countries. Dependence on biomass fuels such as wood, straw, and manure is closely related to poverty.

The burning of biomass fuels for cooking and the boiling of water create dangerously high levels of indoor pollution to which 400 million to 700 million people, mostly women and children, are exposed each year. Smoke and fumes from indoor stoves are believed to contribute significantly to some 4 million childhood deaths each year from respiratory diseases and to an ever-larger number of chronic respiratory illnesses. In urban areas, other sources of pollution pose serious threats to physical well-being. According to the World Health Organization, 1.3 billion people live in urban areas with unsafe levels of airborne pollutants. Yet, it has been projected that by 2030, manufacturing in developing countries will expand to 600% of 2000 levels, vastly increasing potential concentrations of pollutants. Just to maintain current urban air standards until 2030 (which means conceding to conditions much worse than those existing in the urban centers of developed countries), average emissions from industries and electric generators in developing countries would have to be reduced by 90% to 95% per unit of output.

RURAL DEVELOPMENT AND THE ENVIRONMENT: A TALE OF TWO VILLAGES

To clarify how rural poverty and environmental degradation interact, let us take a brief look at two hypothetical developing-world villages, one in Africa and the other in South America.

A VILLAGE IN SUB-SAHARAN AFRICA

The residents of the African village, located in a semiarid landscape, have been warned by international experts that cutting the remaining trees and cultivating marginal land will only worsen the hardships that they already endure. The advice runs counter to each family's first priority, which remains obtaining the basic necessities for survival. Here trees serve many functions, the most important of which is to provide firewood for cooking. Without wood, it would be impossible to prepare many foods, make cornmeal, or boil water. As a result of the intensification of land use by a rapidly growing population, the cutting of trees for firewood, and the clearing of marginal land for cultivation, the soil is increasingly exposed to destructive environmental forces.

The loss of vegetation, which helps mitigate the destructive impact of heavy winds, rain, and desiccation by the sun, leads to more rapid erosion of precious topsoil needed for cultivation. Good yields are more difficult to obtain, and the consequences of drought years are more intense. Desertification—encroachment of the desert into areas where erosion has been most severe—threatens to consume even the more productive land. As a result of the loss of precious topsoil and declining output, there are fewer crops to bring to market to barter for necessities. In many households, there is less food for the children. Yet the family must spend longer hours trying to obtain enough income to survive. Paid work is scarce, although some households earn a small amount of additional income by sending family members to work on larger, more prosperous farms.

It is generally the job of women to collect enough firewood for the day's cooking. It may take hours to walk to and from an area where it is available, adding considerably to the day's work. But no alternative forms of fuel are available in the local market, and even if they were, household funds would be insufficient to purchase them. In fact, many women spend additional time collecting precious firewood to make charcoal, which can then be sold in the cities for the equivalent of a few pennies, which helps buy household necessities. The low opportunity cost of a woman's time perpetuates the wasteful use of forests and worsens local environmental conditions.

- **Desertification**
  The transformation of a region into dry, barren land with little or no capacity to sustain life without an artificial source of water.

A SETTLEMENT NEAR THE AMAZON

Consider now the other hypothetical village, on the edge of a vast rain forest in South America. The great majority of farmers here are newcomers, drawn by government promises of land and prosperity. The public resettlement program, which distributes property titles to settlers willing to clear the land, is designed to reduce the overcrowding of cities and stem the flow of rural-to urban migrants. In contrast to the African village, this settlement has no shortage of rainfall, wildlife, or trees. In fact, the forest is an obstacle for migrant farmers and is regularly burned to make room for cultivation.

Though burning the forest may temporarily provide the landless with a modest source of income, the land, like 90% of rain forest soil worldwide, is not very fertile and can sustain intensive cultivation for only a few years. Complementary inputs and farming know-how that might help improve levels of output are in short supply, and yields begin to drop rapidly after the first few years. Settlers are then forced to burn their way deeper into the forest. Because the settlers are located on marginal soils and must constantly seek new arable ground, with little prospect of rising above a subsistence existence, the government program may be anti-developmental in the long run. Household incomes remain low and unstable, there is little gain in average productivity, and the migrating population leaves environmental devastation in its wake, further reducing the productivity of all.

ENVIRONMENTAL DETERIORATION IN VILLAGES

Although heavy urbanization is leading to rapid demographic changes, the majority of the very poor live in rural areas similar to the two villages just described. Economic necessity often forces small farmers to use resources in ways that guarantee short-term survival but reduce the future productivity of environmental assets. Unsustainable patterns of living may be imposed by economic necessity. In periods of prolonged and severe food shortages, desperately hungry farmers have been known to eat the seeds with which they would have planted the next year's crop, knowingly paving the way for future disaster. Because it happens more slowly, the tendency of impoverished people to degrade agricultural resources on which they depend for survival is less dramatic, but it is motivated by similar circumstances.

The causes and consequences of rural environmental destruction vary greatly by region. However, persistent poverty is frequently the root of much locally caused damage. The majority of the poor in developing countries survive on the meager yield obtained from cultivation of small plots of land whose soil may be too shallow, too dry, or too sandy to sustain permanent agriculture. If the land is not in some way replenished through either shifting cultivation or the use of manufactured fertilizers, it becomes exhausted, and yields decrease with successive harvests. But the poor generally do not have the wherewithal to increase the productivity of the land by allowing it to lay fallow or by making investments in irrigation and fertilizer.

In addition, where fertility rates are high and children provide a vital economic contribution through wages or on-farm labor, population and the intensity of cultivation are likely to increase over time, speeding the rate at which the soil becomes exhausted. One immediate result of this type of environmental pressure is soil erosion. With little plant cover to protect it from wind and

water, precious topsoil may be blown or washed away, further reducing the productivity of the land. This process of environmental degradation leads to persistent declines in local per capita food production and may eventually lead to desertification. This phenomenon is likely to spur increases in rural-to-urban migration or may force the remaining local population onto even less fertile land, where the process is repeated.

Another factor in the cycle of rural poverty and environmental destruction is deforestation. The vast majority of wood cut in the developing world is used as fuel for cooking. Loss of tree cover has two potentially devastating environmental implications for predominantly poor rural populations. Deforestation can lead to a number of environmental maladies that over time can greatly lower agricultural yields and increase rural hardships. On a day-today basis, however, the increasing scarcity of firewood means that women must spend large portions of the day in search of fuel, diverting time from other important activities such as income generation and child care. In the worst cases, fuel shortages are sufficient to require the burning of biomass or natural fertilizers, such as manure, which are important farm inputs for maintaining crop yields.

Environmental degradation that begins on a local scale can quickly escalate into a regional problem. For example, clearing of vegetation at high elevations may increase the exposure of cultivated lands at lower altitudes. Soil that has been carried away by heavy rains may silt rivers and pollute drinking water. Plants help retain rainfall, which percolates down through the soil into underground reserves of groundwater. The water is in turn tapped by a variety of plants during dry seasons in arid regions. The loss of vegetation and forest leads to a decrease in the rate at which groundwater is replenished and can even cause a decrease in local rainfall.

The subsequent drop in the water level leads to the death of plants with shallow root systems, including young trees. This self-perpetuating process can spread the malady to previously unaffected regions. Not surprisingly, the increase in natural disasters associated with local environmental degradation, including floods, droughts, and mudslides, can have a devastating impact on both the local and the regional agricultural economy. These problems are expected to be severely exacerbated by climate change associated with global warming in coming decades.

- **Soil erosion**
  Loss of valuable top soils resulting from overuse of farmland, and deforestation and consequent flooding of farm land.
- **Deforestation**
  The clearing of forested land either for agricultural purposes or for logging and for use as fire wood.

Lesson 31

THE ENVIRONMENT AND ECONOMIC DEVELOPMENT (CONTINUED2)

GLOBAL WARMING AND CLIMATE CHANGE: SCOPE, MITIGATION, AND ADAPTATION

SCOPE OF THE PROBLEM

In 2007, the Intergovernmental Panel on Climate Change (IPCC) released its fourth assessment report. It concluded that the developing world, particularly the poorest countries, can expect major consequences from global warming, involving larger and more severe heat waves, hurricanes, floods from heavy rains, prolonged droughts, losses of valuable species, and crop and fishing losses. These conclusions have been strongly reinforced by subsequent research. The IPCC identified four zones highly vulnerable to greenhouse gas–induced climate change: sub-Saharan Africa because of drying, Asian mega deltas because of flooding, small islands due to multiple sensitivities, and the Arctic. Sub-Saharan Africa will be hit particularly hard. The IPCC report concluded that by 2020, although adaptations would help, and certain regions such as Ethiopian highlands would gain from lengthened growing seasons, conditions will already worsen.

The study projected that 75 to 250 million people in Africa will be exposed to increased “water stress due to climate change” by 2020. Coastal fisheries, mangroves, and coral reefs will be further degraded and threatened by projected rises in sea level and storms. Freshwater lakes will also be negatively affected.

In Asia, millions of people live in low-lying areas in the path of typhoons of expected increasing frequency and intensity or otherwise at greater risk of ocean or river flooding. Glacier melting is projected to increase flooding, but after a few decades, once the glaciers have receded, there will be decreased flow, especially in the summer, when seasonal melt had been normal and beneficial. Decreased freshwater availability could affect a billion people in Asia by the 2050s. With moderate warming, crop yields are projected to rise in some northern areas in Asia but fall in many tropical and subtropical areas. Increased flooding also threatens both rural and urban infrastructure. Later in the century, South Asia faces further droughts, water shortages, and declines in agricultural productivity.

In Latin America, warming was projected to cause further losses of Amazon forest and biodiversity by mid century, while agriculture will be harmed in drier areas. Finally, many small islands are at risk because of sensitivity and vulnerability to ocean flooding, erosion, and loss of freshwater, fishing and tourism. In sum, prolonged droughts; expanded desertification; increased severity of storms with heavy precipitation and flooding and consequent erosion; longer and more severe heat waves; reduced summer river flow and water shortages; decreased grain yields; climate-induced spreading ranges of pests and disease; lost and contaminated groundwater; deteriorated freshwater lakes, coastal fisheries, mangroves, and coral reefs; and coastal flooding—one or more of these impacts are expected to affect most of the world’s poorest countries during this century, and sooner than once believed. Other likely ecological damage includes loss of essential species such as pollinators and soil organisms, forest and crop fires, and rising surface ozone levels. These problems mean that productivity gains can be lost just trying to keep pace with the deterioration.

That greenhouse gas–induced climate change has arrived and that much more is coming are beyond any reasonable doubt. While weather and average annual temperatures fluctuate, as an average, there is confirmation that some of these changes have already arrived. In July 2010, the U.S. National Oceanic and Atmospheric Administration (NOAA) released a study drawing on 11 indicators of climate and found that each one showed evidence of global warming due to the influence of greenhouse gases. The study was able to draw on data not yet available when the IPCC released its report.

Global warming is likely to present an unprecedented environmental challenge for the developing world. The 2006 Stern Review on the Economics of Climate Change concluded that "the poorest developing countries will be hit earliest and hardest by climate change, even though they have contributed little to causing the problem. Their low incomes make it difficult to finance adaptation. The international community has an obligation to support them in adapting to climate change. Without such support there is a serious risk that development progress will be undermined." The Review also concluded, consistent with other studies, that food production in the tropics would be harmed: "In tropical regions, even small amounts of warming will lead to declines in yield." The greater the degree of warming, the larger the predicted global agricultural and water impact. But generally, the Review found that effective remediation is surprisingly affordable—if decisive action is taken soon.

The worst of the impact will likely be felt by the very poor, who depend most on natural resources, including rain-fed agriculture. Moreover, the housing of the poor in urban as well as rural areas is often poorly constructed and located in the most environmentally stressed and risky areas—largely because the rich do not want to live there. Houses of the poor constructed of mud, bamboo, straw, and other inexpensive or gatherable materials are the most vulnerable to extreme weather events. The poor cannot get insurance against the risks to which they are most exposed. The World Health Organization has estimated that 150,000 deaths per year are caused by the global warming that has taken place since the 1970s, largely due to diarrhea, malaria, and malnutrition. Some analysts predict that in addition to the direct environmental impacts, social strains caused by increased resource scarcity may lead to greater conflict, with the poor again being the most likely victims. The crisis in the Darfur region of Sudan is believed by some analysts to have been triggered by environmental stress. Global warming also portends adverse health impacts, again particularly for the poor. For example, mosquito-carried malaria is expected to migrate to higher altitudes, newly threatening Nairobi, Harare, and other cities.

Policy adaptations can help make the "livelihood assets" of the poor more resilient to environmental stresses while providing other development benefits, for example, inventorying and tracking ecological resources of the poor; addressing environmental deprivations including susceptibility to ecological stresses in poverty assessments and programs; implementing early warning systems to anticipate environmental emergencies and to prevent disasters (preserving funds for development efforts); restoring and expanding natural ecosystem barriers (such as reforestation and mangrove expansion) to extreme events such as flooding and water shortages; constructing infrastructure to serve the poor while accounting for likely climate change (including storm shelters and flood barriers as well as protected roads and bridges, with a margin for safety); establishing micro insurance schemes for farmers; ensuring better voice and empowerment of the poor and their organizations—in part to get information about the environmental stresses they face to government, media, and the public and to make it more likely that the poor will get a fair share of government services; sharing economic growth more equitably; and supporting all this, demanding more government transparency and accountability.

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MITIGATION

Many strategies have been proposed for mitigation of emissions, including development of "carbon markets," taxes on carbon, and subsidies to encourage faster technological progress. For regulation, given uncertainties in both benefits and costs of emissions reductions, there are difficult economic questions in devising the most efficient permit or emissions tax regimes. As a policy strategy, the Stern Review suggests establishing a long-term quantity cap on greenhouse gases in the atmosphere to guard against environmental catastrophe. This would involve long-term limits on the amount of greenhouse emissions equal to a quantity that the earth can absorb. In the short term, policies could be designed to limit the economic burden if abatement costs turn out initially to be unexpectedly high.

Global warming is primarily but not exclusively a developed-country caused problem. Although much of the accumulated greenhouse gases to date has been emitted by the high-income countries, even if the developed world were to drastically reduce greenhouse gas pollution now, we would still have to act to contain greenhouse gas emissions of the developing world, which are projected to grow at alarming rates. This has many causes, but the rapid industrial growth in Asia is already a major contributor, and this is expected to worsen substantially with the planned expansion of coal-fired electrical generation in China, India, and elsewhere. Policies and mechanisms have been introduced essentially to pay for costs of avoiding emissions in developing countries.

Deforestation in developing countries contributes over 20% of harmful greenhouse gases, in addition to the losses it causes of valuable biodiversity and the environmental services of cleaning air and water. Helping developing countries reduce greenhouse gas emissions has emerged as an important dimension for foreign aid. Indeed, the need to develop and implement a mechanism for paying developing countries for forest preservation was agreed at the 2007 Bali negotiations on climate change and was to have been finalized at the 2009 Copenhagen summit. The resulting Reducing Emissions from Deforestation and Forest Degradation (REDD) mechanism, along with enhanced incentives for reestablishing and maintaining forests with engagement of indigenous communities that depend on them (known as REDD-plus), became part of the December 2009 Copenhagen accord. Although the parties "took note of" rather than signed the accord, activity in this area is expected to grow, albeit slowly. Modest progress was made at the December 2010 Cancun summit.

ADAPTATION

A significant amount of climate change is now essentially inevitable. Thus adaptation to climate change in developing countries is critical for protecting livelihoods and continuing to make development gains.

The UNDP has defined climate change adaptation as "a process by which strategies to moderate, cope with and take advantage of the consequences of climatic events are enhanced, developed and implemented."

Adaptation takes place in two forms: "planned" (or policy) adaptation undertaken by governments and "autonomous" (or private) adaptation undertaken directly by households, farms, and firms in response to climate change they experience or anticipate. The distinction between autonomous or private and planned or policy adaptation is not a sharp one—governments respond to citizens, and government incentives affect what individuals choose to do—but the categories are useful for analysis of adaptation. These responses are in some ways

complements and in other ways substitutes. If autonomous adaptation increases the marginal benefit of planned adaptation and vice versa, they are considered complements—for example, when farmers respond to increasing temperature by planting new varieties and government research institutes develop new heat-resistant seeds. But if autonomous adaptation reduces the need for planned adaptation and vice versa, then they are substitutes— for example, if government builds reservoirs and irrigation systems, farmers have less incentive to change crops or conserve water.

As suggested by Arun Agrawal and Nicolas Perrin, depending on how risks are reduced or avoided, five classes of adaptation strategies can be identified. Mobility avoids risks across space. Storage reduces risks experienced over time. Diversification reduces risks across assets owned by households or collectives. Communal pooling involves joint ownership of assets and resources; sharing of wealth, labor, or incomes from particular activities across households or mobilization and use of resources held collectively during time of scarcity. Exchange can substitute for the first four classes of adaptation strategies.

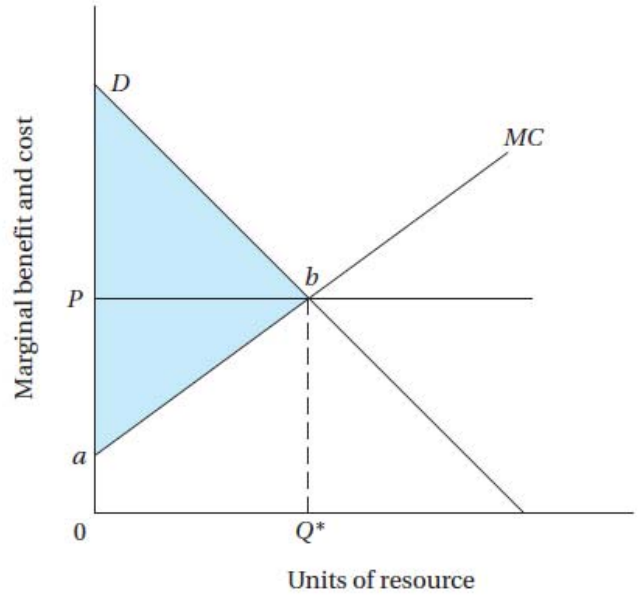
ECONOMIC MODELS OF ENVIRONMENT ISSUES

PRIVATELY OWNED RESOURCES

We will review some common economic models of the environment. In each model, the market's failure to account for environmental externalities is the exception rather than the rule, and neoclassical theory is then applied in order to cure or circumvent inefficiency. Neoclassical theory has been applied to environmental issues to determine what conditions are necessary for the efficient allocation of resources and how market failures lead to inefficiencies and to suggest ways in which these distortions can be corrected.

Figure 10.1 demonstrates how the market determines the optimal consumption of a natural resource. Finding the optimal market outcome involves maximizing the total net benefits to society from a resource, which is the difference between the total benefits derived from a

FIGURE 10.1 Static Efficiency in Resource Allocation



resource and the total costs to producers of providing it. This is equal to the shaded area in Figure 10.1. Total net benefit is maximized when the marginal cost of producing or extracting one more unit of the resource is equal to its marginal benefit to the consumer. This occurs at Q*, where the demand and supply curves intersect. In a perfectly competitive market, the "invisible hand" will ensure that Q* is the quantity produced. The marginal cost curve in Figure 10.1 is upward-sloping because extraction costs increase as a resource becomes more scarce. The resulting producer surplus is area aPb, and the consumer surplus is area DPb. Together they yield a maximum net benefit equal to Dab.

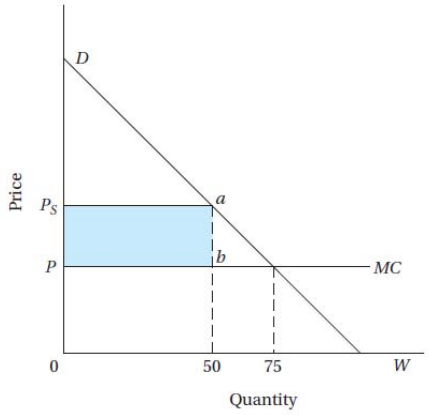
If resources are scarce and are rationed over time, scarcity rents may arise; these may obtain even when the marginal cost of production is constant, as in Figure 10.2. The owner of a scarce resource has a finite volume of a resource X to sell (75 units) and knows that by saving a portion of it for future sales; he or she can charge a higher price today. The price of a good that is being rationed inter temporally (over time) must equate the present value of the marginal net benefit of the last unit consumed in each period. That is, the consumer must be indifferent between obtaining the next unit today and obtaining it tomorrow. In Figure 10.2, assume that a resource owner has 75 units available. If he or she is willing to offer only 50 units for sale today, the market price for the scarce resource is Ps.

The scarcity rent collected by the owner of the resource is equal to PsabP, the shaded region in the diagram between price and marginal cost. It is the owner's ability to collect this rent that creates the rationing effect to ensure the efficient allocation of resources over time. In the absence of scarcity, all of the resource will be sold at the extraction cost P _ MC, 75 units will be consumed at one time, and no rent will be collected.

The proponents of neoclassical free-market theory stress that inefficiencies in the allocation of resources result from impediments to the operation of the free market or imperfections in the property rights system. So long as all resources are privately owned and there are no market distortions, resources will be allocated efficiently. Perfect property rights markets are characterized by four conditions:

1. **Universality**—all resources are privately owned.
2. **Exclusivity or "excludability"**—it must be possible to prevent others from benefiting from a privately owned resource.
3. **Transferability**—the owner of a resource may sell the resource when desired.
4. **Enforceability**—the intended market distribution of the benefits from resources must be

FIGURE 10.2 Optimal Resource Allocation over Time



enforceable.

Under these conditions, the owner of a scarce resource has an economic incentive to maximize the net benefit from its sale or use. For example, a farmer who owns his land will choose the levels of investment, technology, and output that maximize the net yield from the land. Because the value of the land may be used as collateral, any viable farm investment can be financed by obtaining a loan at the prevailing market rate of interest. If the foregoing conditions are not met simultaneously, inefficiencies are likely to arise. Thus the way to correct the misallocation of resources is generally to remove any market distortions. A number of models have been designed to explain apparent inefficiencies in resource allocation and to evaluate alternative remedies. We next look at two simple models of inefficiency arising from imperfections in property markets.

DEFINITIONS:

- **Total net benefit**
  The sum of net benefits to all consumers.
- **Marginal cost**
  The addition to total cost incurred by the producer as a result of increasing output by one more unit.
- **Producer surplus**
  Excess of what a producer of a good receives and the minimum amount the producer would be willing to accept because of a positive-sloping marginal cost curve.
- **Consumer surplus**
  Excess utility over price derived by consumers because of a negative-sloping demand curve.
- **Scarcity rent**
  The premium or additional rent charged for the use of a resource or good that is in fixed or limited supply.
- **Present value**
  The discounted value at the present time of a sum of money to be received in the future.
- **Marginal net benefit**
  The benefit derived from the last unit of a good minus its cost.
- **Property rights**
  The acknowledged right to use and benefit from a tangible (e.g., land) or intangible (e.g., intellectual) entity that may include owning, using, deriving income from, selling, and disposing.

Lesson 32

THE ENVIRONMENT AND ECONOMIC DEVELOPMENT (CONTINUED3)

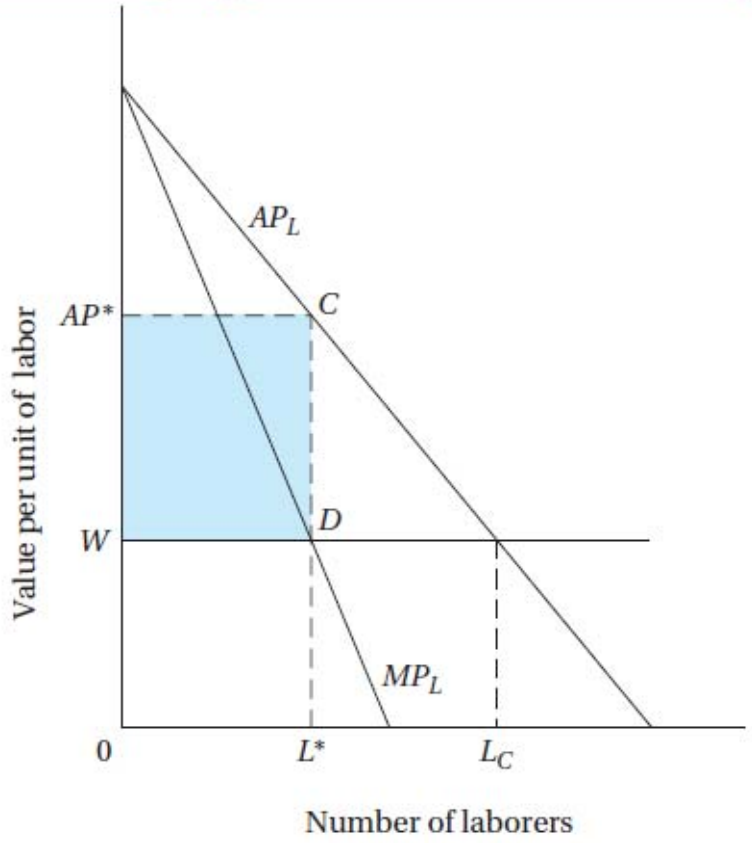
COMMON PROPERTY RESOURCES

- *A resource that is collectively or publicly owned and allocated under a system of unrestricted access, or as self-regulated by users.*

If a scarce resource (such as arable land) is publicly owned and is freely available to all (for, say, farming or grazing animals), as is the case with a common property resource, any potential profits or scarcity rents will be competed away (unless efficient social conventions are binding, as will be discussed shortly). As we have noted, neoclassical theory suggests that in the absence of scarcity rents, inefficiencies will arise. Using a somewhat different framework, we will investigate the misallocation of resources under a common property system. Figure 10.3 describes the relationship between the value per unit of labor on a given piece of land and the number of laborers cultivating it.

Suppose for the moment that this piece of land is privately held. Conventional wisdom tells us that the landowner will hire additional labor to work the land until the marginal product of the last worker is equal to the market wage, W, at point L*. The workload is shared equally among the employees, each of whom produces the average product. However, assuming decreasing returns to labor, each new worker hired reduces the average product of all workers. The marginal product of each additional worker is thus equal to his average product minus the decrease in the average product across all other workers. If an additional employee is hired beyond L*, his cost to the producer, W, will be greater than his marginal product, and the difference will represent a net loss to the landowner. A profit maximizer will thus hire L* workers, with a total output equal to average product AP* multiplied by the number of workers, L*. Scarcity rents collected by the landowner will equal AP*CDW.

FIGURE 10.3
Common Property Resources and Misallocation



Society's total net benefit from land will be lower under a system of common property unless workers can coordinate their resource use decisions in a cooperative manner. Generally, if land is commonly owned, each worker is able to appropriate the entire product of his work, which is equal to the average product of all workers. Worker income will continue to exceed the wage until enough workers are attracted so that the average product falls to the level of the wage, at which point the labor force equals LC. Though total output may either rise or fall (depending on whether MPL is positive or negative—it is negative as drawn in Figure 10.3), the marginal product of the additional workers is below the wage. Because we are assuming that all workers could be employed elsewhere with productivity equal to or greater than W, it follows that social welfare must fall when marginal product falls below W. This situation is sometimes referred to as the "tragedy of the commons." No scarcity rent is collected at LC. The implication of the common property resource model is that where possible, privatization of resources will lead to an increase in aggregate welfare and an efficient allocation of resources.

Note that these neoclassical models are strictly concerned with efficiency and do not address issues related to equity. Income distribution is not considered, and the theory is unconcerned with the distributional issues arising when all scarcity rents from national resources accrue to a few private owners. Although neoclassical theorists have sometimes suggested that an optimal outcome may be achieved through the taxation and then "lump sum" redistribution of the gains accruing to the owners of scarce natural resources, the historical record for such efforts is not encouraging. This is especially true where the authorities responsible for legislating and coordinating such redistributions are also the owners. Thus the large-scale commercial privatization of resources does not necessarily ensure an improvement in standards of living for the impoverished majority.

PUBLIC GOODS AND BADS: REGIONAL ENVIRONMENTAL DEGRADATION AND THE FREE-RIDER PROBLEM

In the preceding discussion, the core economic problem was that each additional worker who joined those cultivating commonly held land created a negative externality by lowering the returns to all other workers without providing any compensation. An externality occurs when one person's consumption or production behavior affects that of another without any compensation. The benefits and costs of one's actions are said to be internalized when one is made to bear them in full. In the previous common property problem, the externalities associated with decreasing average product were easily internalized by reestablishing perfect property markets through the privatization of public property. In many cases, the internalization of externalities is not so easily accomplished.

This is especially the case where the consequences of an individual's actions constitute a public good or a public bad. A public good is anything that provides a benefit to everyone and the availability of which is in no way diminished by its simultaneous enjoyment by others. Common examples include clean air, economic institutions, and national defense. A public bad is any product or condition that decreases the well-being of others in a non-exhaustive manner. Air pollution and water pollution are examples. Intuitively, it is clear that given the fact that individuals do not pay the full costs associated with their actions, too much of a public bad will be produced. The result is a socially non-optimal outcome. We will demonstrate this shortly using a diagrammatic representation. Public goods can be local, national, or, as with greenhouse gases, even global in scope.

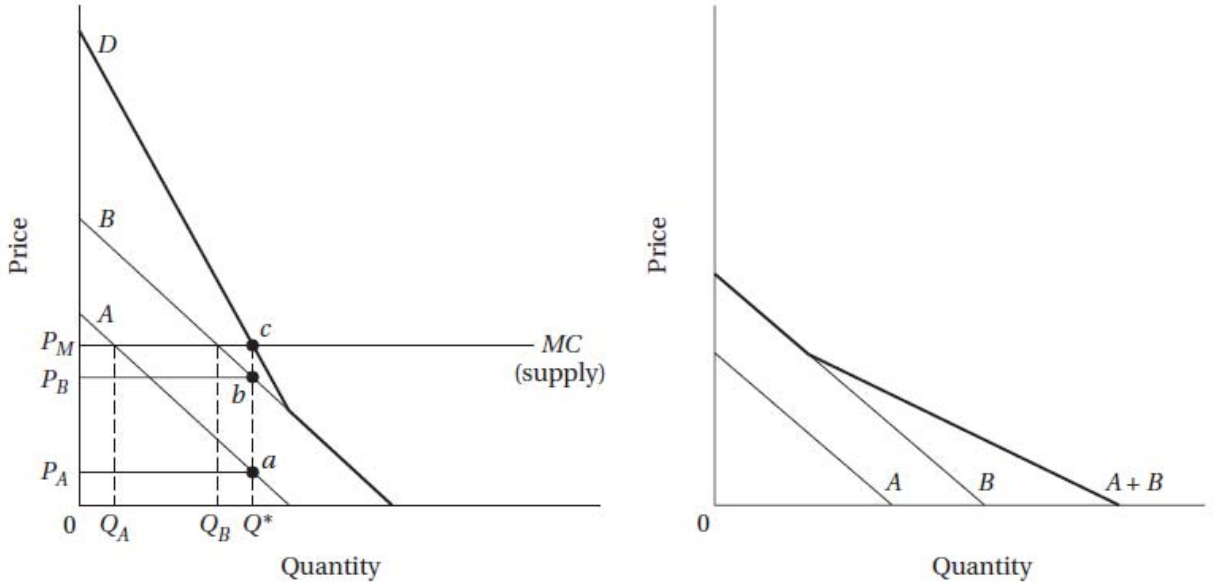
Let us consider the case of a particular public bad, regional environmental degradation caused by deforestation. Increased exposure to the forces of erosion, excessive drying of the soil,

regional loss of groundwater, silting or pollution of public water supplies, and potential climatic changes are all public bads associated with the clear-cutting or burning of trees. Whether these trees are on private or commonly held property, the clearing of protective ground cover, either for cultivation or for the extraction of timber, may lead to more widespread regional environmental degradation. To simplify our analysis, we will translate this public-bad problem into a public-good framework. Environmental conservation through the protection of trees provides a benefit to all and is thus a public good.

The most obvious difference between a public good and a purely private good is that aggregate demand for the public resource is determined by summing individual demand curves vertically, as in Figure 10.4a, rather than horizontally, as is the case for private goods as illustrated in Figure 10.4b. The difference results from the fact that many individuals may enjoy the same unit of a public good but only one may benefit from a unit of a normal, private consumption good. Through vertical summation, we are sure to capture all benefits accruing to all individuals from each unit of a public good. The marginal cost associated with the preservation of an additional tree is equal to the forestry maintenance cost plus the opportunity cost of the tree, that is, the most valuable alternative use of the tree, such as for firewood, charcoal, animal fodder, or lumber. Figure 10.4 illustrates the problem of pricing public goods.

In Figure 10.4a, the socially optimal number of trees is Q*. It is determined by the intersection of the (vertically summed) aggregate demand curve with the supply (MC) curve. At Q*, total net benefits to society from the public good, PMDc, are maximized. However, due to what we call

FIGURE 10.4 Public Goods, Private Goods, and the Free-Rider Problem



(a) Public good (vertical summation) (b) Private good (horizontal summation)

the free-rider problem, the free market will not lead to this optimal quantity. Because individuals are able to enjoy the benefits of trees provided by others, each will contribute less than what he or she would if acting independently. At a price of PM, the free market will satisfy person B's demand QB while not denying person A's requirements of QA; that is, A can free ride on B's contribution. The market will therefore provide a suboptimal level of forest preservation, QB. To restore optimality (Q* of the public good), some form of government intervention is required. The most effective solution is to charge each consumer just enough per unit, PA and PB for

individuals A and B, respectively, to entice each of them to demand the preservation of the optimal quantity of trees, Q*. Their joint payments, PA □□Q* for A plus PB □□Q* for B, represent a total contribution equal to PM □□Q*, exactly the sum required to purchase the socially optimal level of preservation.

LIMITATIONS OF THE PUBLIC-GOOD FRAMEWORK

The problem with the public-good pricing mechanism is, of course, how to know which prices to charge. People have no incentive to divulge how much they really benefit from a public good because by shirking, they may free-ride on the contributions of others and avoid paying their full share. A government may be capable of reducing market inefficiencies, but it is unlikely to be able to produce a perfect allocation of resources due to deficiencies in the information available to it. Hypothetically, collected fees can be used to provide a public good by preserving existing forests or managing a sustainable timber production program that will supply the community's needed timber. Although charging fees to the people benefiting from the preservation of a resource may sound practical, it is exceedingly difficult. In a development context, the problems become even more complicated. When the collection of fees entails taxing deeply impoverished populations with little or no cash income, such a program becomes impossibility. It would be equally difficult to collect payment from people who are cutting trees to meet subsistence needs. However, neoclassical theory can be useful for explaining why market failures lead to the inefficient allocation of resources in highly commercialized economies and how these inefficiencies may be mitigated.

URBAN DEVELOPMENT AND THE ENVIRONMENT

ENVIRONMENTAL PROBLEMS OF URBAN SLUMS

In some ways, life among the poor in urban slums is similar to that of the poor in rural villages: Families work long hours, income is uncertain, and difficult trade-offs must be made between expenditures on nutrition, medical care, and education. Though on average, urban dwellers are likely to have higher incomes, the poorest are frequently at greater risk of being exposed to dangerous environmental conditions. Let us contrast our earlier look at environmental conditions in an African and a South American rural community with those of an Asian urban shanty.

In a typical urban slum in an Asian metropolis, health-threatening pollutants are commonplace both inside and outside the home. Many women are unaware that the smoke from the fuels they burn in the home to cook and boil water may have severe long-term consequences for the health of their children (though public health programs and NGOs have recently been encouraging cooking with better alternatives, with some success). Conditions resulting from poor ventilation in the home can be equivalent to smoking several packs of cigarettes per day, and women and their children are exposed to these fumes for long portions of each day. Though some children actually avoid much of this exposure by attending school, many are kept out of school to assist their mothers in market work or the production of goods at home. Thus from an early age, chronic and acute bronchitis is a cruel fact of life. Debilitating and ultimately fatal respiratory infections among the poor are commonplace.

But it is not only in the home that individuals are exposed to harmful pollutants. Street vendors and market workers are constantly exposed to high levels of other pollutants. Untreated sewage runs in open drains along the roads, providing a conduit for infectious diseases. Because food and drinking water are frequently contaminated, diarrhea is common, especially in young

children. Frequent spells of the illness cause malnourishment, even when food is more plentiful, making the young more susceptible to other diseases. Many of the weakest children die from severe dehydration. Because the fuels used to cook foods and boil water must be purchased in the market and consume a large portion of the daily earnings, there is sometimes insufficient fuel to boil the household's drinking water, increasing the chance of infection. The costs associated with obtaining medical treatment for sick children may be very high; involving the opportunity cost of time spent traveling to and from clinics and long hours in crowded waiting rooms, in addition to medical fees. For many households, the forgone earnings can be ill afforded. In many of the poorest households, only boys receive medical attention because they are expected to contribute more to household income. It is thus not surprising that they are more likely than their sisters to survive to adulthood.

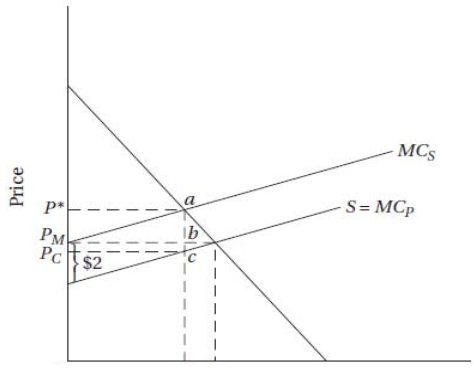
Children playing in the streets and others working outdoors are also exposed to the combined emissions from automobiles and factories. Dangerously high levels of atmospheric lead are common because few cars are equipped with the expensive catalytic converters now mandated in the West. Due both to physical and mental impairments suffered as a result of exposure to environmental factors and repeated absence from school, children in the poorest neighborhoods may find it difficult to meet basic academic standards. It is no wonder that improvement in the lives of slum dwellers is a key part of the Millennium Development Goals.

Because the urban poor are much less able than the wealthy to insulate themselves from the negative effects of a tainted environment, they are more likely to suffer serious consequences resulting from environmental degradation. In addition, malnutrition and poor health among a large proportion of urban dwellers in shantytowns tend to reduce individual resistance to environmental hazards.

INDUSTRIALIZATION AND URBAN AIR POLLUTION

The early stages of urbanization and industrialization in developing countries are generally accompanied by rising incomes and worsening environmental conditions. Cross-sectional analysis of numerous countries at different levels of income suggests that some types of urban pollution tend first to rise with national income levels and then to fall. As noted earlier, this effect has been dubbed the environmental Kuznets curve. According to the World Bank, pollution levels for even the worst quartile of high-income cities are better than for the best quartile of low-income cities. Indeed, at higher incomes, it is easier to afford expensive clean technologies. However, there is nothing inevitable about the trend. Air (and water) quality is closely related to the extent of government regulation, in both high- and low-income countries. Moreover, some environmental resources may be irretrievably lost unless action is taken immediately. The

FIGURE 10.5 Pollution Externalities: Private versus Social Costs and the Role of Taxation



principal sources of air pollution, which pose the greatest health threat associated with modernization, are energy use, vehicular emissions, and industrial production. Industrialization can lead to increases in waste either directly through emissions or indirectly by altering patterns of consumption and boosting demand for manufactured goods.

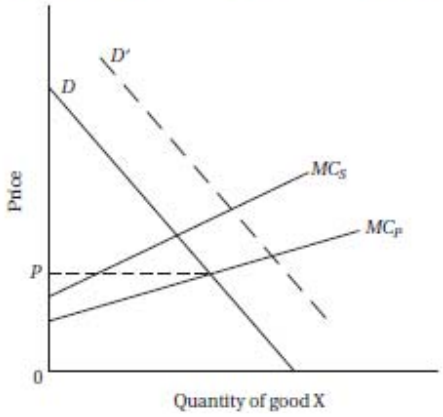
The production of manufactured goods generally entails the creation of by-products that may be detrimental to the environment. The extent to which they degrade the environment will depend on a number of factors, including the type of by-products produced, their quantities, and their means of disposal. Unfortunately, in the absence of regulation, the cheapest way to dispose of unwanted by-products is usually to release them untreated into the air and waterways or to dump them on the ground where runoff is free to sink into groundwater or wash into rivers. Due to the broader transmission of ideas, greater availability of goods, and increased incomes, changes in patterns of consumption and their environmental consequences are likely to appear first in cities. Until technologies and infrastructures capable of coping with environmental consequences are introduced, modernization is likely to lead to high urban environmental costs.

We have already looked briefly at the issue of externalities and the fact that many of the costs of pollutants are borne by someone other than the polluter. This suggests that the price paid for the consumption of a good is below the social cost associated with the good. Figure 10.5 depicts the typical supply and demand curves. In this case, however, we have labeled the supply curve S _ MCP because it represents the marginal private costs associated with producing good X. The free-market equilibrium output and price are QM and PM, respectively. If there are externalities associated with the consumption or production of each unit of good X, the MCP curve does not represent the true costs of the good to society. If each unit of good X imposes a cost of $2 on a third party, we can obtain the true marginal social cost curve MCS by legislating a $2-per-unit sales tax on the output.

This pollution tax shifts the private cost curve upward by $2 at every point to MCS in Figure 10.5. At the new intersection between the demand curve and the marginal social cost curve, Q* is the efficient outcome and P* the price. Therefore, by incorporating the social costs of pollution into the analysis, the actual output of the polluting product is reduced to the socially optimal level while the price charged to the consumer rises from PM to P* and the price received by the producer falls from PM to PC. Depending on the relative elasticities of the demand and supply curves, the burden of the pollution tax is shared by both consumers and producers. In Figure 10.5, the consumer pays ab and the producer bc of the ac tax.

At sufficiently high levels, most emissions will be toxic to humans or otherwise damaging to the

FIGURE 10.6 Increasing Pollution Externalities with Economic Growth



environment, whereas at low levels, per-unit costs may be insignificant. This is due to the fact that humans have some tolerance for most toxins, although the ability to tolerate exposure may rapidly decline as concentrations in drinking water and air increase. The environment also has an absorptive capacity that enables it to assimilate a quantity of most pollutants. Once this critical quantity has been exceeded, however, concentrations and hence toxicity are likely to rise rapidly. A more realistic marginal social cost curve is drawn in Figure 10.6. As concentrations of pollutants increase (as total output increases), the gap between the social and private cost curves increases. While aggregate demand remains low, this differential will be small.

However, as the demand curve shifts outward from D to D' with rapid urbanization and rising incomes, the importance of externalities rises at an increasing rate. This would suggest that the costs associated with curing urban ills caused by congestion will increase faster than the rate of increase of the population.

Health hazards are created by toxic air emissions as well as increasing volumes of waste that contaminate water supplies and land. Though research on the issue has been scanty, there is increasing evidence that in the absence of regulation, current and future increases in manufacturing and transport in developing countries will have serious consequences for public health. The World Health Organization (WHO) estimates that 1.5 billion people lived in cities with unsafe levels of airborne particulate matter and 1 billion were exposed to unacceptably high levels of sulfur dioxide. Other compounds, such as nitrous oxides and organic compounds rise in importance as industrialization proceeds. By contaminating water supplies, contributing to dangerous levels of air pollution, and damaging public and private property, industrial pollution can exact a high toll in terms of human health and economic prosperity.

PROBLEMS OF CONGESTION, CLEAN WATER, AND SANITATION

As serious as the threat of rising levels of industrial emissions of pollution may be to the health of urban inhabitants in developing countries, the two most important environmental factors affecting the health of the urban poor are the inaccessibility of clean water and the lack of sanitation. Although much progress has been made, in 2009, over a billion people still had no access to an improved water source, and 1.5 billion had no improved sanitation. The lack of sanitary conditions in urban slums often presents severe threats to human health. The urban statistics can be somewhat misleading because millions of urban residents were counted as having access if they shared a single faucet with over 1,000 residents at a considerable distance from their homes. Because there are no alternative sources, many of the poor collect drinking water from rivers, streams, and canals that are polluted with human excreta and chemicals.

Although the poorest urban dwellers experience many of the same adverse environmental conditions as the rural poor, including heavy indoor pollution and unsanitary conditions, crowding can intensify exposure. Raw sewage runs in many streets, mixing with garbage and contributing to the spread of disease. This is reflected in the fact that death rates in urban shanties are occasionally higher than in rural areas, even though the latter generally have fewer services.

The health and economic costs associated with these conditions are enormous (see Chapter 8) and represent formidable obstacles to the improvement of living standards. But children in households with adequate facilities are 60% less likely to die from diarrhea than those in households without such facilities.

Lesson 33

THE ENVIRONMENT AND ECONOMIC DEVELOPMENT (CONTINUED4)

POLICY OPTIONS IN DEVELOPING AND DEVELOPED COUNTRIES

WHAT DEVELOPING COUNTRIES CAN DO

A range of policy options is available for governments in developing countries. Seven stand out:

1. Proper resource pricing
2. Community involvement
3. Clearer property rights and resource ownership
4. Improving economic alternatives for the poor
5. Raising the economic status of women
6. Policies to abate industrial emissions
7. Taking a proactive stance toward adapting to climate change.

1- PROPER RESOURCE PRICING

The most obvious area for reform is probably government pricing policy, including subsidies, which can exacerbate resource shortages or encourage unsustainable methods of production. Often programs that were ostensibly designed to reduce hardships for the very poor have had little impact on poverty and have worsened existing inequalities. High-income households have frequently been the predominant beneficiaries of environmentally damaging energy, water, and agricultural subsidies. For example, on average in developing countries, the price paid for piped water is less than the total cost of supplying it. Due to rationing, such subsidies frequently benefit only people with higher incomes. Much public water is simply stolen—often by wealthy individuals. The result has often been a wasteful and unsustainable use of resources. Even though elimination of misdirected subsidies is a relatively costless (or profitable) way of protecting the environment, the political stakes are high where powerful elites stand to lose lucrative government transfers.

2- COMMUNITY INVOLVEMENT

Programs to improve environmental conditions are likely to be most effective when they work in tandem with community networks, ensuring that program design is consistent with both local and national objectives. The experience of development agencies has demonstrated that grassroots efforts can be more cost-effective because they generally involve the use of low-cost alternatives and provide jobs to local populations. When poor communities truly benefit from public-works programs, residents are often willing and able to contribute much of the program costs. Institutions facilitating cooperative management of common property resources can also be encouraged.

3- CLEARER PROPERTY RIGHTS AND RESOURCE OWNERSHIP

Investments in household sanitation and water and on-farm improvements often represent a large portion of lifetime savings for the poor, the loss of which can impose harsh economic consequences on households. Hence the lack of secure tenure on rural or urban property can

greatly hinder investment in environmental upgrading. Legalization of tenure can lead to improved living conditions for the poor and increases in agricultural investments.
In many cases, however, land reform may be necessary (see Chapter 9). It is not uncommon for renters or sharecroppers to lose the economic gains from their farm investments because it is relatively easy for landlords to extract higher rents once the productivity of the land has been improved. Transferring title to tenants may be the only means of ensuring that financial rewards from land-augmenting investments accrue to the investor. Land reform may also be required where unequal distribution of land has led to large tracts of uncultivated high-quality land in close proximity to overexploited marginal lands cultivated by large numbers of landless workers. If equitable and efficient common property resource use is to continue, well-designed facilitating policies will be needed, taking into account what has been learned about the conditions in which they are most effective.

4- PROGRAMS TO IMPROVE THE ECONOMIC ALTERNATIVES OF THE POOR

Further environmental devastation in rural areas may be avoidable in many cases through on-farm investments in irrigation and sustainable farming techniques, the use of alternative fuels, and the creation of barriers to erosion. However, the economic cost of each of these alternatives is prohibitive for the vast majority of impoverished family producers. Ironically, the greater the environmental devastation, the less likely that a rural population will be able to afford alternative methods of production. It is therefore important that government programs make credit and land-augmenting inputs accessible to small farmers. By providing rural economic opportunities outside the home, governments can also create alternative employment opportunities so that the very poor are not forced to cultivate marginal lands. For example, programs to build rural infrastructure (roads, storage facilities, etc.) create local jobs, alleviate population pressures on ecologically sensitive land, stimulate rural development, and reduce the flow of rural-to-urban migration.

5- RAISING THE ECONOMIC STATUS OF WOMEN

Improving the educational attainment of women and increasing their range of economic alternatives raise the opportunity cost of their time and may lead to decreases in desired family size (see Chapter 6). Education also tends to increase women's access to information concerning child nutrition and hygiene, a factor that has been linked to rapid declines in child mortality. It is important that community-based environmental programs work closely with women because their own day-to-day activities may largely determine patterns of resource use and their ability to meet the needs of their families is dependent on the sustainable management of water and fuel supplies.

6- INDUSTRIAL EMISSIONS ABATEMENT POLICIES

A range of policy options is available to developing-country governments for the purpose of limiting industrial pollution, including the taxation of emissions, tradable emissions permits, quotas, and standards. There is some evidence to suggest that the first two policies, which are market-based, are more effective because they tend to reward the more efficient producers, allow greater flexibility for firms, and are generally easier to enforce. Regulations should be as simple as possible and must be enforceable. Additional incentives to adopt clean technologies may be provided through tax credits and subsidies specifically tied to the purchase or development of pollution abatement technologies. Ironically, the hardest industries to regulate

are those run by governments themselves because the profit motive is often not a consideration and, as a general rule, it is difficult for any group to regulate itself.

7- PROACTIVE STANCE TOWARD CLIMATE CHANGE AND ENVIRONMENTAL DEGRADATION

Proactive policies can help make the developing economy in general and the poor in particular more resilient and able to adapt to climate change, much of which is already inevitable. Developing nations can implement and continuously improve early warning systems to anticipate environmental emergencies; promote reforestation; restore natural ecosystem barriers such as mangroves; improve micro insurance programs; and construct storm shelters, flood barriers, and protected roads and bridges. To protect forest cover, it may be effective to employ the poor as guardians of these resources. Living on site, they are more likely than absentee owners to pay attention to poaching and illegal logging. In many countries, more government transparency and accountability are also needed. The empowerment of the poor and their organizations can play an important role in protecting the natural resources on which many of the poor depend for their livelihoods and in seeing that government helps meet their generally greater needs for assistance with adaptation.

HOW DEVELOPED COUNTRIES CAN HELP DEVELOPING COUNTRIES

Industrial countries can help developing nations in their efforts to improve the environment of development in three areas: (1) trade liberalization, (2) debt relief, and (3) financial and technological assistance.

(1) TRADE POLICIES

The focus of much current discussion concerning the environment is the desperate need to break the cycle of poverty and environmental destruction in developing countries. However, protectionism in agricultural and other goods caused international markets and thus earning capacity for these developing-country products to shrink dramatically (see Chapter 12). According to a 2001 United Nations estimate, annual losses in the developing world due to the lack of access to the goods markets of the developed world were more than double the total amount of aid received in 2000 from all sources. If lack of access to capital and labor markets is also included, losses totaled about $500 billion. Eliminating trade barriers against developing country exports by stimulating economic growth in the developing world, creating new jobs, and encouraging rural development could significantly reduce the level of absolute poverty.

(2) DEBT RELIEF

Heavy debt servicing drastically reduces funds available to developing-country governments for domestic social programs, including those designed to alleviate poverty and reduce environmental degradation (see Chapter 13). Debt forgiveness may be required if governments particularly in heavily indebted poor countries are to be given the flexibility to make the sweeping changes necessary to achieve sustainable development.

- **Debt-for-nature swap**
  The exchange of foreign debt held by an organization for a larger quantity of domestic debt that is used to finance the preservation of a natural resource or environment in the debtor country

(3) DEVELOPMENT ASSISTANCE

Substantial new development assistance is necessary in developing countries to achieve sustainable development. These investments would be used for a variety of programs to alleviate poverty, provide services, and promote sustainable patterns of production. Additional aid from developing countries earmarked for these purposes could have a positive impact on developing-country environments (see Chapter 14). Even greater sums would be necessary to maintain tropical rain forests, which provide benefits to the entire international community through reduced CO2 emissions.

There are many tactics that can be evaluated on a case-by-case basis for cost-effectiveness. The most general approach is to support programs to alleviate landlessness and poverty, to help eliminate the socioeconomic causes of some of the tropical deforestation. Specific tactics include purchase of timber rights by national and international agencies, together with paying indigenous communities to monitor forest preservation (as originally proposed by Conservation International, an NGO). Preservation efforts could be paid for by the international community as a global public good, as was included in the pact “taken note of” following the December 2009 summit on climate change in Copenhagen, Denmark, and some progress was made in Cancun in December 2010.

WHAT DEVELOPED COUNTRIES CAN DO FOR THE GLOBAL ENVIRONMENT

Perhaps most important, developed countries, which currently consume over 70% of the earth’s resources, can directly contribute to global environmental improvement through their own efforts to (1) reduce harmful emissions, including greenhouse gases, (2) undertake R&D to develop green technologies and pollution control for themselves and for developing countries, and (3) alter their own environmentally harmful patterns of demand.

The United States and other developed countries produce a majority of the greenhouse gas emissions and consume a disproportionate share of environmentally sensitive products such as ocean fish; their consumption of energy, wood products, and raw materials is even more strikingly disproportionate. A substantial part of developed-country consumption is wasteful. It seems clear that the world as a whole cannot consume at current U.S. or other developed country levels; responsible consumption on the part of the developed countries is not just setting a good example but an ecological necessity. This does not mean that economies cannot continue to grow indefinitely—clearly they can, as more consumption becomes knowledge-based and more modest in its use of raw materials. It is rather that the patterns of consumption must change. As we have seen, price signals alone will not guide resource use when substantial externalities and public goods are involved.

(1) EMISSION CONTROLS

Beyond responsible consumption, perhaps the greatest contribution that the developed world can make to the global environment will be through a clear demonstration of their own commitment to a cleaner environment. Because they remain the main polluters of air and sea, developed countries must lead the way to global changes in current and future patterns of production. If wealthy nations do not achieve significant and sustained reductions in the production of greenhouse gases, it will be difficult to convince the developing world to do so, considering that per capita emissions levels are far below those in the industrialized countries.

(2) RESEARCH AND DEVELOPMENT

The high-income countries must also take a leadership role in research and development efforts. Growing public support for stricter environmental regulation in the industrialized world is likely to lead to the development of both cheaper emissions abatement technologies and cleaner (or “greener”) production processes. Innovations resulting from research and development will enhance efforts to reduce emissions if they are adopted in developing countries. Currently, many clean technologies are prohibitively expensive for the developing world’s industries. It is thus unrealistic to expect low-income countries to attain standards set in high-income countries. However, it is not necessary for developing countries to reproduce environmental debacles endured during the onset of industrialization in the developed world. Making cheaper, cleaner abatement technologies accessible to developing countries can help limit a principal source of global emissions— the rapid industrialization of the developing world. Availability of low-carbon technologies will be crucial in the fight to limit climate change.

(3) IMPORT RESTRICTIONS

Through its importation of products that are associated with environmentally unsustainable production, the developed world has an indirect but important impact on the global environment. International treaties to limit the destruction of endangered resources will have little effect if wealthy nations continue to provide lucrative markets for the sale of such goods. Import restrictions are an effective way of reducing undesired international trade. Consumer sovereignty expressed through boycotts and other forms of pressure on corporations can be effective. However, they require strong leadership and tend to focus on large firms, which represent only a relatively small portion of the overall problem.

Of course, it is important to make certain that such environmental restrictions applied by government or civil society are not merely disguised protectionism against developing countries and to ensure that the poor are provided opportunities to preserve their livelihoods through their environmental wealth in a sustainable and equitable manner.

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Lesson 34

INTERNATIONAL TRADE THEORY AND DEVELOPMENT STRATEGY

CASE STUDY

A WORLD OF CONTRASTS ON ONE ISLAND: HAITI AND THE DOMINICAN REPUBLIC

The terrible earthquake that struck Haiti in January 2010 brought to public awareness an immediate crisis of horrific proportions—and also an ongoing slow-motion disaster of poverty and suffering in a nation of 10 million people, including an environmental crisis. News reports showed its neighbor, the Dominican Republic (DR), also with a population of 10 million, with higher incomes, less poverty, and much better environmental conditions. Haiti's environmental disaster could have been substantially averted with better domestic policies. And so it is not the root cause of Haiti's problems. But why were better environmental (and other supporting) policies not in place? That is, what were the limits of Haiti's institutions in this respect? And are Haiti's environmental problems caused by the country's great poverty? Has environmental degradation itself now also become one of the causes of continued economic and human development stagnation? What could have been done with well targeted aid, and what role can aid play now?

Travelers to Haiti who flew across the border with the DR saw an astonishing contrast: Haiti to the west is barren, while the DR to the east is lush forest—except where Haitians desperate for fuel wood for income from charcoal production have made forays across the border. In 2004, the United Nations Development Program (UNDP) commented on this scene, noting "a cycle of poverty and environmental destruction has denuded hillsides." In 2005, Jared Diamond wrote eloquently that "the border looks like a sharp line with bends, cut arbitrarily across the island by a knife, and abruptly dividing a darker and greener landscape east of the line (the Dominican side) from a paler and browner landscape west of the line (the Haitian side)." He added, "On the ground, one can stand on the border at many places, face east, and look into pine forest, then turn around, face west, and see nothing except fields almost devoid of trees." Years after this helpful publicity, little to address the problems was being accomplished.

On the eastern (nearly) two-thirds of the island of Hispaniola that the two nations share, the Dominican Republic finds itself in the middle of the human development listing, at number 90 on the 2009 HDI. On the western third of Hispaniola, Haiti just barely escapes a low human development ranking, at number 149—a measurement taken before the impact of the earthquake.

The contrasts between the two nations sharing the island of Hispaniola were not always as stark as today. In 1960, the first year for which reliable information is available for Haiti, real incomes in these two countries were not very far apart, about $2,345 for the DR and $1,877 in Haiti—that is, approximately 25% higher in the DR. Haiti had about 12% of average U.S. income levels at the time, while the DR had 16% of average U.S. income. But by 2007, real GDP in the DR had risen to $9,664; but it actually fell in Haiti to $1,581. That is, income in the DR is now over six times that of Haiti. U.S. incomes grew in this period such that Haiti's average income by 2007 was less than 4% of U.S. levels. But the DR, which had grown somewhat faster than the United States, now reached an average income that was more than 22% of that in the United States. (While estimates differ across methods, the qualitative comparisons are similar.) This fact suggests that important clues are to be found in events and policies since 1960. On the other

hand, to understand opportunities and constraints so that it becomes clearer why policies diverged, it is often helpful to start with the beginnings of colonial times.

GEOGRAPHY AND ORIGINAL ENVIRONMENTS

Hispaniola is a subtropical island of about 76,482 square kilometers—smaller than Cuba but larger than Jamaica or Puerto Rico. Sharing the same island, both Haiti and the Dominican Republic seem to have started with similar geographies and environments, with some modest differences. The DR occupies about 64% of the land area; with the remaining 36%, Haiti is about the size of the Hawaiian Islands. Rainfall is slightly higher in the DR because the rain typically comes from the east; Haiti is more mountainous, and its mountains block the rain. The rivers flow mostly eastward from these mountains, providing water for the Dominican Republic. These modest initial environmental differences may have put Haiti at some disadvantage, but Haiti has done well economically in comparison to the DR in some periods. Both countries were once largely covered with forests. But environmental damage was already under way under colonial rule, with deforestation due to extensive logging and overuse of the soil. Adverse human influence has had a bigger impact in Haiti.

INSTITUTIONS: HISTORICAL LEGACY

- Clearly, neither country started with favorable institutions. The abundance of resources and the island's suitability for sugar production led the Spanish to create institutions designed for extraction.
- Both Haiti and the DR suffered subsequent attempts to reinstate slavery and fought wars against each other, including an 1821–1843 attempt at reunification (known as the Haitian occupation in the DR, whose Independence Day celebrates freedom from Haiti).

HUMAN CAPITAL

Haiti has the highest illiteracy rate in the western hemisphere, estimated at more than half the population. The school system is badly under funded and disorganized. Health conditions are equally bad and include high under-5 mortality, hunger, and a large HIV/AIDS problem. The 2010 cholera outbreak was a symptom of a broken health system. The DR, although not without serious education problems, has done a far better job than Haiti at providing its people with the human capital they need to compete in a globalizing economy.

POLICY EFFECTS

In the 1990s, growth rates accelerated in the DR due to improvements in education, trade policies, and infrastructure. Remittances and tourism grew to become nearly a quarter of the country's GDP, and net manufactures exports per capita doubled. Haiti, however, suffered from political instability during the same period. The army overthrew President Aristide in 1991 and began a violent regime that damaged the economy directly and also indirectly through subsequent UN and U.S. trade embargoes. Haiti also failed to diversify its economy; its continued focus on sugar has left Haiti not only contending with volatile sugar prices but also competing against sugar-subsidizing rich countries (most prominently the United States). The DR's diversification into tourism depended on a clean environment— both on its beaches and in its forests for ecotourism. Policy in the DR actively sought out foreign investment for manufacturing that provided higher-wage employment. The DR has long had far more nature reserves and national parks; Trujillo's insistence on forest preservation had long-run positive

effects on the environment and development. The DR has clearly had better policies, and apparently, a long legacy of institutions mattered for the policy differences between the DR and its neighbor.

Poverty can cause environmental damage, and the poor can in turn become its victims. Haiti's agricultural expansion was poorly managed. Deforestation has in turn led to the massive loss of fertile soil, lowering productivity of farms. Currently, more than a quarter of the Dominican Republic is forested, compared to only 1% forest cover in Haiti. A similar cover existed in Haiti as in the DR just a few decades ago. Other low-income countries have introduced and enforced helpful environmental regulations; had Haiti done the same, despite deep historical roots, the environmental disaster might at some level have been averted. The case of Haiti adds to the growing evidence that environmental destruction can retard the development process more generally and needs to be a bigger priority. Both countries have faced serious environmental challenges, including hurricanes and earthquakes. It is critical to manage the risk of extreme events before they become full-blown humanitarian disasters.

INTERNATIONAL TRADE THEORY AND DEVELOPMENT STRATEGY

ECONOMIC GLOBALIZATION: AN INTRODUCTION

- **Globalization:** The increasing integration of national economies into expanding international markets.

Globalization is one of the most frequently used words in discussions of development, trade, and international political economy. As the form of the word implies, globalization is a process by which the economies of the world become more integrated, leading to a global economy and, increasingly, global economic policymaking, for example, through international agencies such as the World Trade Organization (WTO). Globalization also refers to an emerging "global culture," in which people consume similar goods and services across countries and use a common language of business, English; these changes facilitate economic integration and are in turn further promoted by it. But in its core economic meaning, globalization refers to the increased openness of economies to international trade, financial flows, and direct foreign investment, topics of this and the following two chapters. The growing interconnection of all kinds across national governments and firms and directly between peoples is a process that affects everyone in the world, one that so far still seems more visible in the developed countries. But globalization can in many ways have a greater impact in developing countries.

For some people, the term globalization suggests exciting business opportunities, efficiency gains from trade, more rapid growth of knowledge and innovation, and the transfer of such knowledge to developing countries facilitating faster growth, or the prospect of a world too interdependent to engage in war. In part, globalization may well turn out to be all of these things. For other people, however, globalization raises troubling concerns: that inequalities may be accentuated both across and within countries, that environmental degradation may be accelerated, that the international dominance of the richest countries may be expanded and locked in, and that some peoples and regions may be left further behind. Nobel laureate Muhammad Yunus captured some of these sentiments when he wrote in 2008, "Global trade is like a hundred-lane highway criss-crossing the world. If it is a free-for-all highway, with no stop lights, speed limits, size restrictions, or even lane markers; its surface will be taken over by the giant trucks from the world's most powerful economies." Appropriate policies and agreements are needed to forestall such potential problems.

Thus globalization carries benefits and opportunities as well as costs and risks. This is true for all peoples in all countries but especially for poor families in low-income countries, for whom the stakes are much higher. The potential upside is perhaps also greatest for developing countries; globalization does present new possibilities for broad-based economic development. By providing many types of interactions with people in other countries, globalization can potentially benefit poor countries directly and indirectly through cultural, social, scientific, and technological exchanges, as well as through conventional trade and finance. A faster diffusion of productive ideas, such as a shorter time between innovation and adoption of new technologies around the world, might help developing countries catch up more quickly. In short, globalization makes it possible, at least in principle, for the less developed countries to more effectively absorb the knowledge that is one of the foundations of the wealth of developed countries. In addition, as Adam Smith wrote in 1776, "the division of labor is limited by the extent of the market." The larger the market that can be sold to, the greater the gains from trade and the division of labor. Moreover, the greater is the incentive for innovation, because the potential return is much larger.

The potential downside of globalization is also greater for poorer countries, if they become locked into a pattern of dependence, if dualism within developing countries sharpens, or if some of the poor are entirely bypassed by globalization. Critics have raised the legitimate worry that many people living in poverty could find it all the harder to break out of poverty traps without concerted public action—for example, if human capital falls below the minimum needed to engage the global economy. The share of international investment received by the poorest countries has been on a long-term trend of falling rather than rising. All countries may be affected by increased vulnerability to capital flows, as the 2008 financial crisis seemed to confirm, but developing countries more so. All countries may experience certain threats to their cultural identities, but developing countries the most.

INTERNATIONAL TRADE: SOME KEY ISSUES

International trade has often played a central role in the historical experience of the developing world. In recent years, much of the attention to trade and development issues has been focused on understanding the spectacular export success of East Asia. Taiwan, South Korea, and other East Asian economies pioneered this strategy, which has been successfully followed by their much larger neighbor, China.

At the same time, throughout Africa, the Middle East, and Latin America, primary product exports have traditionally accounted for a sizable proportion of individual gross domestic products. In some of the smaller countries, a substantial percentage of the economy's monetary income is derived from the overseas sale of agricultural and other primary products or commodities such as coffee, cotton, cacao, sugar, palm oil, bauxite, and copper. In the special circumstances of the oil-producing nations in the Persian Gulf and elsewhere, the sale of unrefined and refined petroleum products to countries throughout the world accounts for over 70% of their national incomes. But unlike the oil producing states and successfully industrializing countries like South Korea, Taiwan, and now China, many developing countries must still depend on non-mineral primary-product exports for a relatively large fraction of their foreign- exchange earnings. This is a particularly serious problem in sub-Saharan Africa. Because the markets and prices for these exports are often unstable, primary-product export dependence carries with it a degree of risk and uncertainty that few nations' desire. This is an important issue because despite strength since 2002 and some rebounding after the 2008 crisis, the long-term trend for prices of primary goods is downward, as well as very volatile (as we examine later in this section).

Some African countries, including Mali, Niger, Burkina Faso, and Burundi, continue to receive 8% or less of their merchandise export earnings from manufactures (none of them received more than 3% of their export earnings from fossil fuels in 2005). Nigeria received 98% of its export earnings from fossil fuels in 2005. Indeed, some developing countries continue to receive at least two-fifths of their export earnings from one or two agricultural or non fuel mineral products. And as noted by David Harvey and his coauthors, "For 40 countries, the production of three or fewer commodities explains all export earnings." And UNCTAD reported in 2006 that "out of 141 developing countries, 95 are more than 50% dependent on commodity exports . . . In most sub- Saharan African countries, the figure is 80%."

In addition to their export dependence, many developing countries rely, generally to an even greater extent, on the importation of raw materials, machinery, capital goods, intermediate producer goods, and consumer products to fuel their industrial expansion and satisfy the rising consumption aspirations of their people. For a majority of developing nations, import demands exceeded their capacity to generate sufficient revenues from the sale of exports for much of the post–World War II period. This led to chronic deficits on their balance of payments position vis-à-vis the rest of the world. Whereas such deficits on the current account (an excess of import payments over export receipts for goods and services) were compensated for on their balance of payments table by a surplus on the capital account (a receipt of foreign private and public lending and investment in excess of repayment of principal and interest on former loans and investments), the debt burden of repaying earlier international loans and investments often becomes acute. In a number of developing countries, severe deficits on current and capital accounts have led to a depletion of international monetary reserves, currency instability, and a slowdown in economic growth.

In the 1980s and 1990s, this combination of rising trade deficits, growing foreign debts, accelerated capital flight, and diminished international reserves led to the widespread adoption of fiscal and monetary austerity measures, especially in Africa and Latin America (often with the involvement of the International Monetary Fund), which may have further exacerbated the slowdown in economic growth and the worsening of poverty and unemployment in much of the developing world. These various concepts of international economics will be explained in more detail later in this chapter and in the next. Here the point is merely that a chronic excess of foreign expenditures over receipts (which may have nothing to do with a developing country's inability to handle its financial affairs but rather may be related to its vulnerability to global economic disturbances) can significantly retard development efforts. It can also greatly limit a poor nation's ability to determine and pursue its most desirable economic strategies.

- **Primary products**: Products derived from all extractive occupations— farming, lumbering, fishing, mining, and quarrying, foodstuffs, and raw materials.
- **Export dependence:** A country's reliance on exports as the major source of financing for development activities.
- **Current account:** The portion of a country's balance of payments that reflects the market value of the country's "visible" (e.g., commodity trade) and "invisible" (e.g., shipping services) exports and imports.
- **Capital account:** The portion of a country's balance of payments that shows the volume of private foreign investment and public grants and loans that flow into and out of the country.

FIVE BASIC QUESTIONS ABOUT TRADE AND DEVELOPMENT

1. How does international trade affect the rate, structure, and character of economic growth? This is the traditional “trade as an engine of growth” controversy, set in terms of contemporary development aspirations.
2. How does trade alter the distribution of income and wealth within a country and among different countries? Is trade a force for international and domestic equality or inequality? In other words, how are the gains and losses distributed, and who benefits?
3. Under what conditions can trade help a nation to achieve its development objectives?
4. Can a developing country by its own actions determine how much it trades or which products and services it sells?
5. In the light of past experience and prospective judgment, should a developing country adopt an outward-looking policy (freer trade, expanded flows of capital and human resources, etc.) or an inward-looking one (protectionism in the interest of self-reliance), or some combination of both, for example, in the form of regional economic cooperation and strategic export policies? What are the arguments for and against these alternative trade strategies for development?

DIFFERENCE BETWEEN INWARD-LOOKING OR AN OUTWARD-LOOKING TRADE POLICY

A traditional way to approach the complex issues of appropriate trade policies for development is to set these specific policies in the context of a broader strategy of looking outward or looking inward. In the words of Paul Streeten, outward-looking development policies “encourage not only free trade but also the free movement of capital, workers, enterprises and students, the multinational enterprise, and an open system of communications.” By contrast, inward-looking development policies stress the need for nations to evolve their own styles of development and to control their own destiny. This means policies to encourage indigenous “learning by doing” in manufacturing and the development of technologies appropriate to a country’s resource endowments. According to proponents of inward-looking trade policies, greater self-reliance can be accomplished, in Streeten’s words, only if “you restrict trade, the movement of people, and communications and if you keep out the multinational enterprise, with its wrong products and wrong want-stimulation and hence its wrong technology."

- **Outward-looking development policies:** Policies that encourage exports, often through the free movement of capital, workers, enterprises, and students; a welcome to multinational corporations; and open communications.
- **Inward-looking development policies:** Policies that stress economic self-reliance on the part of developing countries including domestic development of technology, the imposition of barriers to imports, and the discouragement of private foreign investment.
- **Import substitution:** A deliberate effort to replace consumer imports by promoting the emergence and expansion of domestic industries.

Lesson 35

INTERNATIONAL TRADE THEORY AND DEVELOPMENT STRATEGY (CONTINUED1)

INTERNATIONAL TRADE: SOME KEY ISSUES

IMPORTANCE OF EXPORTS TO DIFFERENT DEVELOPING NATIONS

Although the overall figures for export volumes and values of developing countries are important indicators of patterns of trade for the group as a whole, the varying importance of exports to the economic well-being of individual nations is masked by these aggregate statistics. Table 12.1 has been compiled to provide a capsule picture of the relative importance of commodity export earnings to various developing nations of different sizes and in different regions. For purposes of comparison, three key developed countries are included at the bottom of the table.

Developing countries are typically more dependent on trade than developed countries are. As

TABLE 12.1 Merchandise Exports in Perspective: Selected Countries, 2008

Country Name	Merchandise Exports (current millions of U.S. $)	GDP (current millions of U.S. $)	Merchandise Exports as a Share of GDP (%)	Manufactures Exports (% of merchandise exports)
Developing countries				
Malaysia	199,516	221,773	90	54
Nigeria	81,900	207,118	40	5
China	1,428,488	4,326,996	33	93
Venezuela	93,542	314,150	30	4
Philippines	49,025	166,909	29	83
Indonesia	139,281	510,730	27	39
Mexico	291,807	1,088,128	27	74
Sri Lanka	8,370	40,565	21	67
Kenya	4,972	30,355	16	37
Jamaica	2,400	14,614	16	61
Niger	820	5,354	15	7
India	179,073	1,159,171	15	63
Brazil	197,942	1,575,151	13	45
Developed countries				
United Kingdom	457,983	2,674,057	17	70
Japan	782,337	4,910,840	16	89
United States	1,300,532	14,591,381	9	74

Sources: Derived from World Bank, *World Development Indicators, 2010,* tabs. 4.2 and 4.4.

Table 12.1 indicates, while large countries are understandably less dependent on trade than small countries, at any given size, developing countries tend to devote a larger share of their output as merchandise exports than developed countries do. We see that some large countries like Brazil and India, which have had unusually closed economies, tend to be less dependent on foreign trade in terms of national income than most relatively small countries. And some very low income countries such as Niger remain markedly divorced from the global economy. As a group, however, less developed nations are more dependent on foreign trade in terms of its share in national income than the very highly developed countries are. This is reflected in the case of traditionally export-oriented Japan, whose exports amount to roughly 16% of GDP, whereas developing countries with somewhat larger populations, such as Indonesia and Nigeria, export a higher share of output.

The greater recorded share of developing-country exports in GDP is probably due in part to the much higher relative prices of non-traded services in developed than in developing countries. Nevertheless, the point remains that developing countries are generally more dependent on trade in international economic relations because most trade is in merchandise, for which price disparities are smaller across countries. Moreover, in general, the exports of developing countries are much less diversified than those of the developed countries. While total exports and the share of manufactures in merchandise exports have been rising for many developing countries and major new exporters such as China have emerged, it is important to keep this rise in perspective. A few NICs still command a dominant position in developing-country exports. For example, in 2008, South Korea alone exported far more than either all of South Asia or all of sub-Saharan Africa.

TYPES OF EXPORTS

Exports are categorized on the basis of technological advancements as:

- Resource based exports (RB)
- Low level of technology exports (LT)
- Exports that needed medium level technology to manufacture
- Exports for which high level manufacturing process involve

UNIDO REPORT HIGHLIGHTS:

RESOURCE-BASED MANUFACTURED EXPORTS, 2007–2011 ($ BILLIONS)

Group	2007	2008	2009	2010	2011
World	2,184	2,638	1,986	2,527	3,149
Industrialized economies	1,608	1,924	1,428	1,759	2,180
Industrializing economies	576	715	558	769	969
By industrialization level					
Emerging industrial economies	477	595	473	628	822
Other developing economies	93	112	79	132	139
Least developed economies	7	8	6	9	8
By region					
East Asia and the Pacific	167	203	168	227	288
Excluding China	72	87	75	102	126
Europe	75	90	66	83	117
Excluding Poland	51	63	45	57	84
Latin America and the Caribbean	147	187	150	200	246
Excluding Mexico	129	165	132	177	219
Middle East and North Africa	86	109	73	92	103
Excluding Turkey	72	87	57	75	81
South and Central Asia	66	84	67	115	146
Excluding India	9	12	9	30	30
Sub-Saharan Africa	35	41	33	52	69
Excluding South Africa	21	21	18	30	42
By income group					
High income industrializing	143	174	140	205	261
Upper middle income industrializing	72	87	59	78	98
Lower middle income industrializing	354	447	354	478	604
Low income industrializing	6	6	5	8	6

LOW-TECHNOLOGY MANUFACTURED EXPORTS, 2007–2011 ($ BILLIONS)

Group	2007	2008	2009	2010	2011
World	1,985	2,186	1,726	2,007	2,358
Industrialized economies	1,239	1,348	1,040	1,168	1,339
Industrializing economies	747	839	686	840	1,019
By industrialization level					
Emerging industrial economies	665	756	613	748	917
Other developing economies	66	76	68	85	95
Least developed economies	16	6	5	6	7
By region					
East Asia and the Pacific	458	529	436	554	681
Excluding China	66	72	66	81	93
Europe	83	94	65	75	94
Excluding Poland	51	57	39	45	54
Latin America and the Caribbean	66	70	54	61	72
Excluding Mexico	36	39	30	33	42
Middle East and North Africa	61	71	57	64	68
Excluding Turkey	21	24	21	24	21
South and Central Asia	68	62	64	72	93
Excluding India	30	18	18	21	27
Sub-Saharan Africa	11	12	10	14	11
Excluding South Africa	6	6	6	9	6
By income group					
High income industrializing	126	143	131	153	180
Upper middle income industrializing	42	48	36	42	51
Lower middle income industrializing	562	641	513	638	781
Low income industrializing	16	6	5	7	7

HIGH-TECHNOLOGY MANUFACTURED EXPORTS, 2007–2011 ($ BILLIONS)

Group	2007	2008	2009	2010	2011
World	2,424	2,565	2,240	2,649	2,858
Industrialized economies	1,897	1,971	1,703	1,970	2,096
Industrializing economies	528	594	537	679	762
By industrialization level					
Emerging industrial economies	488	556	505	649	724
Other developing economies	39	37	31	30	38
Least developed economies	0	0	0	0	1
By region					
East Asia and the Pacific	437	481	432	557	623
Excluding China	72	72	63	69	72
Europe	16	24	22	27	29
Excluding Poland	9	12	12	15	18
Latin America and the Caribbean	54	64	56	66	75
Excluding Mexico	18	21	15	18	24
Middle East and North Africa	7	7	7	9	8
Excluding Turkey	6	6	3	6	6
South and Central Asia	10	15	17	18	24
Excluding India	3	3	3	3	3
Sub-Saharan Africa	3	3	3	3	3
Excluding South Africa	0	0	0	0	0
By income group					
High income industrializing	51	54	51	50	60
Upper middle income industrializing	12	16	15	18	19
Lower middle income industrializing	464	523	470	610	683
Low income industrializing	1	1	1	0	1

DEMAND ELASTICITIES AND EXPORT EARNINGS INSTABILITY

Most statistical studies of world demand patterns for different commodity groups reveal that in the case of primary products, the income elasticity of demand is relatively low. The percentage increase in quantity of primary agricultural products and most raw materials demanded by importers (mostly rich nations) will rise by less than the percentage increase in their GNIs. By contrast, for fuels, certain raw materials, and manufactured goods, income elasticity is relatively high. For example, it has been estimated that a 1% increase in developed-country incomes will normally raise their imports of foodstuffs by a mere 0.6% and of agricultural raw materials such as rubber and vegetable oils by 0.5% but raise imports of manufactures by about 1.9%. Consequently, when incomes rise in rich countries, their demand for food, food products, and raw materials from the developing nations goes up relatively slowly, whereas demand for manufactures goes up relatively rapidly. The net result of these low income elasticities of demand is the tendency for the relative price of primary products to decline over time.

Moreover, since the price elasticity of demand for (and supply of) primary commodities also tends to be quite low (i.e., inelastic), any shifts in demand or supply curves can cause large and volatile price fluctuations. Together these two elasticity phenomena contribute to what has come to be known as export earnings instability, which has been shown to lead to lower and less predictable rates of economic growth.

While almost all attention goes to merchandise exports, there has been a slow rise in the share of commercial services in the exports of both developed and developing countries. For the former, these are more likely to represent highly skilled activities such as investment banking and management consulting, while for the latter, construction and other less skill-intensive activities are more common.

THE TERMS OF TRADE AND THE PREBISCH-SINGER HYPOTHESIS

The question of changing relative price levels for different commodities brings us to another important quantitative dimension of the trade problems historically faced by developing nations. The total value of export earnings depends not only on the volume of these exports sold abroad but also on the price paid for them. If export prices decline, a greater volume of exports will have to be sold merely to keep total earnings constant. Similarly, on the import side, the total foreign exchange expended depends on both the quantity and the price of imports.

Clearly, if the price of a country's exports is falling relative to the prices of the products it imports, it will have to sell that much more of its exports and enlist more of its scarce productive resources merely to secure the same level of imported goods that it purchased in previous years. In other words, the real or social opportunity costs of a unit of imports will rise for a country when its export prices decline relative to its import prices.

Economists have a special name for the relationship or ratio between the price of a typical unit of exports and the price of a typical unit of imports. This relationship is called the commodity terms of trade, and it is expressed as Px/Pm, where Px and Pm represent the export and import price indexes, respectively, calculated on the same base period (e.g., 2005 _ 100). The commodity terms of trade are said to deteriorate for a country if Px/Pm falls, that is, if export prices decline relative to import prices, even though both may rise. Most scholarship has broadly confirmed that historically, the prices of primary commodities have declined relative to manufactured goods. As a result; the terms of trade have on the average tended to worsen over time for the non oil- exporting developing countries while showing a relative improvement for the

developed countries. Moreover, recent empirical studies suggest that real primary-product prices declined at an average annual rate of 0.6% in the twentieth century; although the commodity price boom prior to the financial crisis was the largest boom since 1900. The strong increases since 2002 still have not negated the long-term trends.

The main theory for the declining commodity terms of trade is known as the Prebisch-Singer hypothesis, after two famous development economists who explored its implications in the 1950s. They argued that there was and would continue to be a secular (long-term) decline in the terms of trade of primary- commodity exporters due to a combination of low income and price elasticities of demand. This decline would result in an ongoing transfer of income from poor to rich countries that could be combated only by efforts to protect domestic manufacturing industries through a process that has come to be known as import substitution, considered later in this chapter. As noted in Box 12.1, recent research has added new evidence in support of the hypothesis. Both because of this theory and because of the unfavorable terms-of-trade trends, developing countries have been doing their utmost over the past several decades to diversify into manufactures exports. After a slow and costly start, these efforts have resulted in a dramatic shift in the composition of developing-country exports, especially among middle-income countries. Led at first by the East Asian Tiger economies of South Korea, Taiwan, Hong Kong, and Singapore and now followed by many other countries, including China, the share of merchandise exports accounted for by manufactured goods has risen strongly in many developing countries.

Unfortunately, this structural change has not brought as many benefits to most developing countries as they had hoped, because relative prices within manufactures have also diverged: Over the past few decades, the prices of the basic manufactured goods exported by poor countries fell relative to the advanced products exported by rich countries. The price of textiles fell especially precipitously, and low-skilled electronic goods are not far behind. Using alternative methods, the United Nations found that the real decline in developing-country export prices of manufactures in the 1980s was about 3.5% per year, or about 30% for the decade. In a detailed study, Alf Maizels discovered that the terms of trade in manufacturing goods for developing countries vis-à-vis the United States deteriorated over the 1981–1997 period. The declines in textile prices accelerated dramatically starting in the late 1990s. Having reviewed some of the international trade issues that developing countries face, we turn next to consider alternative theories of the role that trade plays in economic development.

THE TRADITIONAL THEORY OF INTERNATIONAL TRADE

The phenomenon of transactions and exchange is a basic component of human activity throughout the world. Even in the most remote villages of Africa, people regularly meet in the marketplace to exchange goods, either for money or for other goods through simple barter transactions. A transaction is an exchange of two things—something is given up in return for something else. In an African village, women may barter food such as cassava for cloth or simple jewelry for clay pots. Implicit in all transactions is a price. For example, if 20 kilos of cassava are traded for a meter of bark cloth, the implicit price (or terms of trade) of the bark cloth is 20 kilos of cassava. If 20 kilos of cassava can also be exchanged for one small clay pot, it follows that clay pots and 1-meter pieces of bark cloth can be exchanged on a one-to-one basis. A price system is already in the making.

COMPARATIVE ADVANTAGE

Why do people trade? Basically, because it is profitable to do so. Different people possess different abilities and resources and may want to consume goods in different proportions. Diverse preferences as well as varied physical and financial endowments open up the possibility of profitable trade. People usually find it profitable to trade the things they possess in large quantities relative to their tastes or needs in return for things they want more urgently. Because it is virtually impossible for individuals or families to provide themselves with all the consumption requirements of even the simplest life, they usually find it profitable to engage in the activities for which they are best suited or have a comparative advantage in terms of their natural abilities or resource endowments. They can then exchange any surplus of these home-produced commodities for products that others may be relatively more suited to produce. The phenomenon of specialization based on comparative advantage arises, therefore, to some extent in even the most primitive of subsistence economies.

These same principles of specialization and comparative advantage have long been applied by economists to the exchange of goods between individual nations. In answer to the question of what determines which goods are traded and why some countries produce some things while others produce different things, economists since the time of Adam Smith have sought the answer in terms of international differences in costs of production and prices of different products. Countries, like people, specialize in a limited range of production activities because it is to their advantage to do so. They specialize in activities where the gains from specialization are likely to be the largest. But why, in the case of international trade, should costs differ from country to country? For example, how can Germany produce cameras, electrical appliances, and automobiles cheaper than Kenya and exchange these manufactured goods for Kenya's relatively cheaper agricultural produce (fruits, vegetables, coffee, and tea)? Again, the answer is to be found in international differences in the structure of costs and prices. Some things (manufactured goods) are relatively cheaper to produce in Germany and can profitably be exported to other countries like Kenya; other things (agricultural goods) can be produced in Kenya at a lower relative cost and are therefore imported into Germany in exchange for its manufactures.

The concept of relative cost and price differences is basic to the theory of international trade. The principle of comparative advantage, as it is called, asserts that a country should, and under competitive conditions will, specialize in the export of the products that it can produce at the lowest relative cost. Germany may be able to produce cameras and cars as well as fruits and vegetables at lower absolute unit costs than Kenya, but because the commodity cost differences between countries are greater for the manufactured goods than for agricultural products, it will be to Germany's advantage to specialize in the production of manufactured goods and exchange them for Kenya's agricultural produce. So even though Germany may have an absolute advantage in the cost of both commodities, its comparative cost advantage lies in manufactured goods. Conversely, Kenya may be at an absolute disadvantage vis-à-vis Germany in both manufacturing and agriculture in that its absolute unit costs of production are higher for both types of products. It can nevertheless still engage in profitable trade because it has a comparative advantage in agricultural specialization (or alternatively, because it's absolute disadvantage is less in agriculture). It is this phenomenon of differences in comparative advantage that gives rise to beneficial trade even among the most unequal trading partners.

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Lesson 36

INTERNATIONAL TRADE THEORY AND DEVELOPMENT STRATEGY (CONTINUED2)

THEORETICAL CONTRIBUTIONS: WHY TRADE TAKE PLACE?

ABSOLUTE ADVANTAGE THEORY

In 1776, Adam Smith promulgated this concept in his book:

- Production of a commodity with the same amount of real resources as another producer but at a lower absolute unit cost.

COMPARATIVE ADVANTAGE THEOREY: BY DAVID RICARDO

- Production of a commodity at a lower opportunity cost than any of the alternative commodities that could be produced.

SPECIALIZATION

- Concentration of resources in the production of relatively few commodities.

TYPES OF COMPARATIVE ADVANTAGE

- Natural comparative advantage
- Acquired comparative advantage

RELATIVE FACTOR ENDOWMENTS AND INTERNATIONAL SPECIALIZATION: THE NEOCLASSICAL MODEL

- **Factor endowment trade theory:** The neoclassical model of free trade, which postulates that countries will tend to specialize in the production of the commodities that make use of their abundant factors of production (land, labor, capital, etc.).

The classical comparative advantage theory of free trade is a static model based strictly on a one-variable-factor (labor cost), complete-specialization approach to demonstrating the gains from trade. This nineteenth-century free-trade model, primarily associated with David Ricardo and John Stuart Mill, was modified and refined in the twentieth century by two Swedish economists, Eli Hecksher and Bertil Ohlin, to take into account differences in factor supplies (mainly land, labor, and capital) on international specialization.

The Hecksher-Ohlin neoclassical (or variable-proportions) factor endowment trade theory also enables us to describe analytically the impact of economic growth on trade patterns and the impact of trade on the structure of national economies and on the differential returns or payments to various factors of production.

Unlike the classical labor cost model, however, where trade arises because of fixed but differing labor productivities for different commodities in different countries, the neoclassical factor endowment model assumes away inherent differences in relative labor productivity by postulating that all countries have access to the same technological possibilities for all commodities. If domestic factor prices were the same, all countries would use identical methods

of production and would therefore have the same relative domestic product price ratios and factor productivities. The basis for trade arises not because of inherent technological differences in labor productivity for different commodities between different countries but because countries are endowed with different factor supplies. Given relative factor endowments, relative factor prices will differ (e.g., labor will be relatively cheap in labor-abundant countries), and so will domestic commodity price ratios and factor combinations. Countries with cheap labor will have a relative cost and price advantage over countries with relatively expensive labor in commodities that make intensive use of labor (e.g., primary products). They should therefore focus on the production of these labor-intensive products and export the surplus in return for imports of capital intensive goods.

Conversely, countries well endowed with capital will have a relative cost and price advantage in the production of manufactured goods, which tend to require relatively large inputs of capital compared with labor. They can thus benefit from specialization in and export of capital-intensive manufactures in return for imports of labor-intensive products from labor-abundant countries. Trade therefore serves as a vehicle for a nation to capitalize on its abundant resources through more intensive production and export of commodities that require large inputs of those resources while relieving its factor shortage through the importation of commodities that use large amounts of its relatively scarce resources.

To summarize, the factor endowment theory is based on two crucial propositions:

1. Different products require productive factors in different relative proportions. For example, agricultural products generally require relatively greater proportions of labor per unit of capital than manufactured goods, which require more machine time (capital) per worker than most primary products. The proportions in which factors are actually used to produce different goods will depend on their relative prices. But no matter what factor prices may be, the factor endowment model assumes that certain products will always be relatively more capital-intensive while others will be relatively more labor-intensive. These relative factor intensities will be no different in India than in the United States; primary products will be the relatively labor-intensive commodities compared with secondary manufactured goods in both India and the United States.

2. Countries have different endowments of factors of production. Some countries, like the United States, have large amounts of capital per worker and are therefore designated capital-abundant countries. Others, like India, Egypt, or Colombia, have little capital and much labor and are designated labor-abundant countries. In general, developed countries are relatively capital-abundant (one could also add that they are well endowed with skilled labor), while most developing countries are labor-abundant.

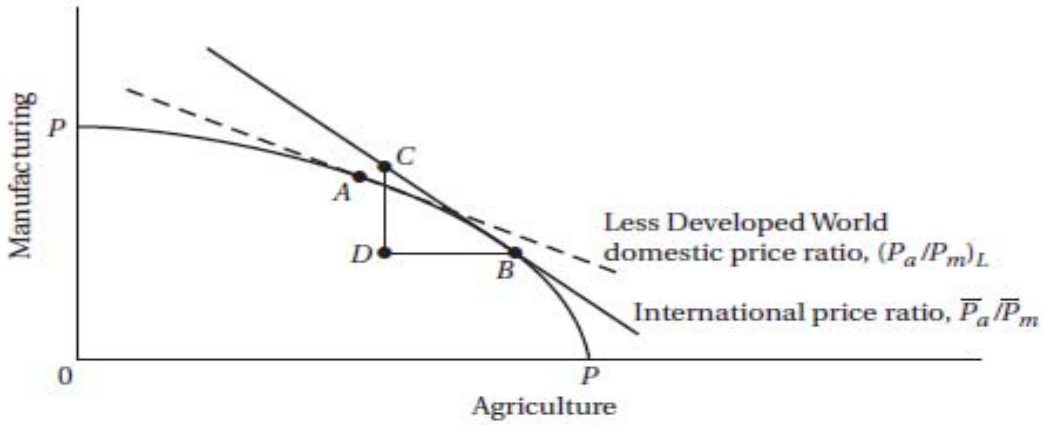
The factor endowment theory goes on to argue that capital-abundant countries will tend to specialize in such products as automobiles, aircraft, sophisticated electronics, communication goods, and computers, which use capital intensively in their technology of production. They will export some of these capital-intensive products in exchange for the labor- or land-intensive products like food, raw materials, and minerals that can best be produced by countries that are relatively well endowed with labor or land.

This theory, which played a predominant role in the early literature and policy advice on trade and development, encouraged developing countries to focus on their labor- and land-intensive primary-product exports. It was argued that by trading these primary commodities for the manufactured goods that developed countries were theoretically best suited to produce,

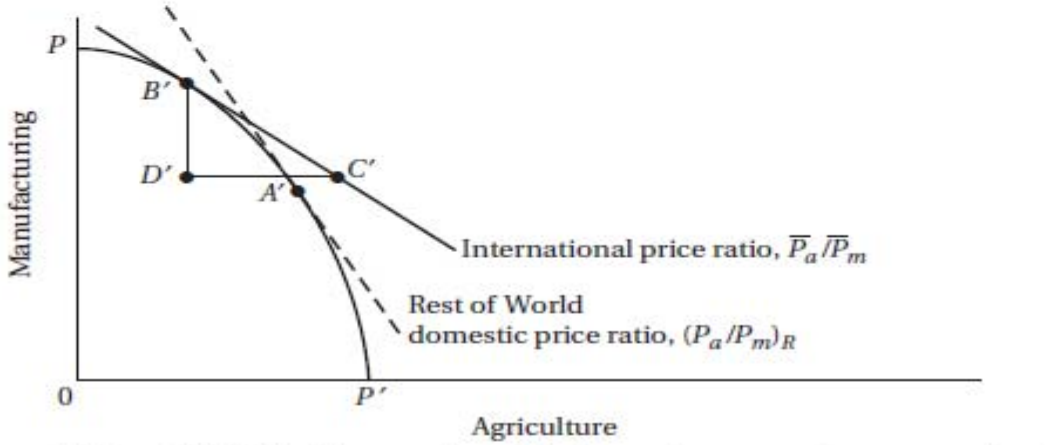
developing nations could realize the enormous potential benefits to be had from free trade with the richer nations of the world. Little attention was given in this literature to diversification as an objective or the productivity benefits of expanding manufactures' share.

The mechanism whereby the benefits of trade are transmitted across national boundaries under the factor endowment approach is analogous to that of the classical labor cost approach. However, in the factor endowment case, with the possibility of differing factor combinations for producing different commodities, nations are assumed to be operating initially at some point on their concave (or increasing opportunity cost) production possibility frontier determined by domestic demand conditions. For example, consider the standard two-country, two-commodity model. Let the two countries be "Less Developed World" and "Rest of World" and the two commodities be agricultural goods and manufactured goods. Figure 12.1 portrays the theoretical benefits of free trade with Less Developed World's domestic (no-trade) production possibility frontier shown in Figure 12.1a and Rest of World's frontier in Figure 12.1b. Point A on the Less Developed World production possibility frontier PP in Figure 12.1a provides the illustration. With full employment of all resources and under perfectly competitive assumptions,

FIGURE 12.1 Trade with Variable Factor Proportions and Different Factor Endowments



(a) Less Developed World (without trade, production and consumption occur at A; with trade, production is at B, consumption is at C; exports = BD; imports = DC)



(b) Rest of World (without trade, production and consumption occur at A'; with trade, production is at B', consumption is at C'; exports = $B'D'$; imports = $D'C'$)

Less Developed World will be producing and consuming at point A, where the relative price ratio, **Pa/Pm**, will be given by the slope of the dotted line, **(Pa/Pm)L**, at point A. Similarly, Rest of World may be producing and consuming at point A' in Figure 12.1b, with a domestic price ratio, (**Pa/Pm**) **R**, that differs (agricultural goods are relatively more costly, or conversely, manufactured goods are relatively cheaper) from that of Less Developed World. Note that with a closed economy, both countries will be producing both commodities. However, Less Developed World, being poorer, will produce a greater proportion of food products in its (smaller) total output.

The relative difference in costs of production and prices at points A and A' (i.e., their different slopes) gives rise once again to the possibilities of profitable trade. As in the classical labor cost model, the international free-trade price ratio, $\overline{P_a}/\overline{P_m}$ will settle somewhere between **(Pa/Pm)L** and **(Pa/Pm)R**, the domestic price ratios of Less Developed World and Rest of World, respectively. The lines $\overline{P_a}/\overline{P_m}$ in both graphs in Figure 12.1 denote the common world price ratio. For Less Developed World, this steeper slope of $\overline{P_a}/\overline{P_m}$ means that it can get more manufactured goods for a unit of agriculture than in the absence of trade; that is, the world price of agricultural goods in terms of manufactures is higher than Less Developed World's domestic price ratio. It will therefore reallocate resources away from its costly capital-intensive manufacturing sector and specialize more in labor-intensive agricultural production. Under perfectly competitive assumptions, it will produce at point B on its production frontier, where its relative production (opportunity) costs are just equal to relative world prices. It can then trade along $\overline{P_a}/\overline{P_m}$, the prevailing international price line; exporting BD agricultural products in return for DC manufactured imports and arrives at a final consumption point C with more of both goods than before trade. To give a numerical example, suppose that the free-trade international price ratio, $\overline{P_a}/\overline{P_m}$, were 2 to 1. In other words, a unit of agricultural goods sells at a price twice that of a unit of manufactured goods. This means that for every unit of agriculture that Less Developed World exports to Rest of World, it can import two units of manufactured goods. The slope of the international price line graphically portrays this trading ratio, these terms of trade. If Less Developed World exports BD agriculture (say, 30 units), it will receive DC manufactures (60 units) in return.

Similarly, for Rest of World, the new international price ratio means more agricultural products in exchange for manufactured goods than at domestic prices. Graphically, the international price ratio has a lesser slope than Rest of World's domestic price ratio (see Figure 12.1b). Rest of World will therefore reallocate its abundant capital resources so as to produce more manufactured goods and less agriculture, as at point B, where its relative domestic production costs are just equal to relative world prices. It can then trade **B' D' (=DC)** of these manufactures for **D' C' (=BD)** of Less Developed World's agricultural products. Rest of World can therefore also move outside the confines of its production frontier and end up consuming at a point like C' in Figure 12.1b. Trade is balanced—the value of exports equals the value of imports for both regions. Moreover, it has resulted in increased consumption of both goods for both regions, as shown by a comparison between free-trade points C and C' and no-trade points **A** and **A'** in Figure 12.1.

The main conclusions of the neoclassical model of free trade are that all countries gain from trade and world output is increased. However, there are several others in addition to these two basic conclusions.

First, due to increasing opportunity costs associated with resource shifting among commodities with different factor intensities of production, complete specialization will not occur as in the classical comparative-advantage model. Countries will tend to specialize in products that use their abundant resources intensively. They will compensate for their scarce resources by importing products that use these scarce resources most intensively. But rising domestic costs and therefore prices in excess of world prices will prevent complete specialization from occurring.

Second, given identical technologies of production throughout the world, the equalization of domestic product price ratios with the international free trade price ratio will tend to factor price equalization across trading countries. Wage rates, for example, will rise in labor-abundant Less Developed World as a result of the more intensive use of human resources in the production of additional agricultural output. But the price of scarce capital will decline due to the diminished production of manufactured goods, which are heavy users of capital. In Rest of World, the price of its abundant capital will rise relative to its scarce labor as more emphasis is placed on the production of capital-intensive manufactured goods and less on labor-intensive agriculture.

The neoclassical factor endowment theory therefore makes the important prediction that international real wage rates and capital costs will gradually tend toward equalization. Much of the direct competition is in the low-skilled labor that developing countries have in relative abundance; many low-skilled manufacturing jobs have indeed been lost outright in developed countries, and wage growth has at best been slow if not declining in real terms. In recent years, many highly paid manufacturing workers in the more developed countries have been concerned that freer trade and greater international competition would drive their wages down to developing-country levels. However, on average, with the exception of a few Asian economies, the wage gap between developed and less developed country manufacturing workers has remained persistently wide. This is due in part to higher skills and in part to complementary factors such as the higher general knowledge base embedded within corporations, so wages can remain higher commensurate with the resulting higher productivity. But some part is likely due to protectionism.

Third, within countries, the factor endowment theory predicts that the economic return to owners of the abundant resources will rise in relation to owners of scarce resources as the abundant factor is more intensively used; in developing countries, this would generally mean a rise in the share of national income going to labor. In the absence of trade, labor's share might be smaller. Thus trade tends to promote more equality in domestic income distributions. Finally, by enabling countries to move outside their production possibility frontiers and secure capital as well as consumption goods from other parts of the world, trade is assumed to stimulate economic growth. If developed countries have the comparative advantage in producing higher-skill capital goods, trade would lower the price of equipment and machinery and stimulate investment and growth for developing countries. Developing-country exporters learn from their customers in developed countries, who may also alert them to other products they might produce given their mix of skills, as the experience of Taiwan shows. Trade also enables a nation to obtain the domestically expensive raw materials and other products (as well as knowledge, ideas, new technologies, etc.) with which it is relatively less well endowed at lower world market prices. It can thus create the conditions for a more broadly based and self-sustaining growth of its industrial output.

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TRADE THEORY AND DEVELOPMENT: THE TRADITIONAL ARGUMENTS

We are now in a position to summarize the theoretical answers to our five basic questions about trade and development derived from the neoclassical free trade model.

1. Trade is an important stimulator of economic growth. It enlarges a country's consumption capacities, increases world output, and provides access to scarce resources and worldwide markets for products without which poor countries would be unable to grow.
2. Trade tends to promote greater international and domestic equality by equalizing factor prices, raising real incomes of trading countries, and making efficient use of each nation's and the world's resource endowments (e.g., raising relative wages in labor-abundant countries and lowering them in labor-scarce countries).
3. Trade helps countries achieve development by promoting and rewarding the sectors of the economy where individual countries possess a comparative advantage, whether in terms of labor efficiency or factor endowments. It also lets them take advantage of economies of scale.
4. In a world of free trade, international prices and costs of production determine how much a country should trade in order to maximize its national welfare. Countries should follow the principle of comparative advantage and not try to interfere with the free workings of the market through government policies that either promote exports or restrict imports.
5. Finally, to promote growth and development, an outward-looking international policy is required. In all cases, self-reliance based on partial or complete isolation is asserted to be economically inferior to participation in a world of unlimited free trade.

THE CRITIQUE OF TRADITIONAL FREE-TRADE THEORY IN THE CONTEXT OF DEVELOPING-COUNTRY EXPERIENCE

The conclusions of traditional international trade theory are derived from a number of explicit and implicit assumptions that in many ways are often contrary to the reality of contemporary international economic relations. This is not to deny the potential benefits of a world of free trade but rather to recognize that the real world is beset by national protectionism, international noncompetitive pricing policies, and other market failures. What are the major and crucial assumptions of the traditional factor endowment theory of trade, and how are these assumptions violated in the real world? What are the implications for the trade and financial prospects of developing nations when a more realistic assessment of the actual mechanism of international economic and political relations is made? Six basic assumptions of the traditional neoclassical trade model must be scrutinized:

1. All productive resources are fixed in quantity and constant in quality across nations and are fully employed.
2. The technology of production is fixed (classical model) or similar and freely available to all nations (factor endowment model). Moreover, the spread of such technology works to the benefit of all. Consumer tastes are also fixed and independent of the influence of producers (international consumer sovereignty prevails).
3. Within nations, factors of production are perfectly mobile between different production activities, and the economy as a whole is characterized by the existence of perfect competition. There are no risks or uncertainties.
4. The national government plays no role in international economic relations; trade is carried out among many atomistic and anonymous producers seeking to minimize costs

and maximize profits. International prices are therefore set by the forces of supply and demand.

5. Trade is balanced for each country at any point in time, and all economies are readily able to adjust to changes in the international prices with a minimum of dislocation.
6. The gains from trade that accrue to any country benefit the nationals of that country.

FIXED RESOURCES, FULL EMPLOYMENT, AND THE INTERNATIONAL IMMOBILITY OF CAPITAL AND SKILLED LABOR

Trade and Resource Growth: North-South Models of Unequal Trade This initial assumption about the static nature of international exchange—that resources are fixed, fully utilized, and internationally immobile with same product production functions everywhere identical—is central to the traditional theory of trade and finance. In reality, the world economy is characterized by rapid change, and factors of production are fixed neither in quantity nor in quality. Critics point out that this is especially true with respect to resources most crucial to growth and development, such as physical capital, entrepreneurial abilities, scientific capacities, the ability to carry out technological research and development, and the upgrading of technical skills in the labor force. It follows, therefore, that relative factor endowments and comparative costs are not given but are in a state of constant change.

Moreover, they are often determined by, rather than themselves determine, the nature and character of international specialization. Any initial state of unequal resource endowments may be reinforced and exacerbated by the very trade that these differing resource endowments were supposed to justify. Specifically, if rich nations (the North) as a result of historical forces, are relatively well endowed with the vital resources of capital, entrepreneurial ability, and skilled labor, their continued specialization in products and processes that use these resources intensively can create the necessary conditions and economic incentives for their further growth. By contrast, developing-world countries (the South), endowed with abundant supplies of unskilled labor, by specializing in products that intensively use unskilled labor and for which world demand prospects and terms of trade may be very unfavorable, often find themselves locked into a stagnant situation that perpetuates their comparative advantage in unskilled, unproductive activities.

This in turn inhibits the domestic growth of needed capital, entrepreneurship, and technical skills. As some developing-country scholars have effectively argued, static efficiency can become dynamic inefficiency, and a cumulative process is set in motion in which trade exacerbates already unequal trading relationships, distributes the benefits largely to the people who are already relatively well off, and perpetuates the physical and human resource underdevelopment that characterizes most poor nations. As one well-known developing-country scholar put it, “With few exceptions, the technological distance between the developing and the developed countries is widening. Neoclassical international trade theory, by postulating identical production functions for different products in various countries, assumes this problem away.”

- **North-South trade models:** Trade and development theories that focus on the unequal exchange between the North developed countries and the South developing countries in an attempt to explain why the South gains less from trade than the North.

In recent years, some economists have therefore challenged the static neoclassical model with alternative dynamic models of trade and growth that emphasize the process of factor accumulation and uneven development along the lines suggested in the preceding paragraphs.

These so-called North-South trade models focus specifically on trade relations between rich and poor countries, whereas the traditional model was assumed to apply to all nations.

The typical North-South model argues, for example, that initial higher endowments of capital in the industrialized North generate external economies in manufacturing output and higher profit rates. This, in combination with the rise in monopoly power, stimulates higher Northern growth rates (in accordance with Harrod-Domar and factor share growth models discussed earlier) through further capital accumulation. As a result, the rapidly growing North develops a cumulative competitive advantage over the slower-growing South. If we then add differential income elasticities of demand (higher for Northern “capital goods” than for Southern “consumption goods”) and capital mobility to the model (in the form of South-to-North capital flight, as occurred in the 1980s), the basis for the developing-world trade pessimism would be further enhanced.

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Lesson 37

INTERNATIONAL TRADE THEORY AND DEVELOPMENT STRATEGY (CONTINUED3)

Nobel laureate Paul Krugman and other modern trade theorists have also introduced models incorporating imperfect competition and other more realistic features.

Some economies, like the Four Asian Tigers (Taiwan, South Korea, Singapore, and Hong Kong), have succeeded in transforming their economies through purposeful effort from unskilled-labor to skilled-labor to capital intensive production. Other Asian countries, notably China, are following in their footsteps. However, for the vast majority of poor nations, the possibility of trade itself stimulating similar structural economic changes is more remote without the application of judicious development policies.

PORTER'S "COMPETITIVE ADVANTAGE" THEORY

Another interesting example of the new, post neo-classical genre of international trade models is contained in Michael Porter's Competitive Advantage of Nations. Porter's fundamental departure from the standard, neoclassical factor endowment theory is to posit a qualitative difference between basic factors and advanced factors of production. He argues that standard trade theory applies only to basic factors like undeveloped physical resources and unskilled labor. For the advanced factors, which are more specialized and include highly trained workers with specific skills, and knowledge resources such as government and private research institutes, major universities, and leading industry associations, standard theory does not apply. Porter concludes that the central task facing developing countries is to escape from the straitjacket of factor-driven national advantage . . . where natural resources, cheap labor, locational factors and other basic factor advantages provide a fragile and often fleeting ability to export . . . [and are] vulnerable to exchange rate and factor cost swings. Many of these industries are also not growing, as the resource intensity of advanced economies falls and demand becomes more sophisticated. . . . Creation of advanced factors is perhaps the first priority.

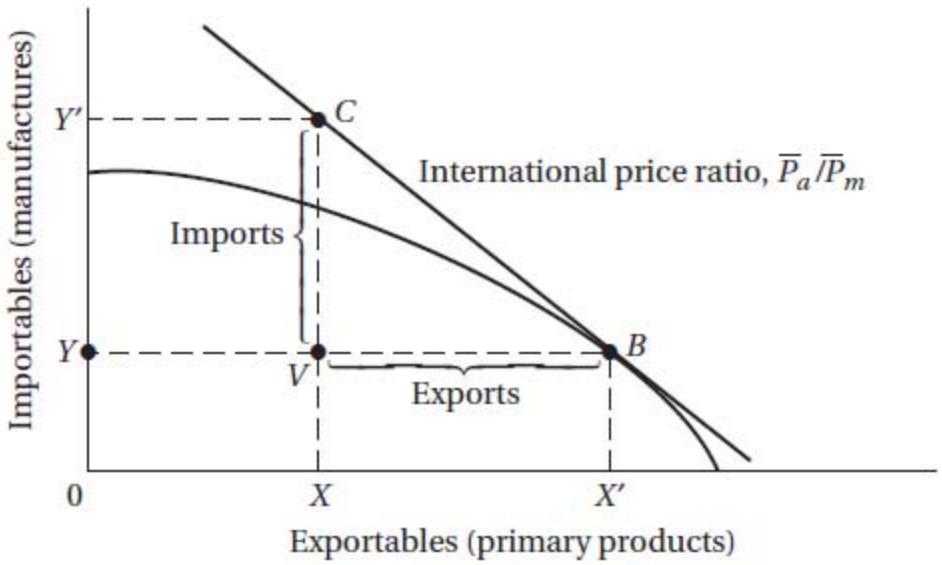
UNEMPLOYMENT, RESOURCE UNDERUTILIZATION, AND THE VENT-FOR-SURPLUS THEORY OF INTERNATIONAL TRADE

The assumption of full employment in traditional trade models, like that of the standard perfectly competitive equilibrium model of microeconomic theory, violates the reality of unemployment drawn from the recognition of widespread unemployment in the developing world. The first is that underutilized human resources create the opportunity to expand productive capacity and GNI at little or no real cost by producing for export markets products that are not demanded locally. This is known as the vent-for-surplus theory of international trade. First formulated by Adam Smith, it was expounded in the context of developing nations by the Burmese economist Hla Myint.

- **Vent-for-surplus theory of international trade:** The contention that opening world markets to developing countries through international trade allows those countries to make better use of formerly underutilized land and labor resources so as to produce larger primary-product outputs, the surpluses of which can be exported.

According to this theory, the opening of world markets to remote agrarian societies creates opportunities not to reallocate fully employed resources as in the traditional models but rather to make use of formerly underemployed land and labor resources to produce greater output for export to foreign markets. The colonial system of plantation agriculture as well as the commercialization of small-scale subsistence agriculture was made possible, according to this view, by the availability of unemployed and underemployed human resources. In terms of our production possibility analyses, the ventfor- surplus argument can be represented by a shift in production from point V to point B in Figure 12.2, with trade enlarging final domestic consumption from V to C.

FIGURE 12.2 The Vent-for-Surplus Theory of Trade



We see that before trade, the resources of this closed developing-world economy were underutilized. Production was occurring at point V, well within the confines of the production possibility frontier, and 0X primary products and 0Y manufactures were being produced and consumed. The opening up of the nation to foreign markets (probably as a result of colonization) provides the economic impetus to utilize these idle resources (mostly excess land and labor) and expand primary-product exportable production from 0X to 0X at point B on the production frontier. Given the international price ratio **Pa/Pm**, **X'-X** (equal to VB) primary products can now be exported in exchange for **Y'-Y** (equal to VC) manufactures, with the result that the final consumption point, C, is attained with the same primary products (X) being consumed as before but with **Y'-Y** more imported manufactures now available.

Unfortunately in the short run, the beneficiaries of this process were often colonial and expatriate entrepreneurs rather than developing-country nationals. And in the long run, the structural orientation of the developing-country economy toward primary-product exports in many cases created an export “enclave” and inhibited needed structural transformation in the direction of a more diversified economy.

FIXED, FREELY AVAILABLE TECHNOLOGY AND CONSUMER SOVEREIGNTY

Just as capital resources are rapidly growing and being dispersed to maximize the returns of their owners throughout the world, rapid technological change is profoundly affecting world trading relationships. One of the most obvious examples of the impact of developed-country technological change on developing-country export earnings is the development of synthetic substitutes for many traditional primary products. Since World War II, synthetic substitutes for such diverse commodities as rubber, wool, cotton, sisal, jute, hides, and skins have been manufactured in increasing quantities. The developing world's market shares of these sectors have fallen steadily.

- **Synthetic substitutes:** Commodities that are artificially produced but can be substituted for the natural commodities (e.g., manufactured rubber, cotton, wool, camphor, and pyrethrum).
- **Product cycle:** In international trade, the progressive replacement of more developed countries by less developed countries in the production of manufactures of increasing complexity.

On the other side of the ledger, however, is the argument that the worldwide availability of new technologies developed in the West has given many newly industrializing countries the opportunity to capitalize on Western research and development expenditures. By first imitating products developed abroad but not on the frontiers of technological research, certain middle-income countries with sufficient human capital (e.g., the Asian NICs) can follow the product cycle of international trade. Using their relatively lower wages, they move from low-tech to high-tech production, filling manufacturing gaps left vacant by the more industrialized nations. Eventually, the hope is to catch up with the developed countries, as in the case of Japan, Singapore, and South Korea. China has made striking progress through this strategy.

The assumption of fixed worldwide consumer tastes and preferences dictating production patterns to market-responsive atomistic producers is unrealistic. Not only are the capital and production technologies disseminated throughout the world by means of the multinational corporations often aided by their home governments, but consumer preferences and tastes are often created and reinforced by the advertising campaigns that dominate local markets. By creating demands for imported goods, market-dominating international enterprises can create the conditions for increased profitability. This is particularly significant in developing countries, where limited and imperfect information in both production and consumption creates a situation of highly incomplete markets. For example, it has been estimated that in many developing nations, more than 90% of all advertising is financed by foreign firms selling in the local market.

MOST NEW PRODUCTS CONCEIVED / PRODUCED IN THE US IN 20TH CENTURY

US firms kept production close to their market initially

- Minimize risk of new product introductions
- Demand not based on price; low product cost not an issue

Limited initial demand in other advanced countries initially

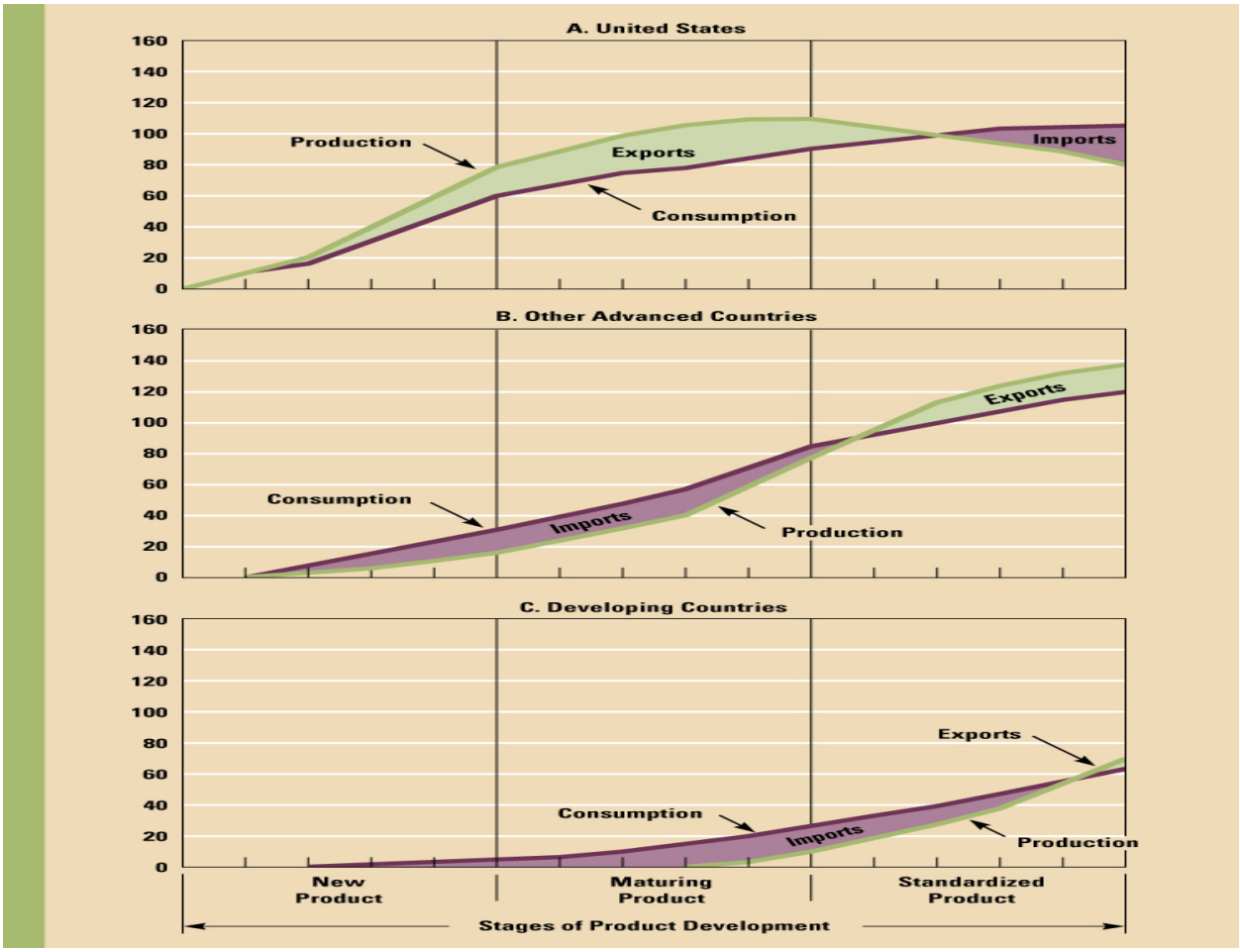
- Exports more attractive than overseas production

When demand increases in advanced countries, production follows

With demand expansion in secondary markets

- Product becomes standardized

- Production moves to low production cost areas
- Product now imported to US and to advanced countries



INTERNAL FACTOR MOBILITY, PERFECT COMPETITION, AND UNCERTAINTY: INCREASING RETURNS, IMPERFECT COMPETITION AND ISSUES IN SPECIALIZATION

The traditional theory of trade assumes that nations are readily able to adjust their economic structures to the changing dictates of world prices and markets. Movements along production possibility frontiers involving the reallocation of resources from one industry to another may be easy to make on paper, but according to structuralist arguments, such reallocations are extremely difficult to achieve in practice. This is especially true in developing nations, where production structures are often rigid and factor movements are largely restricted.

The most obvious example of this is plantation and small-farm commercial agriculture. In economies that have gradually become heavily dependent on a few primary-product exports, the whole economic and social infrastructure (roads, railways, communications, power locations, credit and marketing arrangements, etc.) may be geared to facilitate the movement of goods from production locations to shipping and storage depots for transfer to foreign markets. Over time, cumulative investments of capital may have been sunk into these economic and infrastructure facilities and they cannot easily be transferred to manufacturing activities located elsewhere. Thus the more dependent nations become on a few primary-product exports, the more inflexible their economic structures become, and the more vulnerable they are to the un-predictabilities of international markets.

It may take many years to transform an underdeveloped economy from an almost exclusively primary-product, export-oriented reliance to a more diversified, multi-sector structure. More generally, structuralist critics argue that all kinds of politically and institutionally generated structural rigidities, including product supply inelasticities, lack of intermediate products, fragmented money markets, limited foreign exchange, government licensing, import controls, poor transport and distribution facilities, and scarcities of managerial and skilled labor, often inhibit a developing country's ability to respond to changing international price signals in the smooth and frictionless way of the neoclassical trade model.

Thus the internal processes of adjustment and resource reallocation necessary to capitalize on changing world economic conditions are much more difficult for the less diversified developing economies to realize than for their rich counterparts in the northern hemisphere. And yet, curiously enough, developing countries that begin to expand their capacities to produce low-cost, labor-intensive manufactured goods for export in industries such as textiles, shoes, sporting goods, handbags, processed foodstuffs, wigs, and rugs have often found these exports blocked by tariff and non-tariff barriers erected by developed countries to restrict the entry of such low-cost goods into their home markets. The United Nations estimated in 2001 that such trade restrictions cost developing countries at least $100 billion annually—2% of their GDP. The reasons usually given by the North are that this low-cost foreign competition will create unemployment among the higher-cost domestic industries of the developed country and that the problems of internal economic adjustment are too serious to permit such unfettered foreign competition! And while notable improvements have been made through the WTO and bilateral offers (discussed later in the chapter), protectionism in various forms remains a serious impediment to growth in the developing world, especially for the least developed countries.

Moreover, by assuming either fixed or diminishing returns to scale (fixed or increasing production costs as output is expanded), the labor cost and factor endowment theories of trade neglect one of the most important phenomena in international economic relations. This is the pervasive and income-widening effect of increasing returns to scale and hence decreasing costs of production. Decreasing production costs mean simply that large existing firms are able to

under price smaller or new firms and thus exerts monopolistic control over world markets. Far from being a rare exception, economies of scale are a common factor in determining trade patterns. Economies of large scale production lead to monopolistic and oligopolistic control of world supply conditions (just as they do in domestic markets) for a wide range of products.

In addition, monopolistic & oligopolistic market control of internationally traded commodities, along with widespread product differentiation, intra-industry trade, and external economies of production, means that large individual corporations are able to manipulate world prices and supplies in their own private interest. Instead of competition, we find joint producer activities and oligopolistic bargaining among giant buyers and sellers as the most pervasive price- and quantity-determining force in the international economy. But from the perspective of developing nations trying to diversify their economies and promote industrial exports in particular, the phenomenon of increasing returns and product differentiation (monopolistic competition), combined with the non-economic power of large multinational corporations (their political influence with many governments, means that the first nations to industrialize (the rich nations) are often able to take advantage of these economies of scale and differentiated products to perpetuate their dominant position in world markets.

The second major limitation of the perfectly competitive assumption of trade models is its exclusion of risk and uncertainty in international trading arrangements. It may not be in a low-income country's long-run interest to invest heavily in primary-product export promotion, given the historical instability of world markets for primary commodities in comparison with those for manufactured goods. As was already pointed out, concentration on one or two vital primary exports can play havoc with development plans when foreign-exchange earnings are largely unpredictable from one year to the next.

Patterns of specialization in the process of economic development are still not fully understood, and theory gives ambiguous answers. On the one hand, traditional theory suggests that developing nations can reach higher levels of income by specializing in the world economy according to comparative advantage and that as globalization proceeds, the opportunity and benefits of doing so increase. On the other hand, as countries develop, they gain a wider range of skills and technologies and can move beyond producing a few primary goods to become competitive in a range of relatively advanced goods.

In fact, a careful empirical study by Jean IMBS and Romain Wacziarg found that sectoral concentration generally follows a U-shaped pattern in relation to the level of per capita income: "Countries first diversify, in the sense that economic activity is spread more equally across sectors, but there exists, relatively late in the development process, a point at which they start specializing again." And this pattern goes well beyond the tendency to move from dependence on primary goods alone to manufacturing and services. The policy implications also remain ambiguous. But their results are consistent with the view that development is not driven by a simple process of gains from specialization.

Lesson 38

INTERNATIONAL TRADE THEORY AND DEVELOPMENT STRATEGY (CONTINUED4)

SOME CONCLUSIONS ON TRADE THEORY AND ECONOMIC DEVELOPMENT STRATEGY

- Trade can lead to rapid economic growth under some circumstances.
- Trade seems to reinforce the disparities in terms of income distribution in an economy.
- Trade can benefit developing countries if they can extract trade concessions from developed countries.
- Developing countries must trade.
- Regional cooperation may help developing countries.

We can now attempt to provide some preliminary general answers to the five questions posed early in the chapter. We must stress that our conclusions are general and set in the context of the diversity of developing countries. First, with regard to the rate, structure, and character of economic growth, our conclusion is that trade can be an important stimulus to rapid economic growth. This has been amply demonstrated by the successful experiences over the past half century of countries like China, Malaysia, Thailand, Brazil, Chile, Taiwan, Singapore, and South Korea. Access to the markets of developed nations (an important factor for developing nations bent on export promotion) can provide an important stimulus for the greater utilization of idle human and capital resources.

Expanded foreign-exchange earnings through improved export performance also provide the wherewithal by which a developing country can augment its scarce physical and financial resources. In short, where opportunities for profitable exchange arise, foreign trade can provide an important stimulus to aggregate economic growth. But as noted in earlier chapters, growth of national output may have little impact on development. An export-oriented strategy of growth, particularly in commodities with few linkages and when a large proportion of export earnings accrue to foreigners, may not only bias the structure of the economy in the wrong directions (by not catering to the real needs of local people) but also reinforce the internal and external dualistic and in egalitarian character of that growth. It all depends on the nature of the export sector, the distribution of its benefits, and its linkages with the rest of the economy and how these evolve over time.

Factors such as the widespread existence of increasing returns, the highly unequal international distribution of economic assets and power, the influence of large multinational corporations, and the combined ability of both governments and businesses to manipulate international prices, levels of production, and patterns of demand are crucial. Together, they lead us to the general conclusion that many developing countries have in the past benefited disproportionately less from their economic dealings with developed nations. It should be apparent by now that the answer to the third question—the conditions under which trade can help a developing country achieve development aspirations—is to be found largely in the ability of developing nations,—for example, as a caucus within WTO negotiations or G20 forums to extract and maintain favorable trade concessions from the developed nations.

As we address shortly, progress through the World Trade Organization and its predecessor, along with bilateral programs, such as the U.S. Africa Growth and Opportunity Act (AGOA) and the European Everything but Arms (EBA) initiative, provided a helpful but still very incomplete start. Also, the extent to which exports can efficiently utilize scarce capital resources while

making maximum use of abundant but presently underutilized labor supplies will determine the degree to which export earnings benefit the ordinary citizen in developing countries. Again, links between export earnings and other sectors of the economy are crucial. Finally, much will depend on how well a developing nation can influence and control the activities of private foreign enterprises. The ability to deal effectively with multinational corporations in guaranteeing a fair share of the benefits to local citizens is extremely important. These issues are further examined later in this chapter and in Chapter 14.

The answer to the fourth question—whether developing countries can determine how much they trade—can only be speculative. For small and poor countries, the option of not trading at all, by closing their borders to the rest of the world, is obviously not realistic. Not only do they lack the resources and market size to be self-sufficient, but their very survival, especially in the area of food production, often depends on their ability to secure foreign goods and resources. Some 32 of the least developed countries face annual threats of severe famine for which international assistance is not a choice but a necessity. Whether to trade or to remain in isolation is not the issue; the real issue turns out to be the balance between selling for the domestic market and exporting and, if the latter is chosen, whether to encourage exporting across the board or to promote targeted sectors.

Moreover, for most developing nations, the international economic system still offers the only real source of scarce capital and needed technological knowledge. The conditions under which such resources are obtained will greatly influence the character of the development process. Finally, for countries rich in mineral resources and raw materials, especially those that have been able to establish an effective international bargaining stance against the large corporations that purchase their exports (e.g., the members of OPEC), trade has been and continues to be a vital source of development finance. The fifth question—whether on balance it is better for developing countries to look outward toward the rest of the world or more inward toward their own capacities for development—turns out not to be an either-or question at all. While exploring profitable opportunities for trade with the rest of the world, developing countries can effectively seek ways to expand their share of world trade and extend their economic ties with one another.

For example, by pooling their resources, small countries can overcome the limits of their small individual markets and their serious resource constraints while retaining an important degree of autonomy in pursuing their individual development aspirations. In this way, groups of small countries may have a better chance of achieving what China has been able to do in recent years: leveraging the bargaining power of its large market to insist on the best deal from potential foreign exporters and investors. Indeed, this strategy has likely been one of the factors helping China realize very high growth rates in recent decades. Benefits are still to be had from further expansion of trade among developing countries themselves.

Although the preceding argument is often overstated, it seems clear that if interregional political rivalries can be transcended, increased regional cooperation among developing nations offers an important component of a trade and industrialization strategy. In fact, the share of developing-country exports going to other developing countries increased dramatically from about 17% in the 1960s to over 40% in the 2000s. Explicit developing-country policies, including free-trade areas such as ASEAN in Southeast Asia and Mercosur in South America, are at least partly responsible for this trend. Of course, the trend also reflects the development successes in Asia, many of whose economies have been growing faster than those in North America and Europe in recent years. Renewed efforts are being made in Africa, through the African Union and the NEPAD peer review program, but there is a long way to go. We turn now to consider

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the advantages and disadvantages of alternative trade policies for developing countries in more detail.

TRADITIONAL TRADE STRATEGIES FOR DEVELOPMENT: EXPORT PROMOTION VERSUS IMPORT SUBSTITUTION

A traditional way to approach the complex issues of appropriate trade policies for development is to set these specific policies in the context of a broader strategy of looking outward or looking inward. In the words of Paul Streeten, outward-looking development policies "encourage not only free trade but also the free movement of capital, workers, enterprises and students . . . , the multinational enterprise, and an open system of communications." By contrast, inward-looking development policies stress the need for nations to evolve their own styles of development and to control their own destiny. This means policies to encourage indigenous "learning by doing" in manufacturing and the development of technologies appropriate to a country's resource endowments. According to proponents of inward-looking trade policies, greater self-reliance can be accomplished, in Streeten's words, only if "you restrict trade, the movement of people, and communications and if you keep out the multinational enterprise, with its wrong products and wrong want-stimulation and hence its wrong technology."

- **Outward-Looking Development Policies:** Policies that encourage exports, often through the free movement of capital, workers, enterprises, and students; a welcome to multinational corporations; and open communications.
- **Inward-Looking Development Policies:** Policies that stress economic self-reliance on the part of developing countries including domestic development of technology, the imposition of barriers to imports, and the discouragement of private foreign investment.
- **Import Substitution:** A deliberate effort to replace consumer imports by promoting the emergence and expansion of domestic industries.
- **Export Promotion:** Governmental efforts to expand the volume of a country's exports through increasing export incentives, decreasing disincentives and other means in order to generate more foreign exchange and improve the current account of its balance of payments or achieve other objectives.

A lively debate regarding these two philosophical approaches has been carried on in the development literature since the 1950s. The debate pits the free traders, who advocate outward-looking export promotion strategies of industrialization, against the protectionists, who are proponents of inward looking import substitution strategies. The latter predominated into the 1970s; the former gained the upper hand in the late 1970s and especially among Western and World Bank economists in the 1980s and early 1990s.

Basically, the distinction between these two traditional trade-related development strategies is that advocates of import substitution (IS) believe that a developing economy should initially substitute domestic production of previously imported simple consumer goods (first-stage IS) and then substitute through domestic production for a wider range of more sophisticated manufactured items (second-stage IS)—all behind the protection of high tariffs and quotas on these imports. In the long run, IS advocates cite the benefits of greater domestic industrial diversification ("balanced growth") and the ultimate ability to export some previously protected manufactured goods as economies of scale, low labor costs, and the positive externalities of learning by doing cause domestic prices to become more competitive with world prices.

By contrast, advocates of export promotion (EP) of both primary and manufactured goods cite the efficiency and growth benefits of free trade and competition, the importance of substituting large world markets for narrow domestic markets, the distorting price and cost effects of protection, and the tremendous successes of such export-oriented economies as South Korea, Taiwan, Singapore, Hong Kong, China, and others in Asia. They stress that firms in these economies have learned a great deal from the firms in the United States, Japan, and other developed-country economies that have been their long-term customers. Sometimes a distinction is made between "strong export promotion," in which policies are explicitly geared to expansion of exports (in general, such as through a weak currency), rather than production for the domestic market, and "weak export promotion," which emphasizes free trade and a level playing field and is viewed by advocates as likely to promote exports by comparison with previous import substitution policies (which tend to discourage exports in relative terms). Beyond this, many Asian countries also adopted a more nuanced approach that draws on some elements of both to develop targeted sectors, examined later in the chapter.

In practice, the distinction between IS and EP strategies is much less pronounced than many advocates would imply. Most developing economies have employed both strategies with different degrees of emphasis at one time or another. For example, in the 1950s and 1960s, the inward-looking industrialization strategies of the larger Latin American and Asian countries such as Chile, Peru, Argentina, India, Pakistan, and the Philippines were heavily IS oriented. By the end of the 1960s, some of the key sub-Saharan African countries like Nigeria, Ethiopia, Ghana, and Zambia had begun to pursue IS strategies, and some smaller Latin American and Asian countries also joined in. However, since the mid-1970s, the EP strategy has been increasingly adopted by a growing number of countries. The early EP adherents—South Korea, Taiwan, Singapore, and Hong Kong—were thus joined by the likes of Brazil, Chile, Thailand, and Turkey, which switched from an earlier IS strategy. It must be stressed, however, that most successful East Asian export promoters have pursued protectionist IS strategies sequentially and simultaneously in certain industries, so it is inaccurate to call them free traders, even though they are outward-oriented.

Against this background, we can now examine the issue of outward-looking export promotion versus inward-looking import substitution in more detail by applying the following fourfold categorization:

1. Primary outward-looking policies (encouragement of agricultural and raw-materials exports).
2. Secondary outward-looking policies (promotion of manufactured exports).
3. Primary inward-looking policies (mainly agricultural self-sufficiency).
4. Secondary inward-looking policies (manufactured commodity self sufficiency through import substitution).

Then, we turn our attention to eclectic strategies, particularly export-oriented strategic industrialization, and South-South economic integration.

EXPORT PROMOTION: LOOKING OUTWARD AND SEEING TRADE BARRIERS

The promotion of primary or secondary exports has long been considered a major ingredient in any viable long-run development strategy. The colonial territories of Africa and Asia, with their foreign-owned mines and plantations, were classic examples of primary outward-looking regions. It was partly in reaction to this enclave economic structure and partly as a consequence of the industrialization bias of the 1950s and 1960s that most developing countries put great

emphasis on the production of manufactured goods initially for the home market (secondary inward) and then for export (secondary outward). Primary-Commodity Export Expansion: Limited Demand As noted earlier in this chapter, many low-income countries still rely on primary products for a majority of their export earnings. With the notable exception of petroleum exports and a few needed minerals, primary-product exports have grown more slowly than total world trade.

On the demand side, there appear to be at least five factors working against the rapid expansion of primary-product and especially agricultural exports. First, the income elasticities of demand for agricultural foodstuffs and raw materials are relatively low compared with those for fuels, certain minerals, and manufactures. For example, the income elasticities of demand for sugar, cacao, tea, coffee, and bananas have all been estimated at less than 1, with most in the range of 0.3– 0.6. Inelastic demand means that only a sustained high rate of per capita income growth in the developed countries can lead to even modest export expansion of these particular commodities from the developing countries. (Many primary exporters have benefited from the boom in China since about 2002—excepting the 2008–2009 debacle—and this will be followed carefully.) Second, developed-country population growth rates are now at or near the replacement level, so little expansion can be expected from this source. Third, the price elasticity of demand for most primary commodities is relatively low.

The fourth and fifth factors working against the long-run expansion of primary-product export earnings—the development of synthetic substitutes and the growth of agricultural protection in the developed countries—are perhaps the most important. Synthetic substitutes for commodities like cotton, rubber, sisal, jute, hide, skins, and copper (replaced by glass fiber optics for communication networks) act both as a brake against higher commodity prices and as a direct source of competition in world export markets. The synthetic share of world market export earnings has generally risen over time, while the share of natural products has fallen. In the case of agricultural protection, which usually takes the form of tariffs, quotas, and non-tariff barriers such as sometimes arbitrary sanitary laws regulating food and fiber imports, the effects can be devastating to developing countries' export earnings.

The common agricultural policy of the European Union, for example, has resulted in greater subsidies that have harmed the competitiveness of developing countries. We may conclude, therefore, that the successful promotion of primary product exports in low-income countries and for the benefit of the poor cannot occur unless there is a reorganization of rural social and economic structures along the lines suggested in Chapter 9 to raise total agricultural productivity and distribute the benefits more widely. The primary objective of any rural development strategy is widely accepted to be first to provide sufficient food to feed local people and only then to be concerned about export expansion. Given the structure of world demands for primary products, the threat of local food shortages and thus the desire of potential importers to focus on agricultural self-sufficiency, the inevitability of the development of further synthetic substitutes, and the (tragic) unlikelihood of significantly lower levels of agricultural protection among developed nations in light of the stalled trade talks, the real scope for primary-product export expansion in individual developing nations seems limited.

EXPANDING EXPORTS OF MANUFACTURED GOODS

The expansion of manufactured exports has been encouraged by the spectacular export performances of countries like South Korea, Singapore, Hong Kong, Taiwan, and China. For example, for decades, Taiwan's total exports grew at an annual rate of over 20%, and exports from South Korea grew even faster. In both cases, this export growth was led by manufactured

goods, which contributed over 80% of both nations' foreign-exchange earnings. For the developing world as a whole, manufactured exports grew from 6% of their total merchandise exports in 1950 to almost 64% by 2000. Taken together, by 2002, the low- and middle-income countries accounted for 25.7% of the world's manufactured exports; China commanded a fast-growing share. However, the low-income countries accounted for just over 1% of the world total. The export successes of recent decades, especially among the Asian Tigers, have provided impetus for arguments by market fundamentalists (see Chapter 3) that economic growth is best served by allowing market forces, free enterprise, and open economies to prevail while minimizing government intervention. However, evidence from East Asia does not support this view of how export success was achieved. In South Korea, Taiwan, and Singapore (as in Japan earlier and to a large degree China more recently), the production and composition of exports was not left to the market but resulted from planned intervention by the government while making ample use of the profit incentive. We return to this consideration later in the chapter.

The demand problems for export expansion of many manufactured goods, though different in basic economic content from those for primary products, can still pose similar problems for developing countries. For many years, there was widespread protection in developed nations against the manufactured exports of developing countries, which was in part the direct result of the successful penetration of low-cost labor-intensive manufactures from countries like Taiwan, Hong Kong, and South Korea during the 1960s and 1970s. And as noted earlier, relative prices of the most basic manufactured goods have also fallen. Industrial-nation trade barriers have been extensive. During the 1980s, for example, 20 of the 24 industrialized countries increased their protection against developing countries' manufactured or processed products. Moreover, their rates of protection were considerably higher against developing country exports than against those of high-income countries.

Then there are the non-tariff barriers, which came to form the main protection against manufactured exports from developing countries, affecting at least one-third of them. A major example was the Multi fiber Arrangement (MFA), in effect until 2005, a complex system of mostly bilateral quotas against exports of cotton, wool, and synthetic fiber products. The United Nations Development Program estimated that the MFA cost the developing world $24 billion a year in lost textile and clothing export earnings. The end of the MFA has benefited China most, though some other developing countries, notably Bangladesh, have been able to hold their market share. Much-publicized initiatives for opening markets to the least developed countries, most prominently through the African Growth and Opportunities Act in the United States and Everything but Arms in the European Union, noted earlier, are bilateral offers that can later be withdrawn. These programs also have impediments such as a time horizon that is too short to be effective at encouraging investment or requiring costly and cumbersome documentation, as stressed by Africa expert Paul Collier.

IMPORT SUBSTITUTION: LOOKING INWARD BUT STILL PAYING OUTWARD

Observing weak world markets for their primary products and subscribing to the widespread belief in the magic of industrialization and the Prebisch- Singer hypothesis, developing nations turned to an import substitution strategy of urban industrial development in the post–World War II decades. Some countries still follow this strategy for both economic and political reasons, although pressure from the WTO, IMF, and World Bank impose high opportunity costs on such endeavors. As noted earlier, import substitution entails an attempt to replace commodities that are being imported, usually manufactured consumer goods, with domestic sources of production and supply. The typical strategy is first to erect tariff barriers or quotas on certain imported commodities and then to try to set up a local industry to produce these goods—items such as

radios, bicycles, or household appliances. Typically, this involves joint ventures with foreign companies, which are encouraged to set up their plants behind the wall of tariff protection and given all kinds of tax and investment incentives.

Although initial costs of production may be higher than former import prices, the economic rationale put forward for the establishment of import-substituting manufacturing operations is either that the industry will eventually be able to reap the benefits of large-scale production and lower costs (the so-called infant industry argument for tariff protection) or that the balance of payments will be improved as fewer consumer goods are imported. Often a combination of both arguments is advanced. Eventually, it is hoped, the infant industry will grow up and be able to compete in world markets. It will then be able to generate net foreign exchange earnings once it has lowered its average costs of production. Let us see how the theory of protection can be used to demonstrate this process.

TARIFFS, INFANT INDUSTRIES, AND THE THEORY OF PROTECTION

- **Infant industry:** A newly established industry, usually protected by a tariff barrier as part of a policy of import substitution.

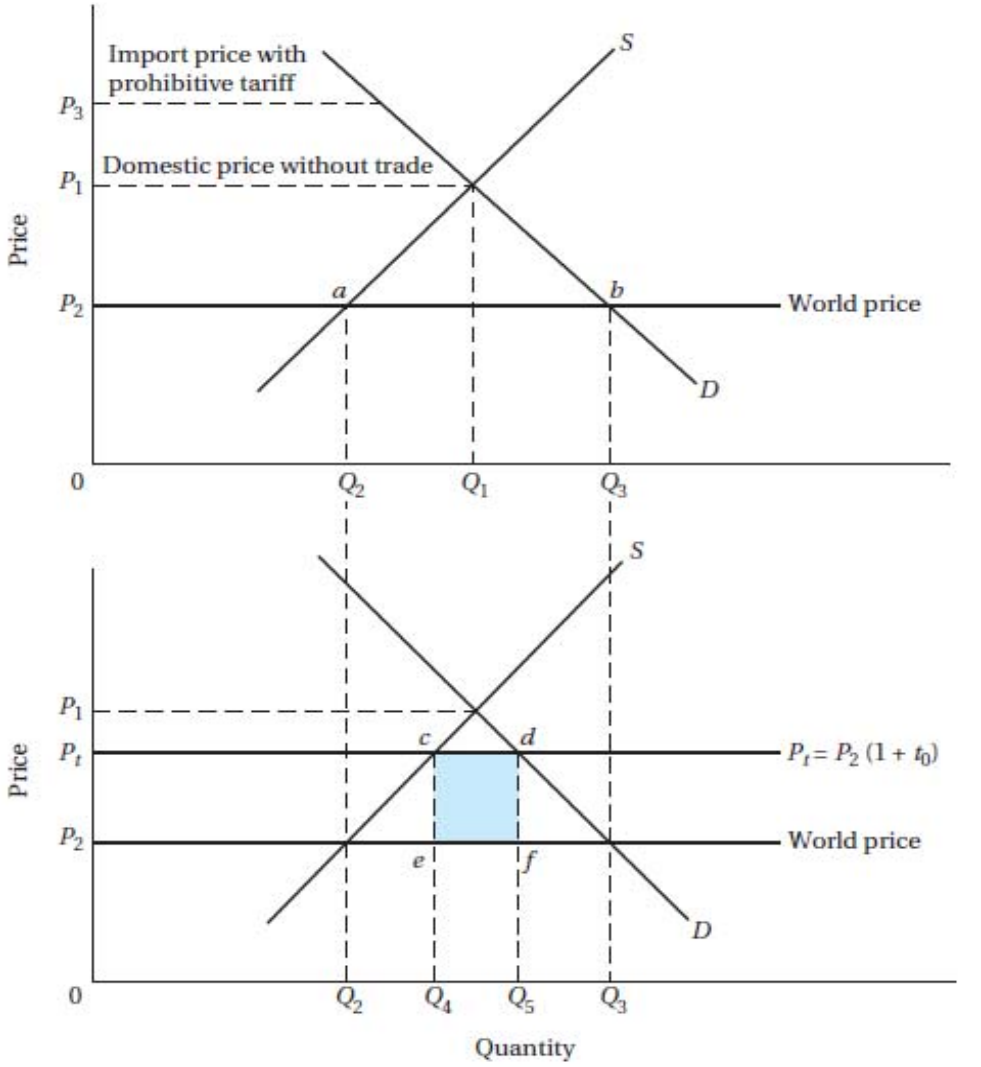
A principal mechanism of the import substitution strategy is the erection of protective tariffs (taxes on imports) or quotas (limits on the quantity of imports) behind which IS industries are permitted to operate. The basic economic rationale for such protection is the infant-industry argument. Tariff protection against the imported commodity is needed, so the argument goes, in order to allow the now higher-priced domestic producers enough time to learn the business and to achieve the economies of scale in production and the external economies of learning by doing that are necessary to lower unit costs and prices. With enough time and sufficient protection, the infant will eventually grow up, be directly competitive with developed-country producers, and no longer need this protection.

Ultimately, as actually seen in the case of many formerly protected IS industries in South Korea and Taiwan, domestic producers hope to be able not only to produce for the domestic market without a tariff wall or government subsidies but also to export their now lower-cost manufactured goods to the rest of the world. Thus for many developing-country industries, in theory, an IS strategy becomes the prerequisite for an EP strategy. It is for this reason, among others (including the desire to reduce dependence and attain greater self-reliance, the need to build a domestic industrial base, and the ease of raising substantial tax revenue from tariff collections), that import substitution has been appealing to so many governments.

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The basic theory of protection is an old and controversial issue in the field of international trade. It is relatively simple to demonstrate. Consider Figure 12.3.

FIGURE 12.3 Import Substitution and the Theory of Protection



The top portion of the figure shows standard domestic supply and demand curves for the industry in question (say, shoes) if there was no international trade—that is, in a closed economy. The equilibrium home price and quantity would be P1 and Q1. If this country were then to open its economy to world trade, its small size in relation to the world market would mean that it would face a horizontal, perfectly elastic demand curve. In other words, it could sell (or buy) all it wanted at a lower world price, P2. Domestic consumers would benefit from the lower price of imports and the resultant greater quantity purchased, while domestic producers and their employees would clearly suffer as they lose business to lower-cost foreign suppliers. Thus at the lower world price, P2, the quantity demanded rises from Q1 to Q3, whereas the quantity supplied by domestic producers falls from Q1 to Q2. The difference between what domestic producers are willing to supply at the lower P2 world price (Q2) and what consumers want to buy (Q3) is the amount that will be imported— shown as line ab in Figure 12.3.

Facing the potential loss of domestic production and jobs as a result of free trade and desiring to obtain infant-industry protection, local producers will seek tariff relief from the government. The effects of a tariff (equal to t0) are shown in the lower half of Figure 12.3. The tariff causes the domestic price of shoes to rise from P2 to Pt—that is, Pt _ P2 (1 + t0). Local consumers now have to pay the higher price and will reduce their quantity demanded from Q3 to Q5. Domestic producers can now expand production (and employment) up to quantity Q4 from Q2. The rectangular area cdfe measures the amount of the tariff revenue collected by the government on imported shoes.

Clearly, the higher the tariff, the closer to the domestic price the sum of the world price plus the import tax will be. In the classic infant-industry IS scenario, the tariff may be so high that it raises the price of the imported product above P1 to, say, P3 in the upper diagram of Figure 12.3, so that imports are effectively prohibited and the local industry is allowed to operate behind a fully protective tariff wall, once again selling Q1 output at P1 price. In the short run, it is clear that the impact of such a prohibitive tariff is to penalize consumers, who are in effect subsidizing domestic producers and their employees through higher prices and lower consumption.

Alternatively, we can say that a tariff redistributes income from consumers to producers. However, in the longer run, advocates of IS protection for infant industries argue that everyone will benefit as domestic and other shoe manufacturers reap the benefits of economies of scale and learning by doing so that ultimately the domestic price falls below P2 (the world price). Production will then occur for both the domestic and world markets, domestic consumers as well as domestic producers and their employees will benefit, protective tariffs can be removed, and the government will be able to replace any lost tariff revenue with taxes on the now very much higher incomes of domestic manufactures. It all sounds logical and persuasive in theory. But how has it performed in practice?

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Lesson 39

INTERNATIONAL TRADE THEORY AND DEVELOPMENT STRATEGY (CONTINUED5)

THE IS INDUSTRIALIZATION STRATEGY AND RESULTS

Most observers agree that the import-substituting strategy of industrialization has been largely unsuccessful. Specifically, there have been five undesirable outcomes. First, secure behind protective tariff walls and immune from competitive pressures, many IS industries (both publicly and privately owned) remain inefficient and costly to operate. Second, the main beneficiaries of the import substitution process have been the foreign firms that were able to locate behind tariff walls and take advantage of liberal tax and investment incentives. After deducting interest, profits, and royalty and management fees, much of which are remitted abroad, the little that may be left over usually accrues to the wealthy local industrialists with whom foreign manufacturers cooperate and who provide their political and economic cover. Third, most import substitution has been made possible by the heavy and often government-subsidized importation of capital goods and intermediate products by foreign and domestic companies. In the case of foreign companies, much of this is purchased from parent and sister companies abroad. There are two immediate results. On the one hand, capital-intensive industries are set up, usually catering to the consumption habits of the rich while having a minimal employment effect. On the other hand, far from improving the developing nation's balance of payments situation and alleviating the debt problem, indiscriminate import substitution often worsens the situation by increasing a need for imported capital-good inputs and intermediate products while, as just noted, a good part of the profits is remitted abroad in the form of private transfer payments.

A fourth detrimental effect of many import substitution strategies has been their impact on traditional primary-product exports. To encourage local manufacturing through the importation of cheap capital and intermediate goods, **official exchange rates** (the rates at which the central bank of a nation is prepared to purchase specific foreign currencies) have often been artificially overvalued. This has had the effect of raising the price of exports and lowering the price of imports in terms of the local currency. For example, if the free-market exchange rate between Pakistani rupees and U.S. dollars was 20 to 1 but the official exchange rate was 10 to 1, an item that cost $10 in the United States could be imported into Pakistan for 100 rupees (excluding transport costs and other service charges). If the **free-market exchange rate** (the exchange rate determined by the supply and demand for Pakistani rupees in terms of dollars) prevailed, that item would cost 200 rupees. Thus by means of an **overvalued exchange rate**, developing-country governments have effectively lowered the domestic currency price of their imports. At the same time, their export prices have increased—for example, at an exchange rate of 10 to 1, U.S. importers would have to pay 10 cents for every 1-rupee item rather than the 5 cents they would pay if the hypothetical free-market ratio of 20 to 1 were in effect.

- **Official exchange rate:** Rate at which the central bank will buy and sell the domestic currency in terms of a foreign currency such as the U.S. dollar.
- **Free-market exchange rate:** Rate determined solely by international supply and demand for domestic currency expressed in terms of, say, U.S. dollars.
- **Overvalued exchange rate:** An official exchange rate set at a level higher than its real or shadow value.

The net effect of overvaluing exchange rates in the context of import substitution policies is to encourage capital-intensive production methods still further (because the price of imported

capital goods is artificially lowered) and to penalize the traditional primary-product export sector by artificially raising the price of exports in terms of foreign currencies. This overvaluation, then, causes local farmers to be less competitive in world markets. In terms of its income distribution effects, the outcome of such government policies may be to penalize the small farmer and the self-employed while improving the profits of the owners of capital, both foreign and domestic. Industrial protection thus has the effect of taxing agricultural goods in the home market as well as discouraging agricultural exports. Import substitution policies have in practice often worsened the local distribution of income by favoring the urban sector and higher-income groups while discriminating against the rural sector and lower-income groups.

Fifth and finally, import substitution, which may have been conceived with the idea of stimulating infant-industry growth and self-sustained industrialization by creating “forward” and “backward” linkages with the rest of the economy, has often inhibited that industrialization. Many infants never grow up, content to hide behind protective tariffs and governments loath to force them to be more competitive by lowering tariffs. In fact, governments themselves often operate protected industries as state-owned enterprises. Moreover, by increasing the costs of inputs to potentially forward- linked industries (those that purchase the output of the protected firm as inputs or intermediate products in their own productive process, such as a printer’s purchase of paper from a locally protected paper mill) and by purchasing their own inputs from overseas sources of supply rather than through backward linkages to domestic suppliers, inefficient import-substituting firms may in fact block the hoped-for process of self-reliant integrated industrialization.

TARIFF STRUCTURES AND EFFECTIVE PROTECTION

Because import substitution programs are based on the protection of local industries against competing imports primarily through the use of tariffs and physical quotas, we need to analyze the role and limitations of these commercial policy instruments in developing nations. As we have already discussed, governments impose tariffs and physical quotas on imports for a variety of reasons. For example, tariff barriers may be erected to raise public revenue. In fact, given the administrative and political difficulties of collecting local income taxes, fixed-percentage taxes on imports collected at a relatively few ports or border posts often constitute one of the cheapest and most efficient ways to raise government revenue. In many developing countries, these foreign-trade taxes are thus a central feature of the overall fiscal system.

Non-tariff trade barriers, such as physical quotas on imports like automobiles and other luxury consumer goods, though more difficult to administer and more subject to delay, inefficiency, and rent-seeking corruption (e.g., with regard to the granting of import licenses), provide an effective means of restricting the entry of particularly troublesome commodities. Tariffs, too, may serve to restrict the importation of non necessity products (usually expensive consumer goods). By restricting imports, both quotas and tariffs can improve the balance of payments. And like overvaluing the official rate of foreign exchange, tariffs may be used to improve a nation’s terms of trade. However, in a small developing country unable to influence world prices of its exports or imports, this argument for tariffs (or devaluation) has little validity. Finally, as noted, tariffs may form an integral component of an import substitution policy of industrialization.

Whatever the means used to restrict imports, such restriction always protects domestic firms from competition with producers from other countries. To measure the degree of protection, we need to ask by how much these restrictions cause the domestic prices of imports to exceed what their prices would be if there were no protection. There are two basic measures of protection: the nominal rate and the effective rate.

The **nominal rate of protection** shows the extent, in percentages, to which the domestic price of imported goods exceeds what their price would be in the absence of protection. Thus the nominal (ad-valorem) tariff rate, *t*, refers to the final prices of commodities and can be defined simply as

$$t = \frac{p' - p}{p}$$

Where, *p* and *p* are the unit prices of industry's output with and without tariffs, respectively.

For example, if the domestic price, *p* , of an imported automobile is $5,000 whereas the CIF (cost plus insurance and freight) price, *p,* when the automobile arrives at the port of entry is $4,000, the nominal rate of tariff protection, *t,* would be 25%. This is the kind of tariff depicted as *t*0 in Figure 12.3. By contrast, the **effective rate of protection** shows the percentage by which the **value added** at a particular stage of processing in a domestic industry can exceed what it would be without protection. In other words, it shows by what percentage the sum of wages, interest, profits, and depreciation allowances payable by local firms can, as a result of protection, exceed what this sum would be if these same firms had to face unrestricted competition (no tariff protection) from foreign producers. The effective rate, , can therefore be defined as the difference between value added (percent of output) in domestic prices and value added in world prices, expressed as a percentage of the latter, so that:

$$g = \frac{v' - v}{v}$$

Where, *v* and *v* are the value added per unit of output with and without protection, respectively. The result can be either positive or negative, depending on whether *v* is greater or less than *v*. For most developing economies, it is highly positive.

- **Non-tariff trade barrier** A barrier to free trade that takes a form other than a tariff, such as quotas or (possibly arbitrary) sanitary requirements.
- **Nominal rate of protection** An ad valorem percentage tariff levied on imports.
- **Effective rate of protection** The degree of protection on value added as opposed to the final price of an imported product—usually higher than the nominal rate of protection.
- **Value added** Amount of a product's final value that is added at each stage of production.

The important difference between nominal and effective rates of protection can be illustrated by means of an example. Consider a nation without tariffs in which automobiles are produced and sold at the international or world price of $10,000. The value added by labor in the final assembly process is assumed to be $2,000, and the total value of the remaining inputs is $8,000. Assume for simplicity that the prices of these non labor inputs are equal to their world prices. Suppose that a nominal tariff of 10% is now imposed on imported automobiles, which raises the domestic price of cars to $11,000 but leaves the prices of all the other importable intermediate units unchanged. The domestic process of automobile production can now spend $3,000 per unit of output on labor inputs, as contrasted with $2,000 per unit before the tariff. The theory of effective protection therefore implies that under these conditions, the nominal tariff of 10% on the final product (automobiles) has resulted in an effective rate of protection of 50% for the local assembly process in terms of its value added per unit of output. It follows that for any given nominal tariff rate, the effective rate is greater the smaller the value added of the process; that is, p = *t*/(1 - *a*), where *t* is the nominal rate on final product and *a* is the proportionate value

of the importable inputs in a free market where these inputs are assumed to enter the country duty-free.

To sum up, the standard argument for tariff protection in developing countries has four major components:

1. Duties on trade are a major source of government revenue in a majority of developing countries because they are a relatively easy form of taxation to impose and even easier to collect.
2. Import restrictions represent an obvious response to chronic balance of payments and debt problems.
3. Protection against imports is said to be an appropriate means for fostering economies of scale, positive externalities, and industrial self-reliance as well as overcoming the pervasive state of economic dependence in which many or most developing countries understandably perceive themselves.
4. By pursuing policies of import restriction, developing countries can gain greater control over their economic destinies while encouraging foreign business interests to invest in local import-substituting industries, generating high profits and thus the potential for greater saving and future growth. They can also obtain imported equipment at relatively favorable prices and reserve an already established domestic market for local or locally controlled producers. Eventually, they may even become competitive enough to export to the world market.

FOREIGN-EXCHANGE RATES, EXCHANGE CONTROLS, AND THE DEVALUATION DECISION

We have already briefly discussed the question of foreign-exchange rates. Remember that a country's official exchange rate is the rate at which its central bank is prepared to transact exchanges of its local currency for other currencies in approved foreign-exchange markets. Official exchange rates are usually quoted in terms of U.S. dollars—so many Pesos, Reals, Pounds, Euros, Rupees, Bhat, or Yen per Dollar. For example, the official exchange rate of the South African rand for U.S. dollars in 1998 was approximately 5 rand per dollar, and the Indian rupee was officially valued at approximately 40 rupees per dollar. If a South African manufacturer wished to import fabrics from an Indian textile exporter at a cost of 40,000 rupees, he would need 5,000 rand to make the purchase. However, since almost all foreign-exchange transactions are conducted in U.S. dollars, the South African importer would need to purchase $1,000 worth of foreign exchange from the central bank of South Africa for his 5,000 rand and then transmit these dollars through official channels to the Indian exporter.

Official foreign-exchange rates are not necessarily set at or near the economic equilibrium price for foreign exchange—that is, the rate at which the domestic demand for a foreign currency such as dollars would just equal its supply in the absence of governmental regulation or intervention. In fact, as noted earlier, historically the currencies of most developing countries have been overvalued by the exchange rate. Whenever the official price of foreign exchange is established at a level that in the absence of any governmental restrictions or controls would result in an excess of local demand over the available supply of foreign exchange, the domestic currency in question is said to be overvalued.

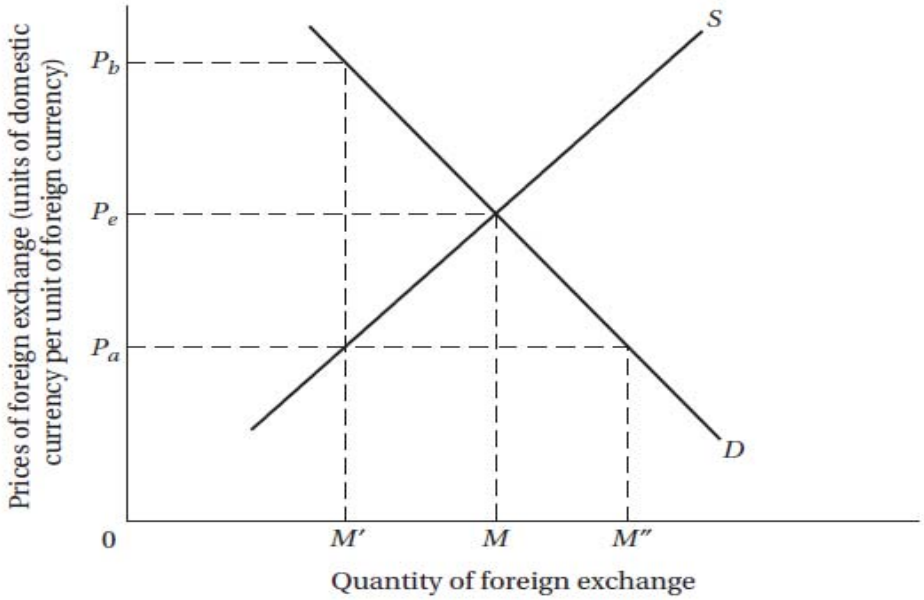
In situations of excess demand, developing-country central banks have three basic policy options to maintain the official rate of exchange. First, they can attempt to accommodate the excess demand by running down their reserves of foreign exchange (as Mexico did from 1991

to 1994 and Thailand, Malaysia, Indonesia, and the Philippines did from 1995 to 1997) or by borrowing additional foreign exchange abroad and thereby incurring further debts (as many African countries did in the 1980s and Indonesia and South Korea did in the 1990s). Second, they can attempt to curtail the excess demand for foreign exchange by pursuing commercial policies and tax measures designed to lessen the demand for imports (e.g., tariffs, physical quotas, licensing). Third, they can regulate and intervene in the foreign-exchange market by rationing the limited supply of available foreign exchange to "preferred" customers. 46 Such rationing is more commonly known as **exchange control**. The policy has been widely used throughout the developing world, although it is much less common than it once was.

- **Exchange control** A governmental policy designed to restrict the outflow of domestic currency and prevent a worsened balance of payments position by controlling the amount of foreign exchange that can be obtained or held by domestic citizens.

The mechanism and operation of exchange control can be illustrated diagrammatically with the aid of Figure 12.4. Under free-market conditions, the equilibrium price of foreign exchange would be P_e, with a total of *M* units of foreign exchange demanded and supplied. If, however, the government maintains an artificially low price of foreign exchange (i.e., an overvaluation of its domestic currency) at P_a, the supply of foreign exchange will amount to only *M* units because exports are overpriced. But at price *Pa*, the demand for foreign exchange will be *M"* units, with the result that there is an "excess demand" equal to $M'' - M'$ units. Unless foreigners are willing to lend to or invest in the country to make up the difference, some mechanism will have to be devised to ration the available supply of *M*. If the government were to auction this supply, importers would be willing to pay a price of P_b for the foreign exchange. In such a case, the government would make a profit of $P_b - P_a$ per unit. However, such open auctions are rarely carried out, and limited supplies of foreign exchange are allocated through some administrative quota or licensing device. Opportunities for corruption, evasion, and the emergence of black markets are thus made possible because importers are willing to pay as much as *Pb* per unit of foreign exchange.

FIGURE 12.4 Free-Market and Controlled Rates of Foreign Exchange



Why have a majority of developing-country governments at one time or another opted for an overvalued official exchange rate? Many have done so as part of widespread programs of rapid industrialization and import substitution. As mentioned earlier, overvalued exchange rates reduce the domestic currency price of imports below the level that would exist in a free market for foreign exchange (i.e., by the forces of supply and demand). Cheaper imports, especially capital and intermediate producer goods, are needed to fuel the industrialization process. But overvalued exchange rates also lower the domestic currency price of imported consumer goods, especially expensive luxury products. Developing countries wishing to limit such unnecessary and costly imports often need to establish import controls (mostly physical quotas) or to set up a system of **dual** or **parallel exchange rates** with one rate, usually highly overvalued and legally fixed, applied to capital and intermediate-good imports and the other, much lower and illegal (or freely floating), for luxury consumption good imports. Such dual exchange-rate systems make the domestic price of imported luxury goods very high while maintaining the artificially low and thus subsidized price of producer good imports. Needless to say, dual exchange rate systems, like exchange controls and import licenses, present serious problems of administration and can promote black markets, corruption, evasion, and rent seeking (see Chapter 11).

- **Dual exchange rate (parallel exchange rate):** Foreign exchange- rate system with a highly overvalued and legally fixed rate applied to capital and intermediate goods imports and a second, illegal (or freely floating) rate for imported consumption goods.
- **Devaluation:** A lowering of the official exchange rate between one country's currency and all other currencies.
- **Depreciation (of currency):** The decline over time in the value or price of one currency in terms of another as a result of market forces of supply and demand.
- **Flexible exchange rate:** The exchange value of a national currency that is free to move up and down in response to shifts in demand and supply arising from international trade and finance.

However, overvalued currencies reduce the return to local exporters and to import-competing industries that are not protected by heavy tariffs or physical quotas. Exporters receive less domestic currency for their products than would be forthcoming if the free-market exchange rate

prevailed. Moreover, in the absence of export subsidies to reduce the foreign-currency price of exports, exporters, mostly farmers, become less competitive in world markets because the price of their produce has been artificially elevated by the overvalued exchange rate. In the case of import-competing but unprotected local industries, the overvalued rate artificially lowers the domestic currency price of foreign imports of the same product (e.g., radios, tires, bicycles, or household utensils). Hence in the absence of effective government intervention and regulation of the foreign-exchange dealings of its nationals, overvalued exchange rates have a tendency to exacerbate balance of payments and foreign-debt problems simply because they cheapen imports while making exports more costly.

Chronic payments deficits resulting primarily from current account transactions (exports and imports) can possibly be ameliorated by currency **devaluation**. Simply defined, a country's currency is devalued when the official rate at which its central bank is prepared to exchange the local currency for dollars is abruptly increased. Currency **depreciation**, by contrast, refers to a gradual decrease in the purchasing power of a domestic currency in foreign markets relative to domestic markets; *appreciation* refers to a gradual increase. For example, a devaluation of the South African rand and the Indian rupee would occur if their official exchange rates of approximately 5 rand and 40 rupees to the dollar were changed to, say, 8 rand and 50 rupees per dollar. Following these devaluations, U.S. importers of South African and Indian goods would pay fewer dollars to obtain the same products. But U.S. exports to South Africa and India would become more expensive, requiring more rand or rupees to purchase than before. In short, by lowering the *foreign*-currency price of its exports (and thereby generating more foreign demand) while raising the *domestic*-currency price of its imports (and thereby lowering domestic demand), developing countries that devalue their currency hope to improve their trade balance vis-à-vis the rest of the world. This is a principal reason why devaluation is always a key component of IMF stabilization policies when currencies are "pegged."

An alternative to currency devaluation is to allow foreign-exchange rates to fluctuate freely in accordance with changing conditions of international demand and supply. Freely fluctuating or **flexible exchange rates** in the past were not thought to be desirable, especially in developing nations heavily dependent wide and uncontrollable fluctuations, and susceptible to foreign and domestic currency speculation. Such unpredictable fluctuations can wreak havoc with both short- and long-range development plans. Nevertheless, during the global balance of payments and debt crises of the 1980s, many developing countries, including Mexico, Argentina, Chile, and the Philippines, were heavily influenced by the IMF to let their exchange rates float freely in order to correct sizable payments imbalances and to prevent continued capital flight. The same phenomenon occurred again for Mexico in 1994 and for Thailand, the Philippines, South Korea, Malaysia, and Indonesia in 1997 and 1998 during the Asian currency crisis. In a matter of several months during 1997, the Thai baht lost one-third of its value against the dollar, and the Philippine peso, South Korean won, Malaysian Ringgit, and Indonesian Rupiah fell by almost 30%.

The present international system of floating exchange rates, formally legalized at an IMF meeting in 1976, represents a compromise between a fixed (artificially pegged) and a fully flexible exchange-rate system. Under this "managed" floating system, major international currencies are permitted to fluctuate freely, but erratic swings are limited through central bank intervention. Some developing countries, including China, however, have continued to peg their currencies to those of developed countries, usually the U.S. dollar but sometimes the euro or a basket of currencies. Kenya decided to tie their currencies to the movements of a weighted index of the world's major currencies rather than to tie them to a particular currency, like the

U.S. dollar or the pound sterling. However, the trend for most developing countries is toward a **managed float** of their currencies.

One final point that should be made about currency devaluations concerns their probable effect on domestic prices. Devaluation has the immediate effect of raising prices of imported goods in terms of the local currency. Imported shirts, shoes, radios, records, foodstuffs, and bicycles that formerly cost *x* rupees now cost (1 + *d*)*x* rupees, depending on the percentage magnitude of the devaluation, *d*. If, as a result of these higher prices, domestic workers seek to preserve the real value of their purchasing power, they are likely to initiate increased wage and salary demands. Such increases, if granted, will raise production costs and tend to push local prices up even higher. A **wage-price spiral** of domestic inflation can be thereby set in motion. For example, following the widespread IMF-induced currency devaluations during the 1997 Asian crisis, rates of inflation shot up in 1998 from 11% to 35% in Indonesia, from 6% to 12% in Thailand, and from 5% to 10% in the Philippines. Unemployment rates doubled, and workers took to the streets, demanding an end to the layoffs and a rise in wages to offset their lost purchasing power.

Finally, note that while a neutral exchange rate favors producing for neither the export market nor the domestic market, and free-market economists tend to favor it because of its "level playing field" in that respect, in contrast, an **undervalued exchange rate** is strongly export-promoting. This is because it raises the local prices that firms receive for goods that can be exported *relative to* prices of non tradable goods that are sold only to domestic buyers, thus motivating a reorientation of firms toward the export market. If exports stimulate growth and if that growth is widely shared, many development economists expect that in the longer term, devaluation—and perhaps even undervaluation of exchange rates—can provide important development advantages. Proponents of industrial policy (and critics who consider it unfair) point to the long-term undervaluation of the Chinese Renminbi and the earlier undervaluation of other East Asian currencies, particularly those of South Korea and Taiwan; we return to this topic later in the chapter.

TRADE OPTIMISTS AND TRADE PESSIMISTS: SUMMARIZING THE TRADITIONAL DEBATE

We are now in a position to summarize the major issues and arguments in the great debate between advocates of free-trade, outward-looking development and export promotion policies—the **trade optimists**—and advocates of greater protection, more inward-looking strategies, and greater import substitution— the **trade pessimists**. Let us begin with the latter school of thought.

TRADE PESSIMIST ARGUMENTS

- **Trade pessimists:** Theorists who argue that without tariff protection or quantitative restrictions on trade, developing countries gain little or nothing from an export-oriented, open-economy posture.

Trade pessimists tend to focus on four basic themes: (1) the limited growth of world demand for primary exports, (2) the secular deterioration in the terms of trade for primary producing nations, (3) the rise of "new protectionism" against manufactured and processed agricultural goods from developing countries, and (4) the presence of market failures that reduce the ability of developing countries to move up to export higher-value products.

The value of traditional developing-country exports to developed countries grow slowly because of (1) a shift in developed countries from low technology, material-intensive goods to high-technology, skill-intensive products, which decreases the demand for raw materials; (2) increased efficiency in industrial uses of raw materials; (3) the substitution of synthetics for natural raw materials like rubber, copper, and cotton; (4) the low income elasticity of demand for primary products and light manufactured goods; (5) the rising productivity of agriculture in developed countries; and (6) relatively higher levels of protectionism for both agriculture and labor-intensive developed country industries.

The terms of trade remain unfavorable or continue to deteriorate because of (1) oligopolistic control of factor and commodity markets in developed countries combined with increasing competitive sources of supply of a developing country's export-ables and (2) a generally lower level of the income elasticity of demand for its exports.

The rise of **new protectionism** in the developed world results from the success of a growing number of developing countries in producing a wide range of both primary and secondary products at competitive world market prices, combined with the quite natural fears of workers in higher-cost developed country industries that their jobs will be lost. They pressure their governments in North America, Europe, and Japan to curtail or prohibit competitive imports from the developing world. The form this takes changes over time; the 2010 proposals by the leaders of France and Italy for "carbon tariffs" to be levied on exports of developing countries that do not restrict greenhouse gases are a recent example: surely, protectionism against developing countries is not the only way to help them to decrease greenhouse gas emissions.

Trade pessimists therefore conclude that trade opportunities are limited and even hurt developing countries for four reasons:

1. The slow growth in demand for their traditional exports means that export expansion results in lower export prices and a transfer of income from poor to rich nations.
2. Without import restrictions, the high elasticity of developing countries demand for imports combined with the low elasticity for their exports means that developing countries must grow slowly to avoid chronic balance of payments and foreign-exchange crises.
3. Developing nations have their "static" comparative advantage in primary products, which means that export-promoting free-trade policies tend to inhibit industrialization, which is in turn the major vehicle for the accumulation of technical skills and entrepreneurial talents.
4. Trade pessimists view trade liberalization under the WTO as limited in practice, with developing economies—particularly the least developed countries—lacking the high-powered lawyers and other resources needed to pry developed markets open.

TRADE OPTIMIST ARGUMENTS

- **Trade liberalization** Removal of obstacles to free trade, such as quotas, nominal and effective rates of protection, and exchange controls.

Trade optimists tend to underplay the role of international demand in determining the gains from trade. Instead, they focus on the relationship between trade policy, export performance, and economic growth. They argue that trade liberalization (including export promotion, currency devaluation, removal of trade restrictions, and generally "getting prices right") generates rapid export and economic growth because free trade provides a number of benefits:

1. It promotes competition, improved resource allocation, and economies of scale in areas where developing countries have a comparative advantage. Costs of production are consequently lowered.
2. It generates pressures for increased efficiencies, product improvement, and technical change, thus raising factor productivity and further lowering costs of production.
3. It accelerates overall economic growth, which raises profits and promotes greater saving and investment and thus furthers growth.
4. It attracts foreign capital and expertise, which are in scarce supply in most developing countries.
5. It generates needed foreign exchange that can be used to import food if the agricultural sector lags behind or suffers droughts or other natural catastrophes.
6. It eliminates costly economic distortions caused by government interventions in both the export and foreign-exchange markets and substitutes market allocation for the corruption and rent-seeking activities that typically result from an overactive government sector.
7. It promotes more equal access to scarce resources, which improves overall resource allocation.
8. It enables developing countries to take full advantage of reforms under the WTO.

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Lesson 40

BALANCE OF PAYMENTS, DEBT, FINANCIAL CRISES AND STABILIZATION POLICIES

INTERNATIONAL FINANCE AND INVESTMENT: KEY ISSUES

In this chapter, after looking at a country's balance of payments accounts and recent trends in developing-country trade balances, we examine the dimensions and effects of debt crises in developing countries. Our initial focus will be on how major debt crises emerged during the 1980s and why debt has remained a serious impediment to growth in Africa years after the crisis hit, how the crisis was addressed first in Latin America and much later in Africa, and who bore the burden of stabilization and adjustment programs induced by the International Monetary Fund (IMF). The 1980s crisis is of importance because of its scope, its impact on slowing development progress of dozens of developing nations, and the years of careful study of this experience. We next examine some of the international crises that emerged in developing-countries over the subsequent two decades, primarily the East Asian crisis of the late 1990s, and consider how adverse impacts of international debt crises on developing country citizens might be minimized or prevented. We conclude with a review of the 2008 international financial crisis that began in the United States but has had major impacts on all developing regions.

In Chapter 14, we will extend our analysis of the role of finance in trade to examine the international flow of financial resources, consisting of (1) the flow of private foreign direct investments, primarily via the modern multinational corporation; (2) the recent resurgence of private financial "portfolio investments" in support of newly organized or refurbished "emerging" stock and bond markets; (3) the flow of remittances from migrants working abroad; (4) the flow of public financial and technical resources in the form of bilateral and multilateral foreign aid; (5) the growing importance of private financial and technical assistance in the form of nongovernmental organization programs, and (6) the most difficult, but arguably most important, aspect of aid— helping conflict and post conflict environments.

THE BALANCE OF PAYMENTS ACCOUNT

GENERAL CONSIDERATIONS

The extension of our analysis beyond simple merchandise trade into areas related to the international flow of financial resources permits us to examine the **balance of payments** of developing nations. A balance of payments table is designed to summarize a nation's financial transactions with the outside world. It is divided into three components, as shown by the summary in Table 13.1. Note that balance of payments tables are sometimes presented in a revised format that splits the current account into two parts (called the *current account* and the *capital account*) and labels what is here called the capital account the *financial account*. We retain the traditional approach to balance of payments accounting because most of the literature on developing-country debt and its ongoing treatment in the financial press is usually presented in that format. The **current account** focuses on the export and import of goods and services, investment income, **debt service** payments, and private and public net remittances and transfers. Specifically, it subtracts the value of imports from exports and then adds flows of the net investment income received from abroad (e.g., the difference between interest and dividend payments on foreign stocks, bonds, and bank deposits owned by developing-country nationals and brought into the country, as opposed to being left overseas, and those securities, if any, of the developing country owned by foreigners plus repatriated profits of multinational

corporations). Taking this total (*A* - *B* + *C* in Table 13.1), it subtracts item *D*, debt service payments, which represents a major component of heavily indebted poor countries current account deficits, and adds item *E*, net private and public remittances and transfers, such as money sent home by developing country nationals working abroad (e.g., Mexicans in the United States, Algerians in France, Pakistanis in Kuwait). The final result (*A* - *B* + *C* - *D* + *E* in Table 13.1) yields the current account balance—a positive balance is called a **surplus**, and a negative balance, a **deficit**. The current account therefore allows us to analyze the impact of various commercial policies, primarily on merchandise trade but also indirectly on investment income, debt service payments, and private transfers.

The **capital account** (financial account) records the value of private foreign direct investment (mostly by multinational corporations), foreign loans by private international banks, and loans and grants from foreign governments (as in the form of foreign aid) and multilateral agencies

TABLE 13.1 A Schematic Balance of Payments Account

Exports of goods and services	*A*
Imports of goods and services	*B*
Investment income	*C*
Debt service payments	*D*
Net remittances and transfers	*E*
Total current account balance $(A-B+C-D+E)$	*F*
Direct private investment	*G*
Foreign loans (private and public), minus amortization	*H*
Increase in foreign assets of the domestic banking system	*I*
Resident capital outflow	*J*
Total capital account balance $(G+H-I-J)$	*K*
Increase (or decrease) in cash reserve account	*L*
Errors and omissions $(L-F-K)$	*M*

such as the IMF and the World Bank. It then subtracts an extremely important item, especially for the major debtor countries: what is called “resident capital outflow” in Table 13.1. To put its importance in perspective, during the 1980s debt crisis, wealthy nationals from many developing countries sent vast amounts of money into developed- nation bank accounts, real estate ventures, and stock and bond purchases; this **capital flight** is estimated to have had a value of up to half the total debt of some debtor nations at the peak of their debt problems.1 It dwarfed the receipt of private and public loans and investments and was a major contributor to the worsening balance of payments of many developing nations. Capital flight is also a chronic problem where autocratic governments have a shaky hold on power. The balance on capital account is therefore calculated as items *G* + *H* - *I* - *J* in Table 13.1. Again, a positive balance is a surplus and a negative one a deficit.

Finally, the **cash account**, or **international reserve account** (item *L*), is the balancing item (along with the “errors and omissions,” item *M*, which reconciles statistical inequalities, but is sometimes used as a proxy for disguised or unrecorded capital flows) that is lowered (shows a net outflow of foreign reserves) whenever total disbursements on the current and capital accounts exceed total receipts. Table 13.2 presents a simple chart of what constitutes positive

(credit) and negative (debit) items in a balance of payments table. Nations accumulate international cash reserves in any or all of the following three forms:

1. Foreign **hard currency** (primarily U.S. dollars, but also Japanese yen, pounds sterling, or the European **euro**) whenever they sell more abroad than they purchase.
2. Gold, mined domestically or purchased.
3. Deposits with the IMF, which acts as a reserve bank for individual nations' central banks.

TABLE 13.2 Credits and Debits in the Balance of Payments Account

"Positive" Effects (Credits)	"Negative" Effects (Debits)
1. Any sale of goods or services abroad (export)	1. Any purchase of goods and services abroad (import)
2. Any earning on an investment in a foreign country	2. Any investment in a foreign country
3. Any receipt of foreign money	3. Any payment to a foreign country
4. Any gift or aid from a foreign country	4. Any gift or aid given abroad
5. Any foreign sale of stocks or bonds	5. Any purchase of stocks or bonds from abroad

DEFINATIONS

- **Balance of payments:** A summary statement of a nation's financial transactions with the outside world.
- **Current account:** The portion of a balance of payments that states the market value of a country's "visible" (e.g., commodity trade) and "invisible" (e.g., shipping services) exports and imports.
- **Debt service:** The sum of interest payments and repayments of principal on external public and publicly guaranteed debt.
- **Balance of payments:** A summary statement of a nation's financial transactions with the outside world.
- **Current account:** The portion of a balance of payments that states the market value of a country's "visible" (e.g., commodity trade) and "invisible" (e.g., shipping services) exports and imports.
- **Capital flight:** The transfer of funds to a foreign country by a citizen or business to avoid conditions in the source country.
- **Debt service:** The sum of interest payments and repayments of principal on external public and publicly guaranteed debt.
- **Hard currency:** The currency of a major industrial country or currency area, such as the U.S. dollar, the euro, or the Japanese yen, that is freely convertible into other currencies.
- **Euro:** A common European currency adopted by some of the countries of the European Union.

A HYPOTHETICAL ILLUSTRATION: DEFICITS AND DEBTS

A numerical example might prove helpful at this point. In Table 13.3, a hypothetical balance of payments table for a developing country is portrayed. First, under the *current account*, there is a $10 million negative merchandise trade balance made up of $35 million of commodity export receipts (of which over 70%—$25 million—are derived from primary agricultural and raw material products), minus $45 million of mostly manufactured consumer, intermediate, and capital goods import payments. To this total we add $5 million in payments for the services of foreign shipping firms and $1 million of investment income receipts representing net interest transmitted on foreign bond holdings, subtract $15 million of debt service payments

representing this year's interest costs on the accumulated foreign debt of the developing country, and add $2 million of remittance and transfer receipts derived from payments of domestic workers living overseas who send home part of their earnings. Together, all of these items add up to a *deficit* on current account of $27 million.

TABLE 13.3: A Hypothetical Traditional Balance of Payments Table for a Developing Nation

ITEMS	Amounts (millions of dollars)		
Current account			
Commodity exports			135
Primary products	125		
Manufactured goods	110		
Commodity imports			245
Primary products	210		
Manufactured goods	235		
Services (e.g., shipping costs)			25
Investment income			11
Debt service payments			215
Net remittances and transfers			12
Balance on current account		227	
Capital account			
Private direct foreign investment			13
Private loans and portfolio investments			14
Government and multilateral flows (net)			13
Loans	19		
Debt amortization	26		
Resident capital outflow			28
Balance on capital account		12	
Balance on current and capital accounts		225	
Cash account			
Net decrease in official monetary reserves			125
Balance on cash account		125	

Turning now to the *capital account*, we see that there is a net inflow of $7 million of foreign private investment, consisting of $3 million of direct investment from multinational corporations in the form of new local factories and $4 million in private loans (from international commercial banks) and private portfolio (stock and bond) investments by foreign individuals and mutual funds (see Chapter 14). There is also a net positive $3 million inflow of public loans in the form of foreign aid and multilateral agency assistance.

Note that the gross *inflow* of $9 million in public loans and grants is partly offset by a $6 million capital *outflow* representing **amortization** (gradual reduction) of the principal on former loans. However, as shown in Table 13.4, which covers the 1980s debt crisis period, these figures were reversed in the 1980s—the outflow to repay accumulated debts exceeded the inflow of *both* public aid and new refinancing bank loans. As a result, a $35.9 billion net transfer from developed to developing countries in 1981 became a $22.5 billion transfer from poor to rich nations by 1990 (they turned positive again in the 1990s until substantial new problems emerged for some countries between 1997 and 2002). Returning to Table 13.3, we see that a major reason for the perverse flow of financial capital from poor to rich nations was very high levels of resident capital outflow. This capital flight is estimated to have amounted to almost $100 billion during the first half of the 1980s from just five of the principal countries involved (Argentina, Brazil, Mexico, the Philippines, and Venezuela) and almost $200 billion over the period 1976–1985. In Table 13.3, it is listed as an outflow of $8 million. The net result is a $2 million positive balance on capital account, bringing the total balance on current and capital accounts to a deficit of $25 million.

THE ISSUE OF PAYMENTS DEFICITS

TABLE 13.4 Before and After the 1980s Debt Crisis: Current Account Balances and Capital Account Net Financial Transfers of Developing Countries, 1978–1990 (billions of dollars)

Year	Current Account	Capital Account Net Financial Transfers
1978	−32.1	33.2
1979	+10.0	31.2
1980	+30.6	29.5
1981	−48.6	35.9
1982	−86.9	20.1
1983	−64.0	3.7
1984	−31.7	−10.2
1985	−24.9	−20.5
1986	−46.4	−23.6
1987	−4.4	−34.0
1988	−22.4	−35.2
1989	−18.4	−29.6
1990	−3.0	−22.5

SOME INITIAL POLICY ISSUES

To finance this $25 million negative balance on combined current and capital accounts, our hypothetical country will have to draw down $25 million of its central bank holdings of official

monetary reserves. Such reserves consist of gold, a few major foreign currencies, and special drawing rights at the IMF (these will be explained shortly). **International reserves** serve for countries the same purpose that bank accounts serve for individuals. They can be drawn on to pay bills and debts, they are increased with deposits representing net export sales and capital inflows, and they can be used as collateral to borrow additional reserves.

We see, therefore, that the balance on current account *plus* the balance on capital account must be offset by the balance on cash account. This is shown by the net *decrease* of $25 million in official monetary reserves. If the country is very poor, it is likely to have a very limited stock of these reserves. This overall balance of payments deficit of $25 million may therefore place severe strains on the economy and greatly inhibit the country's ability to continue importing needed capital and consumer goods. In the least developed nations of the world, which have to import food to feed a hungry population and possess limited monetary reserves, such payments deficits may spell disaster for millions of people.

Facing existing or projected balance of payments deficits on combined current and capital accounts, developing nations have a variety of policy options. For one thing, they can seek to improve the balance on current account by promoting export expansion or limiting imports (or both). In the former case, there is the further choice of concentrating on primary or secondary product export expansion. In the latter case, policies of import substitution (the protection and stimulus of domestic industries to replace previously imported manufactured goods in the local market) or selective tariffs and physical quotas or bans on the importation of specific consumer goods may be tried. Or countries can seek to achieve both objectives simultaneously by altering their official foreign exchange rates through a currency devaluation that lowers export prices and increases import prices.

Alternatively or concurrently, they can seek loans and assistance from the World Bank or the IMF. Traditionally, this has required that the countries follow very restrictive fiscal and monetary policies. These have been called *stabilization policies* by the IMF; and termed *structural adjustment* by the World Bank (see Box 13.2), which has made **structural adjustment loans** as part of this process. *Stabilization policies* and *structural adjustment*, both packages of preconditions for receiving loans, are popularly referred to as **conditionality**. These policies are designed to reduce domestic demand so as to lower imports and reduce the inflationary pressures that may have contributed to the "overvalued" exchange rate that slowed exports and promoted imports. In recent years, these institutions have shown somewhat less policy inflexibility, but it is not yet clear whether this trend will continue.

In addition, developing countries can try to improve the balance on their capital account by encouraging more private foreign direct or portfolio investment, borrowing from international commercial banks, or seeking more public foreign assistance (aid). But neither private foreign investment nor a majority of foreign aid comes in the form of gifts (outright grants). The receipt of loan assistance implies the necessity of future repayments of principal and interest. Directly productive foreign investments in, say, building local factories entail the potential repatriation of sizable proportions of the profits of the foreign owned enterprise. As shown in Chapter 14, the encouragement of private foreign investment has broader development implications than the mere transfer of financial or physical capital resources.

Finally, developing nations can seek to modify the detrimental impact of chronic balance of payments deficits by expanding their stocks of official monetary reserves. One way of doing this is through the acquisition of a greater share of international "paper gold" known as **special drawing rights (SDRs)**. Traditionally, under the workings of the international monetary system,

countries with deficits in their balance of payments were required to pay for these deficits by drawing down on their official reserves of the two principal international monetary assets, gold and U.S. dollars. But with the growth in the volume and value of world trade, a new kind of international asset was needed to supplement the limited stock of gold and dollars. Consequently, in 1970 the IMF was given the authority to create special drawing rights. These international assets perform many of the functions of gold and dollars in settling balance of payments accounts. They are valued on the basis of a basket of currencies (a weighted average of the value of four different currencies— the U.S. dollar, the euro, the pound sterling, and the Japanese yen) and constitute claims on the IMF. They may thus be exchanged for convertible currencies to settle international official transactions. As of November 2010, one U.S. dollar was worth 0.65 SDR. In response to the global financial crisis, the IMF raised the amount of SDRs issued nearly tenfold, to 316 billion. Eventually, the IMF would like to see all international financial settlements conducted in SDRs.

Having summarized some basic balance of payments concepts and issues as they relate to both commodity trade and international flows of financial resources, we can now briefly review some trends in the balance of payments of developing nations and then focus our attention on a detailed analysis of debt problems.

- **Special Drawing Rights (SDRs):** An international financial asset created by the International Monetary Fund in 1970 to supplement gold and dollars in settling international balance of payments accounts.

Lesson 41

BALANCE OF PAYMENTS, DEBT, FINANCIAL CRISES AND STABILIZATION POLICIES (CONTINUED1)

TRENDS IN THE BALANCE OF PAYMENTS

For most developing countries, the 1980s was an extraordinarily difficult period in their balance of payments accounts with the rest of the world. Prior to 1980, the conventional development strategy had developing countries operating with sizable current account deficits, for imports of capital and intermediate goods were required to provide the machinery and equipment for rapid industrialization. Export earnings paid for most, but not all, of these imports. The financing of these deficits was therefore made possible by large resource transfers in the capital account in the form of country-to-country (bilateral) foreign aid, direct private investment by multinational corporations, private loans by international banks to both developing-country governments and local businesses, and multilateral loans from the World Bank and other international development agencies. Capital account surpluses, therefore, typically more than compensated for current account deficits so that international reserves were being accumulated.

However, during the 1980s, the developing world experienced a substantial deterioration in both current and capital account balances. As Table 13.4 shows, the net financial transfers

TABLE 13.5 Developing Country Payments Balances on Current Account, 1980–2009 (billions of dollars)

	1980	1981	1982	1983	1984	1985	1986	1987
All developing economies	43.203	−17.934	−43.535	−40.573	−19.798	−27.544	−56.07	−23.168
Developing Asia	−7.604	−12.295	−13.898	−17.372	−10.751	−20.124	−16.382	−6.22
Middle East and North Africa	79.623	61.314	23.835	−10.585	−9.128	−2.164	−17.117	−8.23
Sub-Saharan Africa	0.612	−17.405	−16.347	−8.687	−4.319	0.14	−4.673	−1.836
Developing Western Hemisphere	−27.677	−43.789	−42.287	−7.501	−1.266	−1.97	−17.089	−10.959
	1988	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**
All developing economies	−41.458	−38.121	−32.15	−95.512	−81.619	−120.442	−79.1	−92.015
Developing Asia	−14.931	−19.715	−11.261	−8.954	−9.166	−31.691	−16.711	−36.916
Middle East and North Africa	−9.303	−4.362	3.225	−66.499	−25.704	−21.744	−10.471	−1.208
Sub-Saharan Africa	−6.818	−3.823	−2.314	−4.876	−6.382	−5.766	−5.923	−9.864
Developing Western Hemisphere	−9.322	−4.977	−1.087	−17.413	−34.821	−45.853	−51.931	−37.451
	1996	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
All developing economies	−68.881	−69.83	−105.755	−15.457	92.923	47.897	80.48	148.978
Developing Asia	−35.981	11.08	50.156	39.801	41.651	39.285	66.937	85.011
Middle East and North Africa	18.038	15.028	−26.183	13.502	78.242	45.814	31.417	63.895
Sub-Saharan Africa	−4.692	−6.813	−15.516	−12.168	1.985	−4.891	−12.638	−12.702
Developing Western Hemisphere	−39.137	−66.266	−90.539	−56.513	−48.569	−53.88	−16.153	9.245
	2004	**2005**	**2006**	**2007**	**2008**	**2009**		
All developing economies	222.251	449.74	665.562	657.93	709.16	321.748		
Developing Asia	92.904	167.489	289.244	414.67	424.059	319.003		
Middle East and North Africa	106.152	219.225	286.385	279.219	347.809	34.81		
Sub-Saharan Africa	−8.484	−2.713	30.985	10.074	8.582	−18.149		

component of the capital account (which includes everything in Table 13.3 except private direct foreign investment) turned sharply negative beginning in 1984. The overall transition amounted to more than $68 billion, comparing the positive $33.2 billion capital account balance in 1978 with the negative $35.2 billion balance in 1988. Meanwhile, a brief period of large current account surpluses, which reflects entirely OPEC's booming export revenues of 1979–1980, abruptly turned negative in 1981 and, as illustrated in Table 13.5, stayed negative until 2000. One reason for persistent concern has been that the recent positive balances (outside of Africa) have been possible largely because of the wide and probably unsustainable U.S. trade deficit. Commodity exporters were also boosted in recent years by the booming demand from high-growth developing economies, especially China.

The reasons for the decline in current account balances in the 1980s and 1990s included (1) a dramatic fall in commodity prices, including oil; (2) global recessions in 1981–1982 and 1991–1993, which caused a general contraction in world trade; (3) increasing protectionism in the developed world against export from developing countries; and (4) some severely overvalued exchange rates in several key developing economies, such as Argentina. This reversed in the 2000s with large current account surpluses in many middle-income countries. In most cases, these surpluses shrunk in the aftermath of the global financial crisis—at least temporarily.

The capital account showed a dramatic turn in the 1980s as a combined result of rising developing-country debt service obligations, sharp declines in lending by international banks, and massive capital flight. During the 1980s, these factors turned what had previously been a positive annual resource flow of $25 billion to $35 billion from developed to less developed countries into a negative annual flow of $25 billion to $35 billion from the developing to the developed world. Behind these trends, however, was the debilitating dilemma of developing-country debt—a historically recurrent problem with important lessons for developing-country policy.

ACCUMULATION OF DEBT AND EMERGENCE OF THE DEBT CRISIS

BACKGROUND AND ANALYSIS

The accumulation of external debt is a common phenomenon of developing countries at the stage of economic development where the supply of domestic savings is low, current account payments deficits are high, and imports of capital are needed to augment domestic resources. Prior to the early 1970s, the external debt of developing countries was relatively small and primarily an official phenomenon, the majority of creditors being foreign governments and international financial institutions such as the IMF, the World Bank, and regional development banks. Most loans were on concessional (low-interest) terms and were extended for purposes of implementing development projects and expanding imports of capital goods. However, during the late 1970s and early 1980s, commercial banks began playing a large role in international lending by recycling surplus OPEC "petrodollars" and issuing general-purpose loans to developing countries to provide balance of payments support and expansion of export sectors.

- **External debt** Total private and public foreign debt owed by a country.
- **Basic transfer** Net foreign exchange inflow or outflow related to a country's international borrowing; the quantitative difference between the net capital inflow (gross inflow minus amortization on past debt) and interest payments on existing accumulated debt.

Although foreign borrowing can be highly beneficial, providing the resources necessary to promote economic growth and development, when poorly managed, it can be very costly. In recent years, these costs have greatly outweighed the benefits for many developing nations. The main cost associated with the accumulation of a large external debt is debt service. Debt service is the payment of amortization (liquidation of the principal) and accumulated interest; it is a contractually fixed charge on domestic real income and savings. As the size of the debt grows or as interest rates rise, debt service charges increase. Debt service payments must be made with foreign exchange. In other words, debt service obligations can be met only through export earnings, curtailed imports, or further external borrowing. Under normal circumstances, most of a country's debt service obligations are met by its export earnings. However, should the composition of imports change or should interest rates rise significantly, causing a ballooning of debt service payments, or should export earnings diminish, debt-servicing difficulties are likely to arise.

First, it is necessary to understand a fundamental concept known as the **basic transfer**. The basic transfer of a country is defined as the net foreign exchange inflow or outflow related to its international borrowing. It is measured as the difference between the net capital inflow and interest payments on the existing accumulated debt. The net capital inflow is simply the difference between the gross inflow and the amortization on past debt. The basic transfer is an important concept because it represents the amount of foreign exchange that a particular developing country is gaining or losing each year from international capital flows. As you will soon discover, the basic transfer turned very negative for developing nations during the 1980s, causing a loss of foreign exchange and a net outflow of capital.

The basic-transfer equation can be expressed as follows. Let the net capital inflow, *FN*, be expressed as the rate of increase of total external debt, and let *D* represent the total accumulated foreign debt. If *d* is the percentage rate of increase in that total debt, then:

$$F_N = dD$$

Because interest must be paid each year on the accumulated debt, let us let *r* equal the average rate of interest so that *rD* measures total annual interest payments. The basic transfer (BT) then is simply the net capital inflow minus interest payments, or

$$BT = dD - rD = (d - r)D$$

BT will be positive if $d > r$, and the country will be gaining foreign exchange. However, if $r > d$, the basic transfer turns negative, and the nation loses foreign exchange. Any analysis of the evolution of and prospects for debt crises requires an examination of the various factors that cause *d* and *r* to rise and fall. In the early stages of debt accumulation, when a developing country has a relatively small total debt, *D*, the rate of increase, *d*, is likely to be high. Also, because most first-stage debt accumulation comes from official (as opposed to private) sources in the form of bilateral foreign aid and World Bank lending, most of the debt is incurred on concessional terms—that is, at below-market interest rates with lengthy repayment periods. Consequently, *r* is quite low and in any event less than *d*. As long as this accumulating debt is being used for productive development projects with rates of return in excess of *r*, the additional foreign exchange and rising foreign debt represented by the positive basic transfers pose no problems for recipient nations. In fact, as noted in earlier chapters, this process of debt accumulation for productive investments in both rural and urban areas represents an essential ingredient in any viable strategy of long-term development.

A serious problem can arise, however, when (1) the accumulated debt becomes very large so that its rate of increase, *d*, naturally begins to decline as amortization rises relative to rates of new gross inflows; (2) the sources of foreign capital switch from long-term "official flows" on fixed, concessional terms to short-term, variable-rate private bank loans at market rates that cause *r* to rise; (3) the country begins to experience severe balance of payments problems as commodity prices plummet and the terms of trade rapidly deteriorate; (4) a global recession or some other external shock, such as a jump in oil prices, a steep rise in U.S. interest rates on which variable-rate private loans are based, or a sudden change in the value of the dollar, in which most debts are denominated, takes place; (5) a loss in confidence in the ability of a developing country to repay resulting from points 2, 3, and 4 occurs, causing private international banks to cut off their flow of new lending; and (6) a substantial flight of capital is precipitated by local residents who for political or economic reasons (e.g., expectations of currency devaluation) send great sums of money out of the country to be invested in developed-country financial securities, real estate, and bank accounts.

All six factors can combine to lower *d* and raise *r* in the basic-transfer equation, with the net result that the overall basic transfer becomes highly negative, and capital flows from the underdeveloped to the developed world (as shown in Table 13.5). The debt crisis then becomes a self-reinforcing phenomenon, and heavily indebted developing countries are forced into a downward spiral of negative basic transfers, dwindling foreign reserves, and stalled development prospects. The story of the debt crisis of the 1980s is largely told by the simple analysis of the factors affecting the basic-transfer mechanism of Equation 13.2. Against this analytical background, we can now look at the specific details of the 1980s debt crisis and the policy responses in the 1980s and early 1990s, and, in the case of many African and some other low-income economies, into the late 1990s and 2000s.

ORIGINS OF THE 1980S DEBT CRISIS

The seeds of the 1980s debt crisis were sown in the 1974–1979 period, when there was a virtual explosion in international lending, precipitated by the first major OPEC oil price increase. By 1974, developing countries had begun playing a larger role in the world economy, having averaged growth rates of 6.6% in 1967–1973. Mexico, Brazil, Venezuela, and Argentina in Latin America, among other nations, had begun importing heavily, especially capital goods, oil, and food. Following outward-looking development strategies, they expanded their exports aggressively. In the face of high oil prices and a worldwide recession, in which the growth rates of the industrialized countries fell from an average of 5.2% in 1967–1974 to an average of 2.7% for the rest of the 1970s, many developing countries sought to sustain their high growth rates through increased borrowing.

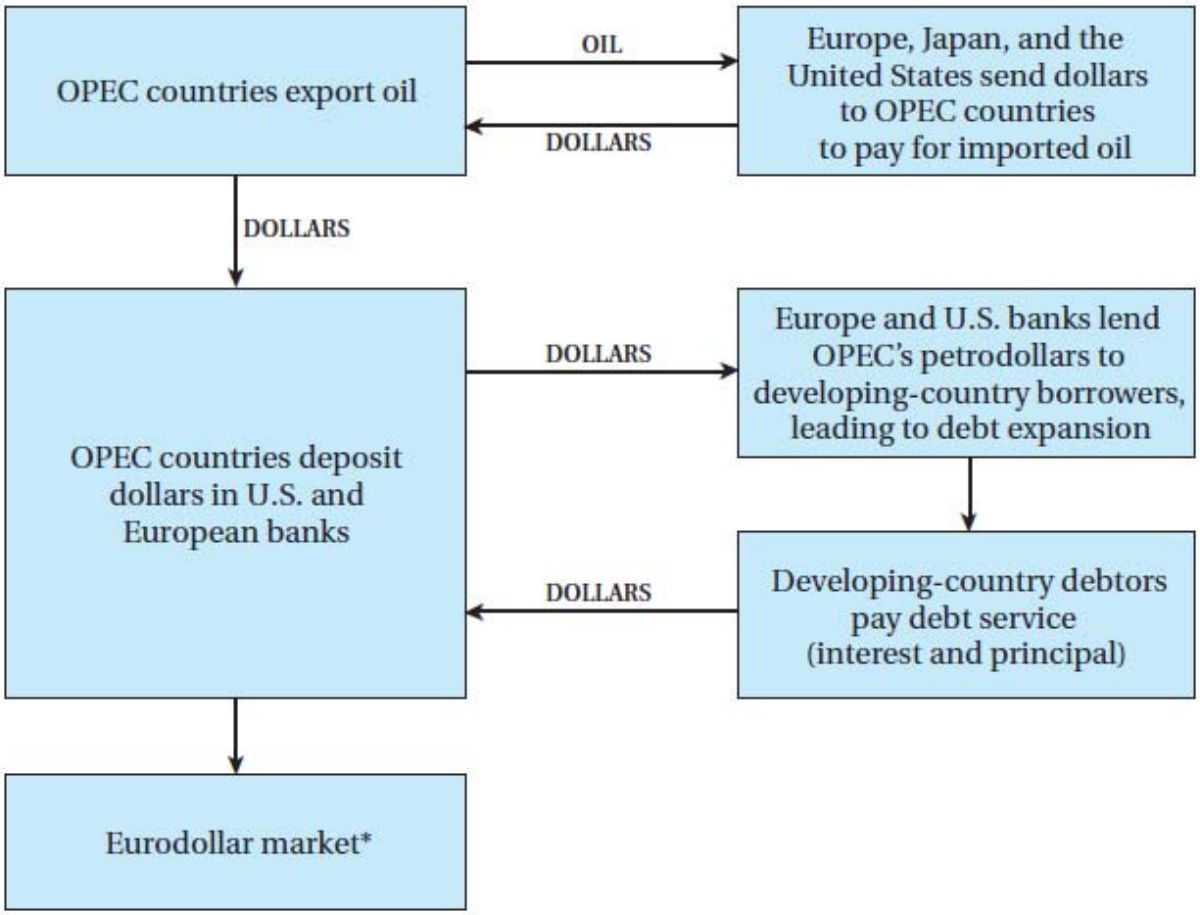
Although lending from official sources, particularly non concessional lending, increased significantly, it was insufficient to meet growth needs. Furthermore, countries with an excess of imports over lagging exports were reluctant to approach official sources, such as the IMF, that might subject them to painful policy adjustments. So, the middle-income and newly industrializing developing countries turned to commercial banks and other private lenders, which began issuing general-purpose loans to provide balance of payments support. Commercial banks, holding the bulk of the OPEC surplus (which had jumped from $7 billion in 1973 to $68 billion in 1974 and ultimately peaked in this period at $115 billion in 1980) and facing a low demand for capital from the slower-growing industrialized countries, aggressively competed in lending to developing countries on comparatively permissive and favorable terms. Figure 13.1 portrays the mechanism by which OPEC petrodollars were recycled, starting with Middle

Eastern oil export earnings being deposited in U.S. and European banks, which then lent these dollar balances to developing-world public- and private-sector borrowers. Over $350 billion was recycled from OPEC countries between 1976 and 1982. As a result of all these factors, the total external debt of developing countries more than doubled from $180 billion in 1975 to $406 billion in 1979, increasing over 20% annually. More significant, an increasing portion of the debt was now on non concessional terms involving shorter maturities and market rates of interest, often variable rates.

In 1971, about 40% of the total external debt was on non concessional terms. This increased to 68% by 1975, and by 1979, over 77% of the debt was on harder terms. Although the increase in non concessional lending by official institutions was partly responsible for this rising proportion, the more than tripling of lending by private capital markets played the major role. Together, the large increase in the size of debt and the larger proportion scheduled on harder terms were responsible for the tripling of debt service payments, which rose from $25 billion in 1975 to $75 billion in 1979.

Despite the sizable increases in debt-servicing obligations, the ability of most developing countries to meet their debt service payments during the late 1970s remained largely unimpaired. This was primarily a function of the international economic climate during that

FIGURE 13.1 The Mechanics of Petrodollar Recycling



period. A combination of declining real oil prices as a result of inflation, low or negative real

interest rates, and increased export earnings narrowed current account deficits toward the end of the decade and enabled developing countries to sustain relatively high growth rates, averaging 5.2% during 1973–1979, through massive borrowing. In sum, the surge in international lending following the first oil shock was largely during the period 1974–1979. In a congenial economic atmosphere, it permitted developing countries to maintain relatively high rates of growth with little debt-servicing difficulty. It also facilitated the recycling of a huge surplus from oil exporters to oil importers through the lending activities of private international banks, and it helped dampen the recession in industrialized countries by providing for increased export demand on the part of developing countries.

Unfortunately, this success was short-lived, and in fact, the surge in international lending that occurred in 1974–1979 had laid the groundwork for all the problems that were to come. The second oil shock, which occurred in 1979, brought about a complete reversal of the economic conditions conducive to the success of international lending in the previous period. Now developing countries faced an abrupt increase in oil prices that added to oil import bills and affected industrial goods imports. There was also a huge increase in interest rates caused by the industrialized countries' economic stabilization policies and a decrease in export earnings for developing countries resulting from a combination of slowed growth in the more developed nations and a precipitous decline of over 20% in primary commodity export prices. Moreover, developing countries inherited from the previous period a huge debt and debt service obligation, which was made even more onerous by burgeoning interest rates and more precarious as a result of the bunching of short-term maturities.

Finally, during the entire period of debt accumulation, one of the most significant and persistent trends was the tremendous increase in private capital flight. It is estimated that between 1976 and 1985, about $200 billion fled the heavily indebted countries. This was the equivalent of 50% of the total borrowings by developing countries over the same period. Fully 62% of Argentina's and 71% of Mexico's debt growth are estimated to have resulted from capital flight. In fact, some researchers have argued that the 1985 level of Mexican debt would have been $12 billion (rather than the actual $96 billion) were it not for the huge private capital flight.

Facing this critical situation, developing countries had two policy options. They could either curtail imports or impose restrictive fiscal and monetary measures, thus impeding growth and development objectives, or they could finance their widening current account deficits through more external borrowing. Unable, and sometimes unwilling, to adopt the first option as a means of solving the balance of payments crisis, many countries were forced in the 1980s to rely on the second option, borrowing even more heavily. As a result, massive debt service obligations accumulated, so that countries like Nigeria, Argentina, Ecuador, and Peru were experiencing negative economic growth in the 1980s and consequently faced severe difficulties in paying even the interest on their debts out of export earnings. They could no longer borrow funds in the world's private capital markets. In fact, not only did private lending dry up, but by 1984, the developing countries were paying back $10.2 billion more to the commercial banks than they were receiving in new loans (see Table 13.4).

In the 1990s, the economic situations of developing countries varied greatly: Many experienced positive net transfers, but others remained in crisis. The statistical picture became more complicated after the mid-1990s, with middle income developing countries increasingly relying on foreign direct investment. Some countries in crisis probably experienced negative net financial transfers.

ATTEMPTS AT ALLEVIATION: MACROECONOMIC INSTABILITY, CLASSIC IMF STABILIZATION POLICIES, AND THEIR CRITICS

THE IMF STABILIZATION PROGRAM

One course of action that was increasingly but often reluctantly used by countries facing serious **macroeconomic instability** (high inflation and severe government budget and foreign-payments deficits) along with growing foreign-debt obligations was to renegotiate loans with private international banks. The basic idea was to stretch out the payment period for principal and interest or to obtain additional financing on more favorable terms. Typically, however, such debtor countries had to deal with the IMF before a consortium of international banks would agree to refinance or defer existing loan schedules. Relying on the IMF to impose tough **stabilization policies**, a process known as conditionality, before it agreed to lend funds in excess of their legal IMF quotas, the private banks interpreted successful negotiations with the IMF as a sign that borrowing countries were making serious efforts to reduce payments deficits and earn the foreign exchange needed to repay earlier loans.

- **Macroeconomic instability:** Situation in which a country has high inflation accompanied by rising budget and trade deficits and a rapidly expanding money supply.
- **Stabilization policies:** A coordinated set of mostly restrictive fiscal and monetary policies aimed at reducing inflation, cutting budget deficits, and improving the balance of payments.

There are four basic components to the typical IMF stabilization program:

1. Abolition or liberalization of foreign-exchange and import controls.
2. Devaluation of the official exchange rate.
3. A stringent domestic anti-inflation program consisting of (a) control of bank credit to raise interest rates and reserve requirements; (b) control of the government deficit through curbs on spending, including in the areas of social services for the poor and staple food subsidies, along with increases in taxes and in public-enterprise prices; (c) control of wage increases, in particular abolishing wage indexing; and (d) dismantling of various forms of price controls and promoting freer markets.
4. Greater hospitality to foreign investment and a general opening up of the economy to international commerce.

In the early 1980s, numerous debtor countries with greatly depleted foreign reserves, including Mexico, Brazil, Argentina, Venezuela, Bangladesh, and Ghana, had to turn to the IMF to secure additional foreign exchange. By 1992, ten countries had arranged to borrow a total of $37.2 billion in special drawing rights (equal to approximately $27 billion) from the IMF. During the Asian crisis of 1997, the IMF had to intervene with substantially larger sums of money in an effort to stabilize the shaky economies of Thailand ($3.9 billion in IMF loans), Pakistan ($1.6 billion), the Philippines ($435 million), Indonesia ($10 billion), and South Korea ($21 billion). The IMF became newly engaged in funding and stabilization packages in the wake of the global financial crisis, especially in various hard-hit Eastern Europe and former Soviet Union states in 2008–2010. To receive their loans and, more important, to negotiate additional credits from private banks, all these nations were required to adopt some or all of the enumerated stabilization policies.

Although such policies may be successful in reducing inflation and improving the balance of payments situation for many developing countries, they can be politically very unpopular (as evidenced by anti-IMF riots in Venezuela, Nigeria, Indonesia, and South Korea in the 1990s) because they strike at the heart of development efforts by disproportionately hurting the lower- and middle-income groups. Alternatively, they have often been viewed by leaders in developing nations as representing a double standard—harsh adjustment policies for developing-country debtors and no adjustment of the huge budget or trade deficits for the world's greatest debtor, the United States. Finally, because IMF policies are being imposed by an international agency that is perceived by those of the dependence school to be merely an arm of the rich industrialized nations, stabilization policies are often viewed by this school as measures designed primarily to maintain the poverty and dependence of developing countries while preserving the global market structure for the international banks and private investors (and speculators) from the industrialized nations.

For example, in an extensive dependence critique of the IMF and its stabilization programs, Cheryl Payer has argued that the IMF functions within a developed-world dominated global trading system "as the chosen instrument for imposing imperialist financial discipline upon poor countries" and thus creates a form of "international peonage" in which balance of payments problems are perpetuated rather than resolved. Payer further argues that the IMF encourages developing countries to incur additional debt from international financial institutions while it "blackmails" them (through threats of loan rejection) into anti developmental stabilization programs. This added debt burden thus becomes a source of future balance of payments problems, setting up a vicious circle in which debtor nations have to run faster merely to stay in place.

Less radical observers view the IMF as neither pro-development nor antidevelopment but simply as an institution trying to carry out its original, if somewhat outdated, mandate to hold the global capitalist market together through the pursuit of orthodox short-term international financial policies. Its primary goal is the maintenance of an "orderly" international exchange system designed to promote monetary cooperation, expand international trade, control inflation, encourage exchange-rate stability, and help countries deal with short-run balance of payments problems through the provision of scarce foreign-exchange resources. Unfortunately, in a highly unequal trading world, the balance of payments problems of many developing nations may be structural and long-term in nature, with the result that short-term stabilization policies may easily lead to long-run development crises. For example, between 1982 and 1988, the IMF strategy was tested in 28 of the 32 nations of Latin America and the Caribbean. It was clearly not working. During that period, Latin America financed $145 billion in debt payments but at a cost of economic stagnation, rising unemployment, and a decline in per capita income of 7%. These countries "adjusted" but did not grow. By 1988, only two were barely able to make their payments. The same situation prevailed in much of Africa.

Lesson 42

BALANCE OF PAYMENTS, DEBT, FINANCIAL CRISES AND STABILIZATION POLICIES (CONTINUED2)

TACTICS FOR DEBT RELIEF

The debt crisis of the 1980s, initiated by Mexico's declared moratorium on debt payments in 1982 (which came close to being repeated in 1995), called into question the stability and very viability of the international financial system. Fears were voiced that if one or two of the major debtor countries (Brazil, Mexico, or Argentina) were to default, if a group of debtor nations were jointly to repudiate their debts by forming a **debtors' cartel**, or if more countries followed Peru's early initiative to link debt servicing to export earnings, the economies of Western nations might be seriously affected. Following the onset of the debt crisis, most developing countries were cut off from the international capital market. Emergency meetings between international bankers and government officials of developed nations and developing-country debtors were convened in the financial capitals of the world. This was because Latin American debts alone exceeded the net assets of the largest U.S. banks. Rumors of imminent default led currency speculators to purchase dollars, driving up the dollar's market value in 1983–1984 to a level well beyond its shadow value and adding even further to the dollar-denominated debt burdens of developing nations.

Numerous proposals for relieving or **restructuring** the debt burdens of highly indebted nations have been put forward. These have ranged from a new allocation of special drawing rights to restructuring (on better terms for debtor countries) of principal payments falling due during an agreed consolidation period. Most notable have been the Paris Club arrangements, offering highly concessional conditions, the so-called Toronto terms. These bilateral arrangements for public loans permit creditor governments to choose from three alternative concessional options—partial cancellation of up to one-third of non concessional loans, reduced interest rates, or extended (25-year) maturity of payments—to generate cash flow savings for debtor countries. For commercial banks, the 1989 **Brady Plan** linked partial debt forgiveness for selected borrowers to IMF or World Bank financial support guaranteeing the payment of the remaining loans as well as commitments by the indebted developing countries to adopt stringent IMF-type adjustment programs, promote free markets, welcome foreign investors, and repatriate overseas capital. In addition, there has been much discussion of **debt-for-equity swaps**.

These are the sale at a discount (sometimes in excess of 50%) of questionable developing-country commercial bank debts to private investors (mostly foreign corporations) in secondary trading markets. These corporations then trade a debtor's IOU for a local state-owned asset, such as a steel mill or a telephone company. Commercial banks are now more willing to engage in such transactions because new interpretations and regulations for U.S. banks permit them to take a loss on the loan swap while not reducing the book value of other loans to that country. For the developing countries' part, they are able through debt-for-equity swaps to encourage private investments in local-currency assets from both foreign and resident investors as well as to reduce their overall debt obligations. Much of the privatization that has occurred in Latin American debtor countries has been financed through these swap arrangements.

The flip side of these benefits, however, is the fact that foreign investors are buying up the state-owned real assets of developing nations, such as steel mills and telephone companies, at major discounts. Observers who worry about developed-country penetration into developing economies or the exacerbation of domestic dualistic tendencies are naturally troubled by these

debts for- equity swaps. Between 1985 and 1992, they accounted for over 36% of all debt conversions.

An appealing but much less significant swap arrangement is the **debt-for nature swap**, intended to win commitments by a developing country's government to environmental preservation of such assets as the rain forests in Ecuador or a national park in Costa Rica (see Chapter 10). Most debt-for-nature swaps are carved out by nongovernmental organizations such as the World Wildlife Fund or the Nature Conservancy. They purchase the debtor nation's IOU at a discount from a local bank and then restructure it into local-currency payments, which are then used, say, to preserve an endangered natural resource. Since 2000, new debt-for-nature exchanges have been worked out in several countries, including Guatemala, Costa Rica, Cameroon, Peru, Colombia, Jordan, Ghana, Belize, Indonesia, and Jamaica. For example, in 2008, $20 million was provided through the World Wildlife Foundation in a project to protect Madagascar's biodiversity while relieving part of its government debt to France.

- **Debtors' cartel:** A group of developing-country debtors who join together to bargain as a group with creditors.
- **Restructuring:** Altering the terms and conditions of debt repayment, usually by lowering interest rates or extending the repayment period.
- **Brady Plan:** A program launched in 1989 designed to reduce the size of outstanding developing-country commercial debt through private debt forgiveness procured in exchange for IMF and World Bank debt guarantees and greater adherence to the terms of conditionality.
- **Debt-for-equity swap:** A mechanism used by indebted developing countries to reduce the real value of external debt by exchanging equity in domestic companies (stocks) or fixed-interest obligations of the government (bonds) for private foreign debt at large discounts.
- **Debt-for-nature swap:** The exchange of foreign debt held by an organization for a larger quantity of domestic debt that is used to finance the preservation of a natural resource or environment in the debtor country.
- **Debt repudiation:** The 1980s fear in the developed world that developing countries would stop paying their debt obligations.

The problem with most proposals for debt alleviation, including debt for- equity swaps, is that they require private international banks to initiate or endorse the policies. Most are unwilling to take any steps that would harm their short-run balance sheets. More significant, in the absence of unilateral **debt repudiation** by developing countries (a policy that would hurt both borrowers and lenders in both the short and the long term), most proposals (except debt-for-nature and similar swaps) do not solve the debt problem but merely postpone the day when debts become due and another crisis erupts. An often suggested proposal is to develop institutions for unwinding developing-country debt when it becomes unsustainable, in a somewhat analogous way to debt reorganization under corporate bankruptcy.

"ODIOUS DEBT" AND ITS PREVENTION

Odious debt is a concept in the theory of international law holding that just as contracts signed under coercion are unenforceable, sovereign debt used by an undemocratic government in a manner contrary to the interests of its people should be deemed invalid. Such odious debts would represent personal debts of officials of the regime that incurred them, not debts of the state that would be the responsibility of the nation's people.

- **Odious debt** A concept in the theory of international law holding that sovereign debt used by an undemocratic government in a manner contrary to the interests of its people should be deemed to be not the responsibility of democratic successor governments.

The concept has a long history; it was implicitly invoked, albeit without its present name, by Mexico following the overthrow of the French-backed Emperor Maximilian I and by the United States on behalf of Cuba in negotiations following the Spanish-American War of 1898 (in which the United States abetted the rebels in the Cuban War of Independence while gaining long-term influence). It was explicitly argued in 1927 by legal scholar Alexander Sack. Dictators widely alleged to have looted substantial public funds while incurring foreign debt have been found in every developing area; they include Anastasio Somoza of Nicaragua, Ferdinand Marcos of the Philippines, Jean- Claude Duvalier of Haiti, Mobutu Sese Seko of the Democratic Republic of Congo (then called Zaire), and Franjo Tudjman of Croatia. Many of these regimes and others such as the apartheid government of South Africa borrowed while also spending heavily on the apparatus of state repression.

RESOLUTION OF 1980S–1990S DEBT CRISES AND CONTINUED VULNERABILITIES

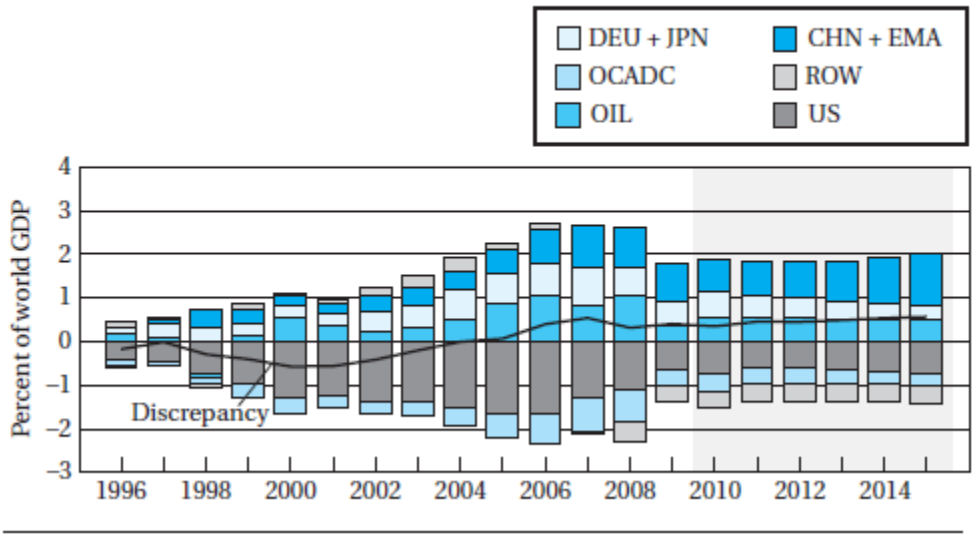
Commercial bankers and financiers in the industrialized countries declared the debt crisis over with the signing of a Brady-type restructuring accord with Argentina in April 1992 and with Brazil in July 1992. But for many countries, especially in Africa, the problem remained extremely serious.

And debt crises may recur. This was vividly revealed in late 1994 and early 1995 when Mexico, one of the great success stories of debt rescheduling, was forced to devalue its currency and seek special standby loans to pay off its short-term debt obligations. Almost half of the private portfolio investment capital that had flowed into Mexico (and other Latin American debtor nations, including Brazil, Argentina, and Venezuela) in the early 1990s was summarily withdrawn. Mexico was then forced to declare a new austerity program, further weakening the already deteriorating condition of its shrinking middle class and its working poor. As in 1982, the large commercial banks and Wall Street investors were once again surprised by Mexico's move.

The "hot money" flows that had been universally hailed as a boon to the Mexican economic reform program now added to its burden of retrenchment as most investors withdrew their funds in the time that it took them to hit their computer keys. The effective debt default in 2001 by Argentina, another purported success story, showed that the debt crisis in developing countries can continue to rear its head. Fears of instability were renewed in 1997 and 1998. South Korea, Indonesia, and Thailand, along with Russia, Brazil, and other countries, borrowed from the IMF under strong austerity conditions. In South Korea and elsewhere, public discussion centered on the view that austerity had led to unnecessarily large recessions, and in response, governments throughout East Asia (and many outside it) worked to accelerate exports, repay IMF loans, and greatly expand foreign-currency reserves over the subsequent decade. This process was greatly abetted by a dollar that was widely viewed as overvalued and accompanying record U.S. trade deficits, which continued to increase.

The current account surpluses of fast-growing Asian economies have to a significant degree mirrored the deficits of the United States (and some other high income OECD economies). These imbalances narrowed somewhat with the global financial crisis. Past balances and IMF projections from fall 2010 are presented in Figure 13.2. The IMF projected a modest widening of imbalances in coming years. These projections, including the sustainability of imbalances, are uncertain.

FIGURE 13.2 Global Imbalances



THE HIPC INITIATIVE

The first initiative to address the problems of highly indebted poor countries (HIPCs) was launched by the group of eight major industrialized countries (the Group of Eight, or G8) in 1996. They set up an elaborate process for qualifying for expanded debt relief through the international financial institutions, but by 1999, only 4 of the 36 poor countries initially deemed eligible had qualified. The G8 then agreed to set aside approximately $100 billion for "enhanced" debt relief for those designated HIPC countries that demonstrated, to the satisfaction of the World Bank and the IMF, that they are both pursuing "sound policies" and are "committed" to reducing poverty. Commitment was to be demonstrated through what came to be called poverty reduction strategy papers. But progress on committing these funds was slower than expected, and the PRSP process (discussed further in Chapter 14) was considered relatively disappointing. Substantial debt relief for the still-afflicted sub-Saharan African region was promised at the G8's 2005 summit, though critics have pointed out that commitments made were not fully followed through and debt reduction has still been far too slow.

THE GLOBAL FINANCIAL CRISIS AND THE DEVELOPING COUNTRIES

Beginning with the sub prime mortgage crisis in the United States in 2007, the world faced a global financial crisis on a scale not seen since the Great Depression. This section summarizes early analyses of its impact on economic development; projections were still in flux as this text went to press in January 2011. Despite the resilience of economic growth in many developing countries, residual impacts on the developing world have been substantial, recovery was incomplete, and serious uncertainties lingered. The crisis led to decreases in export earnings and economic growth—as well as in remittances from citizens working abroad and foreign direct

investment (FDI), two topics covered in depth in Chapter 14. Poverty reduction was also slowed or even reversed. Recent research shows that it takes several years to rebound fully from a major financial crisis. The origin of the crisis was the United States, but many developing countries were relying on robust U.S. growth for expanding exports. An extended period of slow recovery may affect many parts of the world. Historically, countries experiencing financial crises have reduced import growth for an extended period. Initially, much of Asia has shown resilience and its intraregional trade increased.

CAUSES OF THE CRISIS AND CHALLENGES TO LASTING RECOVERY

Economists have not yet reached a consensus on the root cause of the crisis; in one view, it would not have occurred had not several things gone wrong at about the same time. In the United States, one factor high on most lists is financial deregulation that was rapid and wide-ranging (and careless in its design and implementation). Deregulation came with repeal of rules separating commercial and investment banking without an adequate regulatory framework to replace it, failure to regulate newly introduced financial instruments, lack of enforcement of remaining regulations, and artificially low interest rates. Fuel for the fire came from public policy encouraging home ownership through sub prime lending—underpinned with support of implicitly guaranteed “government sponsored enterprises,” notably Freddie Mac and Fannie Mae—along with the packaging and resale of these loans with understatements of their riskiness. Other developed countries, including several in Europe, had parallel financial stability problems that were exposed by the crisis. The result was a fragile financial system, with high leverage and complex and incompletely understood financial securities. The so-called Basel III requirements rolled out in September 2010, along with a U.S. law passed in May 2010 and similar legislation in other countries were viewed as steps in the right direction but probably not enough to prevent another crisis under some circumstances.

A probable second major factor in the crisis was the chronic international trade imbalances between East Asia, notably China, and the developed countries, particularly the United States, with concomitant capital flows into the United States. This helped keep capital cheap and fueled the housing bubbles in the United States and some European countries. Now, for the first time in decades, sovereign debt problems have been raised as possibilities in developed countries, most prominently for the so-called EU-5 (Greece, Ireland, Italy, Portugal, and Spain)—note that as recently as the early 1990s, three of these five were still classified as developing countries. Ireland and Greece required dramatic international bailouts in 2010. Private financial analysts have even speculated on an eventual default in the United States and the United Kingdom, probably through higher inflation eroding the value of their debt.

Yet through much of 2010 the interest rate these two countries pay on their high debts was never lower, a sign of continued severe risk aversion in the markets. In response to the crisis, many countries took on “fiscal stimulus” programs of government spending to support very weak demand and prevent the onset of a depression. A majority of economists considered this effort to have been necessary and effective, and evidence supports this. But this proved politically unpopular, and fears grew that the instability seen in the EU-5 could spread to other countries. As austerity measures in several developed countries, most prominently the United Kingdom, were rolled out, in a historical irony in 2010, the IMF called on countries not to cut back on spending nearly as quickly as many governments were planning, because of the weakness of demand.

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ECONOMIC IMPACTS ON DEVELOPING COUNTRIES

We now review ten areas of recent and possibly future impacts.

ECONOMIC GROWTH

In 2007 and the first half of 2008, developing countries were affected less than developed countries, but in the second half of 2008, the impact was quite severe in most developing regions, continuing through 2009. As the 2009 World Investment Report put it, “Developing countries weathered the global financial crisis better than developed countries, as their financial systems were less closely interlinked with the hard-hit banking systems of the United States and Europe.”

EXPORTS

Exports fell drastically at first. World trade volumes fell 14.4% in 2009, the largest drop in decades. Going forward, to reduce its deficits, the United States is widely expected to have to save more while the dollar depreciates. In the meantime, the nation has seen increased trade deficits (though they remained smaller than before the crisis), enabling some export recovery. But this brings with it some fears of a temporary return of the bubble economy, precipitating an even worse crisis than last time with a larger impact on exports. It remains unclear how effectively most developing countries will be able to respond to a further decline of the value of the U.S. dollar. Also doubtful is whether other developed-country markets will open to the extent seen in the United States and United Kingdom during the bubble period. A majority of European governments have made strong statements of their determination to reduce budget deficits and increase savings, measures that would be associated with fewer imports from developing countries. Japan (like Germany and some other European economies) remains a strongly export surplus country as its population continues to age.

FOREIGN INVESTMENT INFLOWS

Export growth may be reduced for several years. The October 2010 IMF World Economic Outlook examined one of the central questions of the crisis for economic development: Do financial crises have lasting effects on trade? The research examined the evidence since 1970 and found that imports remained depressed even in the medium term after banking crises, while exports from the crisis countries were relatively unaffected. Countries with banking crises that also had higher current account deficits generally experienced larger declines in imports, generally remaining at pre-crisis trends for several years. This adds to the concern that opportunities for developing countries to expand exports to the United States and to the significant number of European countries that experienced banking crises will be more limited for several years.

DEVELOPING-COUNTRY STOCK MARKETS

At first, a flight to safety caused the volatility of developing-country stock markets to increase greatly. But prices subsequently resumed their rise and markets deepened in a few rapidly growing economies, notably China and India.

AID

Aid has been falling sharply for two decades. In 2005, leading developed countries pledged to increase aid, particularly to Africa, but only a modest portion of the promised increases has been delivered. But as aid remained below historical levels, other financial flows such as worker remittances, FDI, and portfolio investment flows increased by many times more than the declines in aid. Yet for the least developed countries, aid is as needed as ever. There are strong political pressures against any increase in aid, let alone maintaining its current levels, in the United States, the United Kingdom, and other high-income donor countries. In past periods of prolonged recession or fiscal restraint high-income countries have cut bilateral aid. If this happens again over the next few years it could lead to a decrease in growth in low-income countries, substantially reducing the rate of poverty alleviation. To the extent that aid targets human development and safety net programs, this could harm the poor beyond the impact of slowed growth. People living in extreme poverty are sometimes isolated from markets, but some receive and may depend upon foreign assistance. Beyond official development assistance, aid flows through international foundation programs and nongovernmental organizations, and the domestic organizations they help fund. Unfortunately, charitable giving in the United States fell 3.6% in 2009, its first drop since 1987; this decline was mostly due to decreased available support from foundations whose assets had declined in value. In sum, prospects for maintaining—let alone expanding—official and unofficial development assistance, likely depend on the extent of growth in donor nations.

DISTRIBUTION OF INFLUENCE AMONG DEVELOPING COUNTRIES

There have always been divisions in the developing world. During the Cold War, countries were asked to take sides, aligning themselves with the United States and other NATO countries, or the Soviet Union, or China. These conflicts spilled over to the nonaligned movement, which included countries with clear alliances. It is true that from the 1950s through the 1970s there was a wide economic gulf between middle-income Latin America and low-income Asia. But economic inequality among the developing nations was not discussed. Most countries were growing but at a slow rate. This began to change as rapid growth in Asia spread from a few countries prior to 1980 to a majority of the region in the following three decades and Africa particularly lagged. Even as the crisis accelerated, some developing countries found that they had increased global influence. But the growing economic inequality among developing nations became even sharper.

WORKER REMITTANCES

Remittances to developing countries from migrant workers had reached a record $336 billion in 2008 (though less than 10% of this went to the low-income countries). But subsequently this fell significantly. These remittances are an important factor in the progress of poverty reduction in recent years, and the consequences will grow if remittances do not pick up more quickly.

POVERTY

Lower growth has reduced the rate of poverty reduction in most developing countries, and in many countries, the number of people living in poverty has increased. The 2010 Millennium Development Goals Report, drawing on “newly updated estimates from the World Bank,” estimated that an additional 50 million people were living in extreme poverty in 2009 than would have been the case without the crisis and projected “some 64 million by the end of 2010 relative

to a no-crisis scenario, principally in sub-Saharan Africa and Eastern and South-Eastern Asia." Greater hunger is probably the worst impact. The number of those in extreme hunger surpassed one billion for the first time ever in 2009. Most analyses predict that impacts of the crisis on poverty and hunger will persist significantly. For example, the 2010 report estimated that "poverty rates will be slightly higher in 2015 and even beyond, to 2020, than they would have been had the world economy grown steadily at its pre-crisis pace."

HEALTH AND EDUCATION

Jed Friedman and Norbert Schady used household data to develop an econometric model to project infant deaths and report that "our estimates suggest that there will be on the order of 30,000 to 50,000 excess deaths in Africa in 2009—deaths that would not have taken place had the sub prime crisis which began in the United States not spread to African countries." They find that "the bulk of the additional children who will die is likely to be found among poorer households (in rural areas, and those with lower education levels) and is concentrated among girls." Impacts generally differ across countries; another 2010 study projected deteriorations specifically in schooling, child labor, and access to health services in Burkina Faso, and on hunger in Ghana.

GENERAL POLICY FRAMEWORK

A small number of developing countries are rethinking their focus on taking greater part in globalization, as risks are perceived as higher than before. When growth resumed unexpectedly quickly, however, these discussions became less prominent. It is unclear whether this response will have a lasting impact, but it bears watching.

DIFFERING IMPACTS ACROSS DEVELOPING REGIONS

CHINA

During the period from September 2008 to March 2009, there was a dramatic slowdown and in some cases major reversal of the high export growth and GDP growth that the East Asian region, including China, had come to take for granted. In 2009, the World Bank predicted that the resumption of more normal economic activity in the region would be sustained; and although the effects of the stimulus packages were expected to slowly fade, economic growth would then rise, propelled by other sources, particularly in China. China reported an increase in exports and growth of 8.4% in 2009, with the turnaround starting in the second quarter; and rapid growth continued throughout 2010. It was also anticipated that increased domestic demand in China would spur imports to that country even as exports grew and that East Asian export volumes would strongly increase as the region continued to increase its share of world trade. Despite projections that China will see a continuation of its resumed export growth, the crisis has led to the beginnings of an announced new strategy of greater reliance on the domestic demand for growth. But hallmarks of a housing market bubble are being reported in China; the bursting of such a bubble would probably have a significant impact on the global economy. China's economic policymakers appear focused on decreasing reliance on basic exports that rely on processing of imports for modest value added before re export. Improving domestic processing and reliance might also positively affect what is widely viewed as a currency imbalance. But amid concerns over inflation, China's central bank twice raised interest rates in late 2010.

CHINA AND THE EXCHANGE RATES CONTROVERSY

China also found itself under considerable pressure to allow its currency to increase in value in fall 2010. Shortly after the finance minister of Brazil announced the world had moved into an "international currency war." Brazil then doubled the tax on foreign purchases of bonds to keep its currency, the real, from appreciating via capital inflows, and other countries, including Japan, intervened to decrease the value of their currencies. Jean-Claude Juncker, chair of the Euro zone finance ministers, said, "We think the Chinese currency is broadly undervalued." IMF Managing Director Dominique Strauss-Kahn said that "there is clearly the idea beginning to circulate that currencies can be used as a policy weapon. Translated into action, such an idea would represent a very serious risk to the global recovery [and] any such approach would have a negative and very damaging longer-run impact." International currency and trade wars were major factors that made the Great Depression "great." The response from China's premier Wen Jiabao was to note the thin profit margins of export companies, and he said that with revaluation, "many of our exporting companies would have to close down, [and] migrant workers would have to return to their villages. If China saw social and economic turbulence, then it would be a disaster for the world." Undoubtedly, it would have both an economic and a political impact. While adjustments are inevitable, there is no credible scenario in which a trade war, or anything approaching it, would have anything but negative effects on the prospects for economic development.

EAST ASIA AND SOUTHEAST ASIA EXCEPT CHINA

The high-income economies in the region—Japan, Singapore, Taiwan, South Korea, and Hong Kong— remain dependent on exports for growth by global standards, and all experienced substantial declines in exports. Expressed in U.S. dollars, exports dropped by 25%, with GDP declining between 15% and 30% in the second half of 2008 and first half of 2009. However, just as the scope of the shock was unanticipated, the scale of the subsequent rebound was also surprising. Recovery in middle- and low-income countries, including Indonesia, Vietnam, Cambodia, Malaysia, and Thailand, was also strong; three of these five countries reported negative growth after the crisis, but no greater a decline than 2.7%. Demand from China helped raise exports from East and Southeast Asia overall. The World Bank noted that China's "infrastructure outlays also underpinned demand for regional and raw materials used in construction, from countries such as Indonesia, Papua New Guinea, and Lao People's Democratic Republic." The role of China in the region has continued to grow.

INDIA

The Indian economy has weathered the financial crisis relatively well. During the crisis, the central government fiscal deficit rose to nearly 7% of GDP. This was in part planned stimulus to maintain growth during the crisis period. However, government debt has now reached 82% of GDP. Like most other countries that ran up the fiscal deficit after the crisis, leaders and economic policymakers in India now wish to reduce the deficit substantially if not run a compensating fiscal surplus for a time. The Indian minister of Commerce and Industry, Anand Sharma, reported that growth came down from 9.5% before the crisis to 6.7% before moving to an estimated 7.5% in 2009. In 2010, the estimated rate was about 9% with the IMF projecting about 8% for 2011. Even today, however, well over half of the labor force in India works in agriculture. Barriers to global finance in India helped insulate India's still relatively closed economy, but this also suggests there are other untapped gains from trade. India is working to

develop more active economic and political relationships with developing countries in Asia and with such nations as Brazil and South Africa.

LATIN AMERICA

Despite concerns that the crisis would quickly lead to a repeat of past crises in the region, many countries weathered the initial shocks relatively well, notably Brazil. But Mexico suffered an economic contraction of 6.5% in 2009 in the wake of the crisis, due to close economic ties in the United States and amplified by the outbreak of the H1N1 flu virus in the second quarter of 2009. When the peso was driven to record lows in December 2008, Mexican firms suffered foreign derivative losses. Mexico had very poor economic conditions through 2010, partly due to the fact that over three-quarters of its exports go to the United States. But much faster growth was projected for 2011–2012.

AFRICA

Low levels of trade coupled with relatively high commodity prices for its exports have in some ways helped insulate sub-Saharan Africa from the brunt of the crisis. The problem of educated unemployment has been exacerbated, as new university graduates in the region are having even more difficulty than usual in finding employment that matches their qualifications. This is also true in North Africa and the Middle East. But relatively high commodity prices, due in significant measure to demand from Asia, continue to fuel growth. If growth in Asia remains high, commodity prices may remain higher than in the previous quarter century. But it remains to be seen whether commodity prices, too, will prove to be in an extended bubble. As mentioned earlier, prospects for improved aid flows have at best become more uncertain; and the prospects of further growth of remittances from families working abroad is equally uncertain.

PROSPECTS FOR RECOVERY AND STABILITY

In the years following the crisis, international financial institutions and many private forecasters predicted that developing countries would lead a global recovery, which would be a milestone in the history of development.

The Bank, along with the Fund, has indicated that risks are to the downside. Indeed, there are at least five reasons for caution on this and similar middle scenario projections:

1. The United States still has a large trade deficit that is unlikely to come close to its previous heights. As we have seen, countries with major banking crises have several years of below trend imports; such crises were experienced both in the United States and in several European countries. Reduced import growth is not matched in such cases with reduced export growth. This makes dependence on exports to high-income countries, especially the United States, a shaky foundation at present on which to build growth.
2. Fiscal deficits are also high in virtually all high-income OECD countries, and when they are reduced, aggregate demand will decline, again reducing export markets. There is less room for fiscal policy to respond with stimulus in the event of another crisis because deficit and debt levels are now very high and the political capacity for new stimulus is lacking. Monetary policy opportunities are limited with interest rates at approximately zero. With the household sector facing the need to increase its savings rates further, domestic demand is likely to be well below trend for some time, perhaps several years.

3. Market perceptions of the risk of sovereign default is high—though, in a historic reversal, less so for developing countries on average than for a number of developed countries—and the combination of current high fiscal deficits with high accumulated government debt has led to a loss of confidence in markets. If another freeze-up of credit occurred in just the EU-5, the World Bank projects that this could even tip the developed world back to a second dip of recession. And a subsequent default or major debt restructuring could threaten the solvency of banks beyond this group, with the potential for a return to broader crisis. The bailout of Ireland underscored the risks.
4. The risk of deflation (which occurred during the Great Depression and in Japan during its "lost decade") remains much higher than normal. This compounds any other difficulties of emerging from a new crisis. The quantitative easing in the United States was a response to this risk, but may also lead to a lower value of the dollar—a major concern of developing country exporters. The low interest rates in the United States due to quantitative easing also fueled capital outflows to middle-income countries; one response in several of these countries was to impose capital controls, the full effects of which were also uncertain.
5. Benefits of exporting manufactures to high-income countries (see Chapter 12) are still present. To the extent that the opportunity to do so is lessened due to very slow growth, worsened credit constraints, and perhaps even an increase in disguised protectionism, the pace of technology transfer and growth may be reduced.

OPPORTUNITIES AS WELL AS DANGERS?

In Chinese symbols, crisis is formed from the symbols for two other words: ***wei***, a symbol for danger or great peril, and ***ji***, which can serve as the symbol of opportunity or turning point. Like many difficult translations, scholars differ on what ***ji*** means in this usage. But it introduces a question: Throughout the developing world, the unfolding crisis and its aftershocks were viewed with fear—what would happen to markets for their vital exports? But there is no doubt that many policymakers in China, and in other fast-growing developing nations, quickly came also to view the crisis as a great opportunity and a critical turning point.

The apparent eclipse of the G8 by the G20, a broader group of nations including leading developing countries, was a historic event. The emergence of China as a possible regional engine of growth could allow less dependence on exports to Western markets. And already, several African nations have become enthusiastic about the emergence of China as a commodities investor as a counterweight to long-powerful Western companies.

But hopes have been dimmed in many parts of the developing world for open and stable access to developed-country markets. Since the 2008 crisis, politicians have considered it inexpedient to be viewed as extending "concessions" on trade. The crisis also revealed to developing countries that despite the assurances of WTO rules, the United States, the European Union, and other advanced regions can effectively get away with reverting to protectionism, at least in the short run, when they find it politically expedient. For example, the U.S. stimulus package contained "Buy American" provisions; these were challenged but for the most part prevailed. Similar requirements were found in the packages of other high-income countries. These served as sobering reminders that the benefits of exporting to historically more open U.S., Canadian, UK, and other markets cannot be taken for granted; alternative strategies in domestic demand-led growth and greater reliance on trade between developing countries will also be pursued.

Lesson 43

FOREIGN FINANCE, INVESTMENT, AND AID: CONTROVERSIES AND OPPORTUNITIES

THE INTERNATIONAL FLOW OF FINANCIAL RESOURCES

In Chapter 13, we explained that a country's international financial situation as reflected in its balance of payments and its level of monetary reserves depends not only on its current account balance (its commodity trade) but also on its balance on capital account (its net inflow or outflow of private and public financial resources). Because a majority of non-oil-exporting developing nations have historically incurred deficits on their current account balance, a continuous net inflow of foreign financial resources represents an important ingredient in their long-run development strategies. These recurrent requirements are amplified by the need for targeted resources for investments in key sectors and for carrying out poverty reduction strategies.

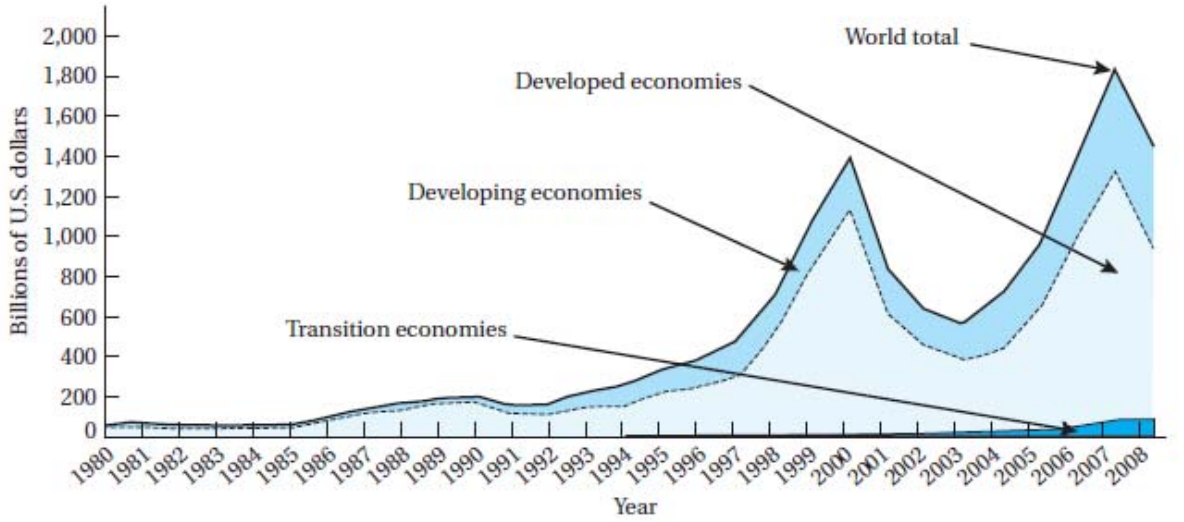
In this chapter, we examine the international flow of financial resources, which takes three main forms: (1) *private foreign direct and portfolio investment*, consisting of (a) foreign "direct" investment by large multinational (or transnational) corporations, usually with headquarters in the developed nations, and (b) foreign **portfolio investment** (e.g., stocks, bonds and notes) in developing countries' credit and equity markets by private institutions (banks, mutual funds, corporations) and individuals; (2) *remittances of earnings by international migrants;* and (3) *public and private development assistance (foreign aid)*, from (a) individual national governments and multinational donor agencies and, increasingly, (b) private *nongovernmental organizations (NGOs)*, most working directly with developing nations at the local level. We also examine the nature, significance, and controversy regarding private direct and portfolio investment and foreign aid in the context of the changing world economy.

PRIVATE FOREIGN DIRECT INVESTMENT AND THE MULTINATIONAL CORPORATION

Few developments have played as critical a role in the extraordinary growth of international trade and capital flows during the past few decades as the rise of the **multinational corporation (MNC)**. An MNC is most simply defined as a corporation or enterprise that conducts and controls productive activities in more than one country. These huge firms are mostly based in North America, Europe, and Japan; but a growing number are based in newly high-income economies such as South Korea and Taiwan. In recent years a much smaller but growing number of MNCs have emerged from upper middle-income countries such as Brazil and even some fast-growing lower-middle income countries, most notably China. MNCs and the resources they bring present a unique opportunity but may pose serious problems for the many developing countries in which they operate.

- **Multi National Corporation (MNC):** A corporation with production activities in more than one country.
- **Foreign Direct Investment (FDI):** Overseas equity investments by private multinational corporations.

FIGURE 14.1 FDI Inflows, 1980–2008



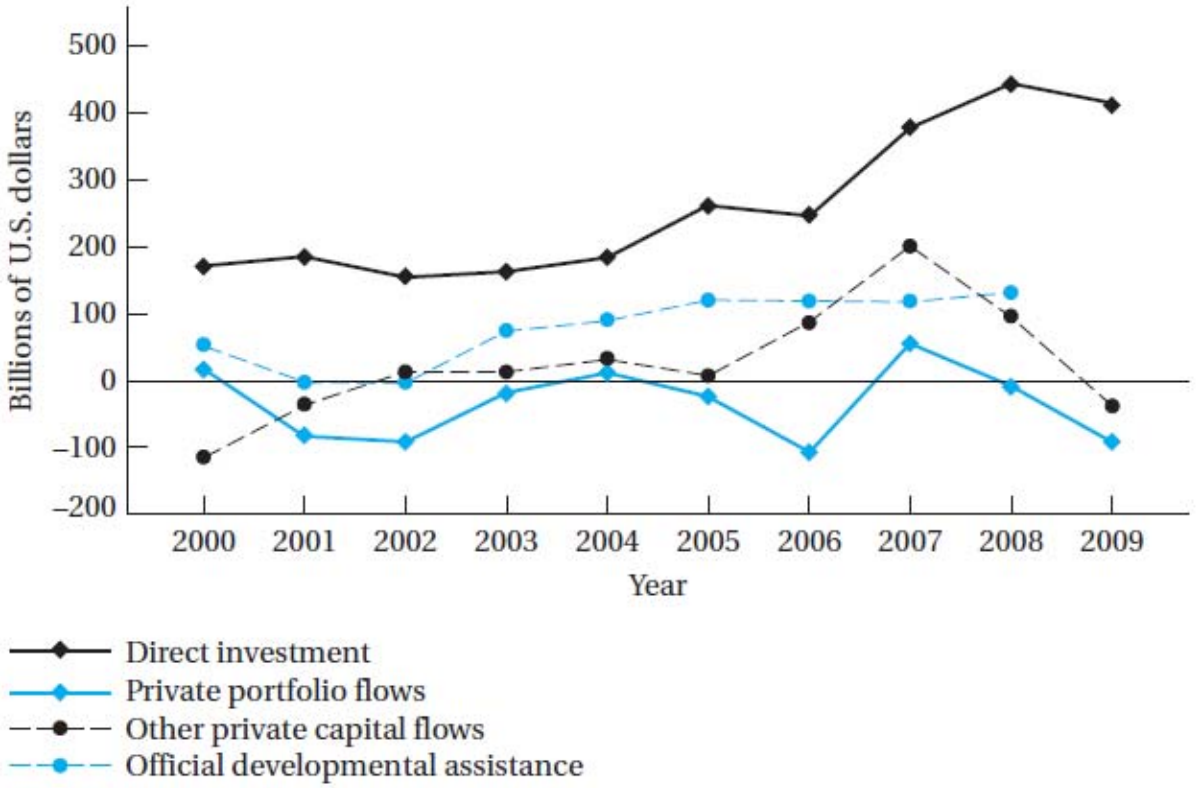
The growth of private **foreign direct investment (FDI)** in the developing world has been extremely rapid—though volatile—in recent decades. A key part of globalization, FDI growth has come in waves, with each crest higher than the one before it, as seen in Figure 14.1. It rose from an annual rate of $2.4 billion in 1962 to $35 billion in 1990 before surging to $565 billion in 2007 (when total world FDI hit its record of just over $2 trillion). And even though global FDI in 2008 fell back, FDI flows to developing countries actually hit a new record of $630 billion before falling to $478 billion in 2009, after which the beginnings of a new recovery were seen. Globally the financial crisis led to an estimated 16% decline in FDI inflows in 2008 and an additional 37% in 2009, to $1,114 billion, with a 24% fall in inflows to developing countries in 2009.

The volatility of flows to various regions is even greater than total flows. A majority of FDI goes from one developed country to another, and flows to developing countries are heavily concentrated in just a few destinations. For example in 2009, 31% of all inflows to developing countries went to China (including Hong Kong and Macao). Africa has usually received only a small fraction of inflows. In 2009, FDI in Africa totalled $59 billion, but the share of global FDI going to Africa as a whole was just 5.3% (3.6% excluding North Africa). But even this was higher than recent years, largely driven by commodities investments. Most of the 34 least developed countries in Africa received very little foreign investment. This is not surprising given the fact that private capital gravitates toward countries and regions with the highest financial returns and the greatest perceived safety. Where debt problems are severe, governments are unstable, and economic reforms remain incomplete, the risks of capital loss can be high. We must recognize that multinational corporations are not in the development business; their objective is to maximize their return on capital. MNCs seek out the best profit opportunities and are largely unconcerned with issues such as poverty, inequality, employment conditions, and environmental problems.

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FDI flows need to be understood in context. FDI inflows to developing countries have remained a small fraction of these countries' total investment, most of which is accounted for by domestic

FIGURE 14.2 Net Capital Flows to Developing Countries, 2000–2009



sources. (Note, however, that foreign investment may be qualitatively different from domestic investment and may have beneficial interaction effects in some cases, which in turn may depend on policy as discussed below.) Nevertheless, in recent years, FDI has become the largest source of foreign funds flowing to developing countries, as Figure 14.2 makes clear.

Globally, MNCs employ about 80 million workers in countries outside their home base. Nonetheless, in most developing countries, MNCs employ a relatively small fraction of the workforce, but the jobs tend to be concentrated in the modern urban sector. Moreover, foreign direct investment also involves much more than the simple transfer of capital or the establishment of a local factory in a developing nation. Multinationals carry with them technologies of production, tastes and styles of living, managerial philosophies, and diverse business practices. But before analyzing some of the arguments concerning incentives for or restrictions against private foreign investment in general and multinational corporations in particular, let us examine the character of these enterprises.

Two central characteristics of multinational corporations are their large size and the fact that their worldwide operations and activities tend to be centrally controlled by parent companies. They are the major force in the rapid globalization of world trade. The 100 largest non-financial multinational corporations now account for over $8 trillion in sales. MNCs have become, in effect, **global factories** searching for opportunities anywhere in the world. Many MNCs have annual sales volumes in excess of the GDP of the developing nations in which they operate. The scale of these corporations is immense. Six of them accounted for more sales in 2008 than

the GNI of all of South Asia and sub-Saharan Africa combined. Poorer countries are dwarfed in size by the major MNCs.

In sum, enormous size confers substantial economic (and sometimes political) power on MNCs vis-à-vis the countries in which they operate. This power is greatly strengthened by their predominantly oligopolistic market positions, that is, by the fact that they tend to operate in worldwide product markets dominated by a few sellers. This situation gives them the ability to manipulate prices and profits, to collude with other firms in determining areas of control, and generally to restrict the entry of potential competitors by dominating new technologies, special skills, and, through product differentiation and advertising, consumer tastes. Although a majority of MNC investments are still directed to other developed countries, most developing countries, given their small economies, feel the presence of multinational corporations more acutely than the developed countries do.

PRIVATE FOREIGN INVESTMENT: SOME PROS AND CONS FOR DEVELOPMENT

Few areas in the economics of development arouse so much controversy and are subject to such varying interpretations as the issue of the benefits and costs of private foreign investment. If we look closely at this controversy, however, we will see that the disagreement is not so much about the influence of MNCs on traditional economic aggregates such as GDP, investment, savings, and manufacturing growth rates (though these disagreements do indeed exist) as about the fundamental economic and social meaning of development as it relates to the diverse activities of MNCs. In other words, the controversy over the role and impact of foreign private investment often has as its basis a fundamental disagreement about the nature, style, and character of a desirable development process. The basic arguments for and against the impact of private foreign investment in the context of the type of development it tends to foster can be summarized as follows.

TRADITIONAL ECONOMIC ARGUMENTS IN SUPPORT OF PRIVATE INVESTMENT: FILLING SAVINGS, FOREIGN-EXCHANGE, REVENUE, AND MANAGEMENT GAPS

The pro-foreign-investment arguments grow largely out of the traditional and new growth theory analysis of the determinants of economic growth. Foreign private investment (as well as foreign aid) is typically seen as a way of filling in gaps between the domestically available supplies of savings, foreign exchange, government revenue, and human capital skills and the desired level of these resources necessary to achieve growth and development targets. For a simple example of the “savings-investment gap” analysis, recall from Chapter 3 that the basic Harrod-Domar growth model postulates a direct relationship between a country’s rate of net savings, s, and its rate of output growth, g, via the equation g = s/c, where c is the national capital-output ratio. If the desired rate of national output growth, g, is targeted at 7% annually and the capital output ratio is 3, the needed rate of annual net saving is 21% (because s = gc). If the saving that can be domestically mobilized amounts to only, say, 16% of GDP, a “savings gap” equal to 5% can be said to exist. If the nation can fill this gap with foreign financial resources (either private or public), it will be better able to achieve its target rate of growth.

Therefore, the first and most often cited contribution of private foreign investment to national development (i.e., when this development is defined in terms of GDP growth rates—an important implicit conceptual assumption) is its role in filling the resource gap between targeted or desired investment and locally mobilized savings. A second contribution, analogous to the first, is its contribution to filling the gap between targeted foreign-exchange requirements and those derived from net export earnings plus net public foreign aid. This is the so-called foreign-

exchange or trade gap. The third gap said to be filled by foreign investment is the gap between targeted governmental tax revenues and locally raised taxes. By taxing MNC profits and participating financially in their local operations, developing country governments are thought to be better able to mobilize public financial resources for development projects. Fourth, there is a different type of gap in management, entrepreneurship, technology, and skill presumed to be partly or wholly filled by the local operations of private foreign firms. Not only do multinationals provide financial resources and new factories to poor countries, but they also supply a "package" of needed resources, including management experience, entrepreneurial abilities, and technological skills that can then be transferred to their local counterparts by means of training programs and the process of learning by doing.

ARGUMENTS AGAINST PRIVATE FOREIGN INVESTMENT: WIDENING GAPS

There are two basic arguments against private foreign investment in general and the activities of MNCs in particular—the strictly economic and the more philosophical or ideological. On the economic side, the four gap-filling pro-foreign-investment positions just outlined are countered by the following arguments:

1. Although MNCs provide capital, they may lower domestic savings and investment rates by substituting for private savings, stifling competition through exclusive production agreements with host governments, failing to reinvest much of their profits, generating domestic incomes for groups with lower savings propensities, and inhibiting the expansion of indigenous firms that might supply them with intermediate products by instead importing these goods from overseas affiliates. MNCs also raise a large fraction of their capital locally in the developing country itself, and this may lead to some crowding out of investment of local firms.
2. Although the initial impact of MNC investment is to improve the foreign- exchange position of the recipient nation, its long-run impact may be to reduce foreign-exchange earnings or at least make the net increase smaller than it appeared, as a result of substantial importation of intermediate products and capital goods and because of the overseas repatriation of profits, interest, royalties, management fees, and other funds.
3. Although MNCs do contribute to public revenue in the form of corporate taxes, their contribution is considerably less than it might appear as a result of liberal tax concessions, the practice of transfer pricing, excessive investment allowances, disguised public subsidies, and tariff protection provided by the host government.
4. The management, entrepreneurial skills, ideas, technology, and overseas contacts provided by MNCs may have little impact on developing local sources of these scarce skills and resources and may in fact inhibit their development by stifling the growth of indigenous entrepreneurship as a result of the MNCs' dominance of local markets.

Government policies in developing countries may be directed toward mitigating some of these concerns. Many academic and political thought leaders in developing countries have commonly raised a number of more fundamental objections.

First, the impact of MNCs on development is very uneven, and in many situations, MNC activities reinforce dualistic economic structures and exacerbate income inequalities. They tend to promote the interests of a small number of local factory managers and relatively well-paid modern-sector workers against the interests of the rest by widening wage differentials. They divert resources away from needed food production to the manufacture of sophisticated products catering primarily to the demands of local elites and foreign consumers. And they tend

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to worsen the imbalance between rural and urban economic opportunities by locating primarily in urban export enclaves and contributing to excessive rural-urban migration.

Second, it is argued that multinationals typically produce inappropriate products (those demanded by a small, rich minority of the local population), stimulate inappropriate consumption patterns through advertising and their monopolistic market power, and do this all with inappropriate (capital-intensive) technologies of production that as a result create comparatively little employment. This is perhaps the major criticism of MNCs in light of the substantial employment problems of developing nations.

Third, as a result of the first two points, local resources tend to be allocated for socially undesirable projects. This in turn tends to aggravate the already sizable inequality between rich and poor and the serious imbalance between urban and rural economic opportunities.
Fourth, multinationals use their economic power to influence government policies in directions unfavorable to development. They are able to extract sizable economic and political concessions from competing governments of other developing countries in the form of excessive protection, tax rebates, investment allowances, and the cheap provision of factory sites and essential social services.

Fifth, MNCs may damage host economies by suppressing domestic entrepreneurship and using their superior knowledge, worldwide contacts, advertising skills, and range of essential support services to drive out local competitors and inhibit the emergence of small-scale local enterprises. Through the privatization of public corporations and the use of debt-for-equity swaps to reduce debt burdens, MNCs have been able to acquire some of the best and potentially most lucrative local businesses.

Finally, at the political level, the fear is often expressed that powerful multinational corporations can gain control over local assets and jobs and can then exert considerable influence on political decisions at all levels. In extreme cases, they may even; either directly by payoffs to corrupt public officials at the highest levels or indirectly by contributions to “friendly” political parties subverts the very political process of host nations (as occurred with International Telephone and Telegraph in the 1970s in Chile).

RECONCILING THE PROS AND CONS

Although the foregoing discussion and Box 14.1 present a range of conflicting arguments, the real debate ultimately centers on different ideological and value judgments about the nature and meaning of economic development and the sources from which it springs. The advocates of a central role for private foreign investment tend to be free-market proponents who firmly believe in the efficacy and beneficence of the market mechanism, where this is usually defined as a hands-off policy on the part of host governments. As noted, however, the actual operations of MNCs tend to be monopolistic and oligopolistic. Price setting is achieved more as a result of international bargaining and in some cases collusion than as a natural outgrowth of free-market supply and demand.

Theorists who argue against the activities of MNCs are often motivated by a sense of the importance of national control over domestic economic activities and the minimization of dominance-dependence relationships between powerful MNCs and developing-country governments. They see these giant corporations not as needed agents of economic change but more as vehicles of antidevelopment. Multinationals, they argue, reinforce dualistic economic structures and exacerbate domestic inequalities with inappropriate products and technologies.

Rightly or wrongly, they view MNCs as modern incarnations of colonial devices such as the British East India Company. Many analysts advocate a more stringent regulation of foreign investments, a tougher bargaining stance on the part of host governments, a willingness on the part of developing countries to shop around for better deals, the adoption of performance standards and requirements, increased domestic ownership and control, and a greater coordination of developing-country strategies with respect to terms and conditions of foreign investment. One example of such coordinated strategies was a decision in the 1980s by the Andean Group in Latin America to require foreign investors to reduce their ownership in local enterprises to minority shares over a 15-year period. In an even earlier example, Tanzania adopted a similar policy of securing a controlling share of foreign enterprises. Not surprisingly, the annual flow of private foreign investment declined in both the Andean nations and Tanzania. Many such "indigenization" requirements have since been rolled back in much of the developing world. But China, with its great bargaining power, is the most successful example of the use of this strategy.

The arguments both for and against private foreign investment are still far from being settled empirically and may never be, as they ultimately reflect important differences in value judgments and political perceptions about desirable development strategies. Clearly, any real assessment of MNCs in development requires case studies of a given MNC in a specific country. Perhaps the only valid general conclusion is that private foreign investment can be an important stimulus to economic and social development as long as the interests of MNCs and host-country governments coincide (assuming, of course, that they don't coincide along the lines of dualistic development and widening inequalities).

As long as MNCs see their role in terms of global output or profit maximization with little interest in the long-run domestic impact of their activities, the accusations of the anti-private-investment school of thought will gain acceptance in the developing world. Maybe there can never be a real congruence of interest between the profit-maximizing objectives of MNCs and the development priorities of developing-country governments. However, a strengthening of the relative bargaining powers of host-country governments through their coordinated activities, while probably reducing the overall magnitude and growth of private foreign investment, might make that investment better fit the long-run development needs and priorities of poor nations while still providing profitable opportunities for foreign investors. The growing acceptance of the corporate social responsibility movement has been championed as an opportunity to seek common ground. Perhaps the strongest argument in favor of encouraging MNCs is that they facilitate the transfer of know-how from developed to developing countries.

Dani Rodrik surveyed the literature and concluded that so far, there has been little evidence of any horizontal spillovers, that is, transfers of knowledge from MNCs to local producers of the same type of product. However, Garrick Blalock and Paul Gertler reported both statistical and managerial case study evidence for Indonesia that provides indications that MNCs strategically transfer technology to local vendors so that multinationals can procure high-quality inputs at low cost. And Beata Smarzynska Javorcik found evidence of positive productivity spillovers for local suppliers for the case of Lithuania. Thus there is at least a suggestion that there may indeed be some significant technology spillovers but that the spillovers are vertical rather than horizontal.

PRIVATE PORTFOLIO INVESTMENT: BENEFITS AND RISKS

In addition to foreign direct investment, the most significant component of private capital flows has been in the area of portfolio investment. With the increased liberalization of domestic financial markets in most developing countries and the opening up of these markets to foreign

investors, private portfolio investment now accounts for a significant and currently rising share of overall net resource flows to developing countries. Basically, portfolio investment consists of foreign purchases of stocks (equity), bonds, certificates of deposit, and commercial paper. As usual, the middle-income countries have been the favored destination of these flows, with sub-Saharan Africa all but neglected.

As in the case of the FDIs of multinational corporations, the benefits and costs of private portfolio investment flows to both the investor and the developing country recipient have been subjects of vigorous debate. From the investor's point of view, investing in the stock markets of middle-income countries with relatively more developed financial markets permits them to increase their returns while diversifying their risks.

From the perspective of recipient developing countries, private portfolio flows in local stock and bond markets are a potentially welcome vehicle for raising capital for domestic firms. Well-functioning local stock and bond markets also help domestic investors diversify their assets (an option usually open only to the wealthy) and can act to improve the efficiency of the whole financial sector by serving as a screening and monitoring device for allocating funds to industries and firms with the highest potential returns.

But from the macro policy perspective of developing-country governments, a key issue is whether large and volatile private portfolio flows into both local stock and short-term bond markets can be a destabilizing force for both the financial market and the overall economy. Some economists argue that these flows are not inherently unstable. Developing countries that rely too heavily on private foreign portfolio investments to camouflage basic structural weakness in the economy, as in Mexico, Thailand, Malaysia, and Indonesia in the 1990s are more than likely to suffer serious long-term consequences. Like multinational corporations, portfolio investors are not in the development business. If developed-country interest rates rise or perceived profit rates in a developing country decline, foreign speculators will withdraw their "investments" as quickly as they brought them in. What developing countries need is true long-run economic investment (plants, equipment, physical and social infrastructure, etc.), not speculative capital. A number of developing countries now combine incentives for the former and disincentives for the latter. Controls were strengthened in the years following the global financial crisis as potentially destabilizing "hot money" poured into several middle income countries in response to low interest rates in developed countries.

In summary, private portfolio financial flows have risen and fallen dramatically in recent decades. Their volatility and the fact that they respond primarily to global interest-rate differentials, as well as to investor perceptions of political and economic stability, make them a very tenuous foundation on which to base medium- or long-term development strategies.16 Asia's financial collapse in 1997, Russia's in 1998, Brazil's currency turmoil in 1999, Argentina's crisis in 2001–2002, and the dramatic downturn in flows to developing countries in 2009 underlined the fragility of global capital markets. Rather, developing countries need to focus first on putting fundamental conditions for development into place, because evidence shows that both MNCs and portfolio investors follow growth rather than lead it.

THE ROLE AND GROWTH OF REMITTANCES

Wage levels in the high-income economies are approximately five times the level of wages for employment in similar occupations in the developing nations on average, after adjusting for purchasing power party. This provides an obvious incentive for migration, and indeed, hopeful migrants often take great personal risks to make the journey to the United States, Europe, and even developing-country destinations. In part because of these incentives, by 2010, there were an estimated 200 million migrants worldwide. But about half of all migrants leaving a developing nation move to other developing nations.

As noted in Chapters 2 and 8, there are legitimate concerns that out-migration can hamper

FIGURE 14.3 Sources of External Financing for Developing Countries, 1990–2008

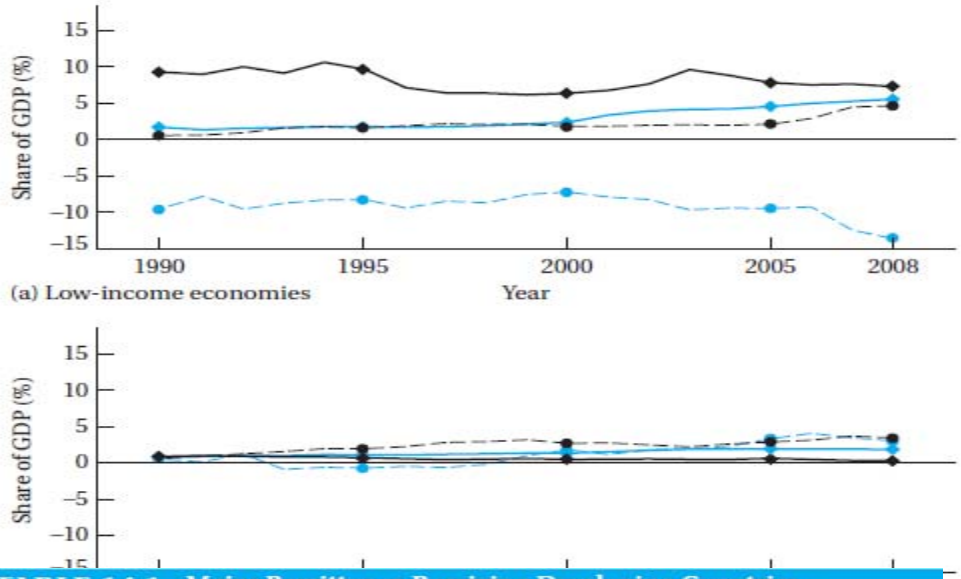


TABLE 14.1 Major Remittance-Receiving Developing Countries, by Level and GDP Share, 2008

	Inflow of Migrants' Remittances (millions of U.S. dollars)	Annual Change (%)	Share of Remittanc in GDP (%
Ranked by volume			
India	45,000	27.8	3.7
China	34,490	5.0	0.8
Mexico	26,212	3.4	2.4
Philippines	18,268	12.1	10.8
Nigeria	9,979	8.2	4.7
Egypt	9,476	23.8	5.8
Bangladesh	8,979	38.8	11.0
Pakistan	7,025	17.1	4.2
Morocco	6,730	0.0	7.6
Indonesia	6,500	5.3	1.3
Lebanon	6,000	4.0	20.7
Vietnam	5,500	0.0	6.1
Ukraine	5,000	11.0	2.8
Colombia	4,523	0.0	1.9
Russian Federation	4,500	9.7	0.3
Ranked by share of GDP			
Tajikistan	1,750	3.5	34.1
Lesotho	443	0.0	27.4
Moldova	1,550	3.5	25.3
Guyana	278	0.0	24.0
Lebanon	6,000	4.0	20.7
Honduras	2,801	6.7	19.8
Haiti	1,300	6.4	18.0
Nepal	2,254	30.0	17.8
Jordon	3,434	0.0	17.1
Jamaica	2,214	3.3	17.1

development prospects because of the loss of skilled workers via this “brain drain.” Balancing this concern is the benefit through remittances to relatives in migrants’ countries of origin, beyond the gains to the successful (legal or illegal) migrants themselves. When migrants are low-skilled and the recipients of remittances are poor, the potential development and poverty reduction advantages become clear. Migrants often build houses for their families and send money vital for keeping children in school and better-fed. Thus, remittances now provide a significant pathway out of poverty. Indeed, the World Bank reports that based on household surveys, remittances have substantially reduced poverty in such countries as Guatemala, Uganda, Ghana, and Bangladesh. Figure 14.3 shows various resource flows to developing countries over the period 1990–2008. Remittances have increased dramatically in this century, exceeding 5% of GDP of low-income countries, outpacing FDI and approaching inflows from aid. However, remittance flows are very uneven across developing countries. Table 14.1 lists the top 15 remittance recipient countries, ranked by dollars and by share of GDP, in 2008. India and China had the largest remittances, but Mexico was in third place. And as the table shows, in 15 countries, remittances represented at least 11% of GDP. Note, however, that in the wake of the financial crisis, remittances declined in all regions from 2008 into 2010 except in South Asia, where they remained stable.

The growth of recorded remittances is due in part to improved accounting; some analysts view even the statistics of recent years to be subject to considerable undercounting. But other important factors include the rising number of migrants and advances in financial intermediation that reduce the costs to migrants of remitting funds to their families. Thus the rapid rise in remittances is a genuine phenomenon. Further reductions in costs and other impediments to remittances would also lead to further benefits.

It is important to stress, however, that migration is not always voluntary and may result from human trafficking; even when departure is voluntary, it is often done with imperfect information about working conditions; and exploitation and abuse are not uncommon. Clearly, for migration to bring the maximum social abuse are not uncommon. Clearly, for migration to bring the maximum social benefit to people in developing countries, improved regulations and protections for what the International Labor Organization terms “irregular status” migrants and the working conditions of migrants will be essential, as will improved willingness of developed countries to accept reasonable increases in migration.

FOREIGN AID: THE DEVELOPMENT ASSISTANCE DEBATE

CONCEPTUAL AND MEASUREMENT PROBLEMS

In addition to export earnings and private foreign direct and portfolio investment, developing countries receive two other major sources of foreign exchange: public (official) bilateral and multilateral development assistance and private (unofficial) assistance provided by nongovernmental organizations. Both of these activities are forms of foreign aid, although only public aid is usually measured in official statistics.

In principle, all governmental resource transfers from one country to another should be included in the definition of foreign aid. Even this simple definition, however, raises a number of problems. For one thing, many resource transfers can take disguised forms, such as the granting of preferential tariffs by developed countries to exports of manufactured goods, particularly from the least developed countries. This permits developing countries to earn more foreign exchange from selling their industrial products in developed-country markets at higher prices than would otherwise be possible. There is consequently a net gain for developing

countries and a net loss for developed countries, which amounts to a real resource transfer to the developing world. Such implicit capital transfers, or disguised flows, should be counted in qualifying foreign-aid flows. Normally, however, they are not.

However, we should not include all transfers of capital to developing countries, particularly the capital flows of private foreign investors. Private flows represent normal commercial transactions, prompted by commercial considerations of profits and rates of return, and therefore should not be viewed as foreign aid. Commercial flows of private capital are not a form of foreign assistance, even though they may benefit the developing country in which they take place.

Economists have defined foreign aid, therefore, as any flow of capital to a developing country that meets two criteria: (1) Its objective should be noncommercial from the point of view of the donor, and (2) it should be characterized by concessional terms; that is, the interest rate and repayment period for borrowed capital should be softer (less stringent) than commercial terms. Even this definition can be inappropriate, for it could include military aid, which is both noncommercial and concessional. Normally, however, military aid is excluded from international economic measurements of foreign-aid flows. The concept of foreign aid that is now widely used and accepted, therefore, is one that encompasses all official grants and concessional loans, in currency or in kind, that are broadly aimed at transferring resources from developed to less developed nations on development, poverty, or income distribution grounds. Unfortunately, there often is a thin line separating purely developmental grants and loans from sources ultimately motivated by security or commercial interests.

- **Foreign aid:** The international transfer of public funds in the form of loans or grants either directly from one government to another (bilateral assistance) or indirectly through the vehicle of a multilateral assistance agency such as the World Bank.
- **Concessional terms:** Terms for the extension of credit that are more favorable to the borrower than those available through standard financial markets.

Lesson 44

FOREIGN FINANCE, INVESTMENT, AND AID: CONTROVERSIES AND OPPORTUNITIES (CONTINUED)

WHY DONORS GIVE AID

Donor-country governments give aid because it is in their political, strategic, or economic self-interest to do so. Some development assistance may be motivated by moral and humanitarian desires to assist the less fortunate (e.g., emergency food relief and medical programs) and certainly this has been the international rhetoric in the increases in aid in the first decade of the twenty-first century. Still, there is no historical evidence to suggest that over longer periods of time, donor nations assist others without expecting some corresponding benefits (political, economic, military, counterterrorism, antinarcotics, etc.) in return. We focus here on the foreign-aid motivations of donor nations in two broad but often interrelated categories: political and economic.

POLITICAL MOTIVATIONS

Political motivations have been by far the more important for aid-granting nations, especially for the largest donor country, the United States. The United States has viewed foreign aid from its beginnings in the late 1940s under the Marshall Plan, which aimed at reconstructing the war-torn economies of Western Europe, as a means of containing the international spread of communism. When the balance of Cold War interests shifted from Europe to the developing world in the mid-1950s, the policy of containment embodied in the U.S. aid program dictated a shift in emphasis toward political, economic, and military support for “friendly” less developed nations, especially those considered geographically strategic. Most aid programs to developing countries were therefore oriented more toward purchasing their security and propping up their sometimes shaky regimes than promoting long-term social and economic development.

The successive shifts in emphasis from South Asia to Southeast Asia to Latin America to the Middle East and back to Southeast Asia during the 1950s and 1960s and then toward Africa and the Persian Gulf in the late 1970s, the Caribbean and Central America in the 1980s, and the Russian Federation, Bosnia, Ukraine, and the Middle East in the 1990s, with a renewed focus on the Islamic nations after 2001, reflect changes in U.S. strategic, political, security, and economic interests more than changing evaluations of poverty problems and economic need. Recent increases in aid to African countries with public health crises including HIV assistance may be due in part to concerns that disease may spread internationally or lead to destabilizing state collapse and possible havens for terrorists.

Even the Alliance for Progress, inaugurated in the early 1960s with great fanfare and noble rhetoric about promoting Latin American economic development, was formulated primarily as a direct response to the rise of Fidel Castro in Cuba and the perceived threat of communist takeovers in other Latin American countries. As soon as the security issue lost its urgency and other more pressing problems came to the fore (the war in Vietnam, the rise in U.S. violence, etc.), the Alliance for Progress stagnated and began to fizzle out. Our point is simply that where aid is seen primarily as a means of furthering donor-country interests, the flow of funds tends to vary with the donor’s political assessment of changing international situations and not the relative need of potential recipients.

ECONOMIC MOTIVATIONS: TWO-GAP MODELS AND OTHER CRITERIA

Within the broad context of political and strategic priorities, foreign-aid programs of the developed nations have had a strong economic rationale. This is especially true for Japan, which directs most of its aid to neighboring Asian countries where it has substantial private investments and expanding trade. Even though political motivation may have been of paramount importance for other donors, the economic rationale was at least given lip service as the overriding motivation for assistance.

FOREIGN-EXCHANGE CONSTRAINTS

External finance (both loans and grants) can play a critical role in supplementing domestic resources in order to relieve savings or foreign-exchange bottlenecks. This is the so-called two-gap analysis of foreign assistance. The basic argument of the two-gap model is that most developing countries face either a shortage of domestic savings to match investment opportunities or a shortage of foreign exchange to finance needed imports of capital and intermediate goods. Basic two-gap and similar models assume that the savings gap (domestic real resources) and the foreign-exchange gap are unequal in magnitude and that they are essentially independent.

The implication is that one of the two gaps will be “binding” for any developing economy at a given point in time. If, for example, the savings gap is dominant, this would indicate that growth is constrained by domestic investment. Foreign savings may be used as a supplement to domestic savings. (However, decision-makers in a country with a shortage of savings may be unable or unwilling to divert purchasing power from consumption goods to capital goods, either bought domestically or from abroad. As a result, “excess” foreign exchange, including foreign aid, might be spent on the importation of luxury consumption goods.) An outstanding example of savings-gap nations would be the Arab oil exporters during the 1970s.

- **Two-gap model:** A model of foreign aid comparing savings and foreign-exchange gaps to determine which is the binding constraint on economic growth.
- **Savings gap:** The excess of domestic investment opportunities over domestic savings, causing investments to be limited by the available foreign exchange.
- **Foreign-exchange gap:** The shortfall that results when the planned trade deficit exceeds the value of capital inflows, causing output growth to be limited by the available foreign exchange for capital goods imports.

When the foreign-exchange gap is binding, a developing economy has excess productive resources (mostly labor), and all available foreign exchange is being used for imports. The existence of complementary domestic resources would permit them to undertake new investment projects if they had the external finance to import new capital goods and associated technical assistance. Foreign aid can therefore play a critical role in overcoming the foreign exchange constraint and raising the real rate of economic growth.

Algebraically, the simple two-gap model can be formulated as follows:

1. The savings constraint or gap. Starting with the identity that capital inflows (the difference between imports and exports) add to investible resources (domestic savings), the savings-investment restriction can be written as

$$I \leq F + sY \qquad (14.1)$$

Where, F is the amount of capital inflows. If capital inflows, F, plus domestic saving, sY, exceeds domestic investment, I, and the economy is at full capacity, a savings gap is said to exist.

2. The foreign-exchange constraint or gap. If investment in a developing country has a marginal import share m1 (typically ranging from 30% to 60%) and the marginal propensity to import out of a unit of non-investment GNI (usually around 10% to 15%) is given by the parameter m2, the foreign exchange constraint or gap can be written as

$$(m_1 - m_2)I + m_2 - E \leq F \qquad (14.2)$$

Where, E is the exogenous level of exports. The term F enters both inequality constraints and becomes the critical factor in the analysis. If F, E, and Y are initially assigned an exogenous current value, only one of the two inequalities will prove binding; that is, investment (and therefore the output growth rate) will be constrained to a lower level by one of the inequalities. Countries can therefore be classified according to whether the savings or foreign-exchange constraint is binding. More important from the viewpoint of foreign-aid analysis is the observation that the impact of increased capital inflows will be greater where the foreign-exchange gap (Equation 14.2) rather than the savings gap (Equation 14.1) is binding. Two-gap models have been used to provide rough estimates of the relative impact of foreign aid on investment and growth in developing nations.

The problem is that such gap forecasts are very mechanistic and are themselves constrained by the necessity of fixing import parameters and assigning exogenous values to exports and net capital inflows. In the case of exports, this is particularly constricting because a liberalization of trade relations between the developed and the developing world would contribute more toward relieving foreign-exchange gaps than foreign aid. Although E and F are substitutable in Equation 14.2, they can have quite different indirect effects, especially in the case where F represents interest-bearing loans that need to be repaid.

Thus the alteration of import and export parameters through government policy in both developed and developing countries can have a deep impact on whether the savings or foreign-exchange constraint is restricting the further growth of national output. A third, “fiscal” gap may also be important, because domestic savings availability for investment and foreign exchange availability for capital goods imports may have little impact on private sector investment and growth without complementary public investments in roads and other forms of infrastructure, or in human capital. Three gap models have been used to account for this in understanding why growth has commonly failed to pick up during structural adjustment.

GROWTH AND SAVINGS

External assistance is also assumed to facilitate and accelerate the process of development by generating additional domestic savings as a result of the higher growth rates that it is presumed to induce. Eventually, it is hoped, the need for concessional aid will disappear as local resources become sufficient to make development self-sustaining. In reality, much aid is not invested, and if it is, the productivity of that investment is often very low. However, among the main reasons for this are the very “strings” attached to foreign aid.

TECHNICAL ASSISTANCE

Financial assistance needs to be supplemented by technical assistance in the form of high-level worker transfers to ensure that aid funds are used most efficiently to generate economic growth.

This skill gap- filling process is thus analogous to the financial-gap-filling process mentioned earlier. Sustainable development impact requires a focus on training in recipient countries.

ABSORPTIVE CAPACITY

Finally, the amount of aid is considered in relation to the recipient country's absorptive capacity, its ability to use aid funds wisely and productively (often meaning as donors want them to be used). Typically, the donor countries decide which developing countries are to receive aid, how much, in what form (loans or grants, financial or technical assistance), for what purpose, and under what conditions on the basis of the donor countries' assessment of domestic absorptive capacities (particularly for the least developed countries). But many types of assistance, such as resources for building infrastructure or for training (e.g., of government officials or health or education workers) itself increases absorptive capacity. It has been said that what one donor sees as a constraint on the ability of a country to use conventional aid, another sees as an opportunity to have more leveraged impact with new forms of assistance. In any case, in practice the total amount of aid rarely has much to do with developing-country absorptive capacities because typically, foreign aid is a residual and low-priority element in donor-country expenditures. In most instances, the recipient countries have little say in the matter.

ECONOMIC MOTIVATIONS AND SELF-INTEREST

The arguments on behalf of foreign aid as a crucial ingredient for successful development should not mask the fact that even at the strictly economic level; definite benefits accrue to donor countries as a result of their aid programs. The strong tendency toward providing interest-bearing loans instead of outright grants and toward tying aid to the exports of donor countries has saddled many countries, often among the least developed, with substantial debt repayment burdens. It has also increased their import costs because aid tied to donor-country exports limits the receiving nation's freedom to shop around for low-cost and suitable capital and intermediate goods. Tied aid in this sense is clearly a second-best option to untied aid (and perhaps also to freer trade through a reduction of developed-country import barriers). For example, a large fraction of U.S. aid has been spent on American consultants and other U.S. businesses.

WHY RECIPIENT COUNTRIES ACCEPT AID

The reasons why developing nations have usually been eager to accept aid, even in its most stringent and restrictive forms, have been given much less attention than the reasons why donors provide aid. The major reason is probably economic. Developing countries have often tended to accept the proposition—typically advanced by developed-country economists and supported by reference to success stories such as Taiwan and South Korea to the exclusion of many more failures—that aid is a crucial and essential ingredient in the development process. It supplements scarce domestic resources, it helps transform the economy structurally, and it contributes to economic growth. Thus the economic rationale for aid is based in part on their acceptance of the donor's perceptions of what the poor countries require to promote economic development.

Conflicts generally arise, therefore, not out of any disagreement about the role of aid but over its amount and conditions. Naturally, any developing country would like to have more aid in the form of outright grants or long term low-cost loans with a minimum of strings attached. This means not tying aid to donor exports and granting greater latitude to recipient countries to decide for themselves what is in their best long-run development interests. Unfortunately, a

good deal of aid that comes in this form has either been wasted in showcase but unproductive projects (e.g., an elaborate parliamentary building, an oversize airport) or actually been plundered by corrupt government officials and their local cronies. Much of the criticism of the historical patterns of foreign aid—that it wastes resources, that it bolsters corrupt regimes, that it is appropriated by the rich at the expense of the poor—is justified. Some recipients in the past have accepted aid simply because it was there and they were not held accountable. A few leaders simply wish to leave no stone unturned in their quest for poverty alleviation, as perhaps describes Mozambique in the 1990s. They have been in the minority. The impact of the spread of democracy, press freedom, and the rule of law, including anticorruption drives, on the effectiveness of aid remains an open question.

Second, in some countries, aid is seen by both donor and recipient as providing greater political leverage to the existing leadership to suppress opposition and maintain itself in power. In such instances, assistance takes the form not only of financial-resource transfers but of military and internal security reinforcement as well. This phenomenon was clearly at work in Central America in the 1980s. The problem is that once aid is accepted, the ability of recipient governments to extricate themselves from implied political or economic obligations to donors and prevent donor governments from interfering in their internal affairs can be greatly diminished.

Finally, whether on grounds of basic humanitarian responsibilities of the rich toward the welfare of the poor or because of a belief that the rich nations owe the poor nations reparations for past exploitation, many proponents of foreign aid in both developed and developing countries believe that rich nations have an obligation to support economic and social development, particularly in the least developed countries. They often link this moral obligation with the need for greater freedom of choice for recipient developing countries in the allocation and use of aid funds.

THE ROLE OF NONGOVERNMENTAL ORGANIZATIONS IN AID

One of the fastest-growing and most significant forces in the field of development assistance is that provided through private nongovernmental organizations (NGOs). As we noted in Chapter 11, NGOs are voluntary organizations that work with and on behalf of mostly local grassroots organizations in developing countries. They also represent specific local and international interest groups with concerns as diverse as providing emergency relief, protecting child health, promoting women's rights, alleviating poverty, protecting the environment, increasing food production, and providing rural credit to small farmers and local businesses. NGOs build roads, houses, hospitals, and schools. They work in family-planning clinics and refugee camps. They teach in schools and universities and conduct research on increasing farm yields.

NGOs include religious groups, private foundations and charities, research organizations, and federations of dedicated doctors, nurses, engineers, agricultural scientists, and economists. Many work directly on grassroots rural development projects; others focus on relief efforts for starving or displaced peoples. Some familiar NGOs include Save the Children, CARE, Oxfam, Planned Parenthood, Doctors without Borders, World Vision, the World Wildlife Fund, Habitat for Humanity, Africare, Heifer, Christian Aid, Project HOPE, and Amnesty International. Funding through developed country NGOs for aid activities in developing countries grew from just under $1 billion in 1970 to over $23 billion in 2008.31 Many NGOs give local control to their developing-country affiliates or other local groups they support. Increasingly, indigenous NGOs such as BRAC in Bangladesh are becoming active in international assistance (see the case study for Chapter 11).

NGOs have two important advantages. First, being less constrained by political imperatives, most NGOs are able to work much more effectively at the local level with the people they are trying to assist than massive bilateral and multilateral aid programs could. Second, by working directly with local people's organizations, many NGOs are better able to avoid the suspicion and cynicism on the part of the mostly poor people that they serve that their help is insincere or likely to be short-lived. It is estimated that NGOs in developing countries are affecting the lives of some 250 million people; the fact that their voices are increasingly being listened to in the halls of developed- country governments and at international conferences on development makes it clear that the nature and focus of foreign aid are changing rapidly. NGOs have several other important comparative advantages in relation to government and the private sector but also some serious limitations, sometimes called "voluntary failure" (with reference to these private voluntary organizations) as described in detail in Chapter 11. One critical question is whether international NGOs can sustainably transfer their knowledge and capabilities to domestic NGOs and other community-based organizations.

THE EFFECTS OF AID

The issue of the economic effects of aid, especially public aid, like that of the effects of private foreign investment, is fraught with disagreement. On one side are the economic traditionalists, who argue that aid has indeed promoted growth and structural transformation in many developing countries. On the other side are critics who argue that aid does not promote faster growth but may in fact retard it by substituting for, rather than supplementing, domestic savings and investment and by exacerbating balance of payments deficits as a result of rising debt repayment obligations (when aid takes the form of loans, even if at reduced interest rates) and the linking of aid to donor-country exports.

Official aid is further criticized for focusing on and stimulating the growth of the modern sector, thereby increasing the gap in living standards between the rich and the poor in developing countries. Some critics on the left would even assert that foreign aid has been a force for antidevelopment in the sense that it both retards growth through reduced savings and worsens income inequalities. Rather than relieving economic bottlenecks and filling gaps, aid— and for that matter private foreign investment—not only widens existing savings and foreign-exchange resource gaps but may even create new ones (e.g., urban-rural or modern-sector–traditional-sector gaps). Critics on the right charge that foreign aid has been a failure because it has been largely appropriated by corrupt bureaucrats, has stifled initiative, and has generally engendered a welfare mentality on the part of recipient nations.

But one of the most promising developments of the new century has been the emphasis on rigorous testing of the impact of development assistance. In 2005, national and multilateral officials concerned with international development met in Paris and agreed to place greater emphasis on monitoring and systematically measuring aid effectiveness. Accompanying this policy emphasis is a growing acceptance of the value of evaluating programs with greater rigor. One major trend is to encourage evaluation through randomized trials. Clearly, not all valuable development activities can be studied with these methods; methods must follow from relevant development economics questions and cannot be the primary driver of the questions that are asked. And it is often hard to generalize beyond the local experiment to other locations where conditions differ—known as the external validity problem. But when feasible and appropriate, randomized trials are a powerful method. In recent years, randomization has been adapted to study a growing range of education, health, microfinance, and social welfare programs.

After years of aid weariness, polls have shown that the public is increasingly willing to support increases in government aid budgets and to donate development assistance via NGOs, and the development crisis in many of the least developed countries, especially in sub-Saharan Africa has mobilized public opinion in support of greater development assistance. Poll numbers also suggest that the upturn in public support for aid was at least temporarily weakened in the aftermath of the recent global financial crisis.

Lesson 45

FINANCE AND FISCAL POLICY FOR DEVELOPMENT

THE ROLE OF THE FINANCIAL SYSTEM IN ECONOMIC DEVELOPMENT

Generally, a distinction is made between the real sector and the financial sector. This terminology is unfortunate because it suggests that the financial sector is something less than real. This impression has been abetted by the view that the financial sector is a mere appendage to the real economy. As the economist Joan Robinson famously put it, "Where enterprise leads, finance follows." Certainly, there is some truth to this aphorism; to a large extent, demand for financial services is derived from the activities of non-financial firms. But there is evidence that finance can also be a limiting factor in economic development. From the impoverished mother in Zambia who attempts to feed her family with income from her credit-starved micro enterprise and who could be much more productive with more working capital to the start-up firm in India that cannot get established without private equity capital and may eventually wish to float a public offering to the farmer on the world's richest soil in Ukraine who cannot plant for want of credit to buy seeds to the budding family-owned shoe company in Brazil that needs better access to lower-cost loans to begin to export to the established publicly traded firm in the Philippines that wishes to sell more shares to provide funds for restructuring, the need for finance can be seen everywhere in the developing world.

Hugh Patrick offered a "stages of development" argument that financial development causes growth at the start of modern development, but once the financial system is established; it mainly follows the real sector. Most likely, the causality runs in both directions.

What is so important about finance? The financial sector provides six major functions that are important both at the firm level and at the level of the economy as a whole.

1. **Providing payment services.** It is inconvenient, inefficient, and risky to carry around enough cash to pay for purchased goods and services. Financial institutions provide an efficient alternative. The most obvious examples are personal and commercial checking and check-clearing and credit and debit card services; each is growing in importance, in the modern sectors at least, even in low-income countries.
2. **Matching savers and investors.** Although many people save, such as for retirement, and many have investment projects, such as building a factory or expanding the inventory carried by a family micro enterprise, it would be only by the wildest of coincidences that each investor saved exactly as much as needed to finance a given project. Therefore, it is important that savers and investors somehow meet and agree on terms for loans or other forms of finance. This can occur without financial institutions; even in highly developed markets, many new entrepreneurs obtain a significant fraction of their initial funds from family and friends. However, the presence of banks, and later venture capital or stock markets, can greatly facilitate matching in an efficient manner. Small savers simply deposit their savings and let the bank decide where to invest them.
3. **Generating and distributing information.** From a society wide viewpoint, one of the most important functions of the financial system is to generate and distribute information. Stock and bond prices in the daily newspapers of developing countries (and increasingly on the Internet as well) are a familiar example; these prices represent the average judgment of thousands, if not millions, of investors, based on the information they have available about these and all other investments. Banks also collect information about the firms that borrow from them; the resulting information is one of the

most important components of the “capital” of a bank, although it is often unrecognized as such. In these regards, it has been said that financial markets represent the “brain” of the economic system.

4. **Allocating credit efficiently.** Channeling investment funds to uses yielding the highest rate of return allows increases in specialization and the division of labor, which have been recognized since the time of Adam Smith as a key to the wealth of nations.
5. **Pricing, pooling, and trading risks.** Insurance markets provide protection against risk, but so does the diversification possible in stock markets or in banks’ loan syndications.
6. **Increasing asset liquidity.** Some investments are very long-lived; in some cases—a hydroelectric plant, for example—such investments may last a century or more. Sooner or later, investors in such plants are likely to want to sell them. In some cases, it can be quite difficult to find a buyer at the time one wishes to sell—at retirement, for instance. Financial development increases liquidity by making it easier to sell, for example, on the stock market or to a syndicate of banks or insurance companies.

DIFFERENCES BETWEEN DEVELOPED AND DEVELOPING-COUNTRY FINANCIAL SYSTEMS

In more developed nations, monetary and financial policy plays a major direct and indirect role in governmental efforts designed to expand economic activity in times of unemployment and surplus capacity and to contract that activity in times of excess demand and inflation. Basically, monetary policy works on two principal economic variables: the aggregate supply of money in circulation and the level of interest rates. Expressed in traditional terms, the money supply (currency plus commercial bank demand deposits) is thought to be directly related to the level of economic activity in the sense that a greater money supply induces expanded economic activity by enabling people to purchase more goods and services. This in essence is the monetarist theory of economic activity. Its advocates argue that by controlling the growth of the money supply, governments of developed countries can regulate their nations’ economic activity and control inflation.

By contrast, markets and financial institutions in many developing countries are highly unorganized, often externally dependent, and spatially fragmented. Many commercial banks in developing countries are overseas branches of major private banking corporations in developed countries. Their orientation, therefore, like that of multinational corporations, may be more toward external and less toward internal monetary situations. The ability of governments in developing countries to regulate the national supply of money is further constrained by the openness of their economies, in some cases the pegging of their currencies to the dollar or alternatively to the euro or a basket of major developed-country currencies, and the fact that the accumulation of foreign-currency earnings is a significant but highly variable source of their domestic financial resources.

Even the money supply itself may be difficult to measure and more difficult to control under conditions of currency substitution, whereby foreign currencies serve as an alternative to the domestic currency (e.g., U.S. dollars in northern Mexico). This is a particularly important problem when the expected level of inflation is high. Because of limited information and incomplete credit markets, the commercial banking system of many developing countries lacks transparency (full disclosure of the quality of loan portfolios) and often restricts its activities almost exclusively to rationing scarce loan able funds to medium- and large-scale enterprises in the modern manufacturing sector that are deemed more creditworthy.

Thus most developing countries have operated under a dual monetary system: a small and often externally controlled or influenced organized money market with binding legal restrictions on nominal interest-rate ceilings, catering to the financial requirements of a special group of middle- and upper-class local and foreign businesses in the modern industrial sector, and a large but amorphous unorganized money market, uncontrolled, often strictly illegal, and often usurious, to which most low-income individuals are obliged to turn in times of financial need. This is another manifestation of the dual structure of many developing economies and their tendency, intentional or not, to serve the needs of wealthy elites while neglecting the requirements of the relatively poor.

One possible step toward the elimination of this major factor price distortion would be the removal of artificially low nominal interest-rate ceilings in the organized market as well as other related steps toward financial liberalization (e.g., loosening of the foreign exchange rate). Higher interest rates should generate more domestic savings, whereas greater transparency and more market-oriented real interest rates should better allocate loan able funds to the most productive projects. However, such coordinated liberalization of domestic financial and foreign-exchange markets has not adequately solved the problem of channeling credit to small investors and entrepreneurs. That will require more direct new initiatives. We will discuss both financial market reform and measures to improve finance for the informal economy later in this chapter.

Nevertheless, financial systems remain an integral component of the general economic system in developing countries. For example, in the context of severe macroeconomic instability of high inflation accompanied by large budget and trade deficits, they represent a key element in any overall stabilization effort. Moreover, as noted earlier, financial systems provide a variety of needed services, including savings mobilization, credit allocation, risk limitations, insurance protection, and foreign-exchange facilitation. Let us therefore begin our examination of the structure of financial systems with a look at the central bank.

THE ROLE OF CENTRAL BANKS AND ALTERNATIVE ARRANGEMENTS

FUNCTIONS OF A FULL-FLEDGED CENTRAL BANK

In developed nations, central banks, such as the Federal Reserve Board in the United States, conduct a wide range of banking, regulatory, and supervisory functions. They have substantial public responsibilities and a broad array of executive powers. Their major activities can be grouped into five general functions:

1. **Issuer of currency and manager of foreign reserves.** Central banks print money, distribute notes and coins, intervene in foreign-exchange markets to regulate the national currency's rate of exchange with other currencies, and manage foreign asset reserves to maintain the external value of the national currency.
2. **Banker to the government.** Central banks provide bank deposit and borrowing facilities to the government while simultaneously acting as the government's fiscal agent and underwriter.
3. **Banker to domestic commercial banks.** Central banks also provide bank deposit and borrowing facilities to commercial banks and act as a lender of last resort to financially troubled commercial banks.
4. **Regulator of domestic financial institutions.** Central banks ensure that commercial banks and other financial institutions conduct their business prudently and in accordance with relevant laws and regulations. They also monitor reserve ratio requirements and supervise the conduct of local and regional banks.

5. **Operator of monetary and credit policy.** Central banks attempt to manipulate monetary and credit policy instruments (the domestic money supply, the discount rate, the foreign-exchange rate, commercial bank reserve ratio requirements, etc.) to achieve major macroeconomic objectives such as controlling inflation, promoting investment, or regulating international currency movements.

CURRENCY BOARDS

A currency board issues domestic currency for foreign exchange at a fixed exchange rate. It was the classic alternative arrangement to a central bank. Although it provides exchange rate stability it does so at a cost of giving up independence to pursue other functional roles of central banks.

ALTERNATIVES TO CENTRAL BANKS

There are several other alternatives to the standard central bank. First, a transitional central banking institution can be formed as an intermediate step between a currency board and a central bank, with the government exerting a strong influence on its financial activities. The range of such activities, however, is checked by statutory limitations on the monetary authority's discretionary powers. Former British colonies and protectorates such as Fiji, Belize, Maldives, and Bhutan provide the most common examples of transitional central banks. Second, a supranational central bank may be created to undertake central banking activities for a group of smaller countries participating in a monetary union, perhaps also as part of a customs union (see Chapter 12). Examples of monetary unions with regional central banks include the West African Economic and Monetary Union, and the Central African Economic and Monetary Community, which use separate but equally valued versions of the CFA Franc. Third, a currency enclave might be established between the central banking institution in a developing country and the monetary authority of a larger trading partner, often the former colonial power. Finally, in an open-economy central banking institution, where both commodity and international capital

TABLE 15.1 Central Banking Institutions

	Function					
Institution	Issuer of Currency	Banker to Government	Banker to Commercial Banks	Regulator of Financial Institutions	Operator of Monetary Policy	Promoter of Financial Development
Full-fledged central bank	3	3	3	3	3G	1
Supranational central bank	3E	2E	2	2	2E	2
Open-economy central banking institution	3C	2C	2	3	1	3
Transitional central banking institution	3CG	2C	2	1	2G	3
Currency enclave central banking institution	1, 2CE	2CE	2	1	1	3
Currency board	3C	1	1	1	1	1

flows represent significant components of national economic activity, the monetary environment is likely to be subject to fluctuations in world commodity and financial markets. As a result, the central banking institution will be engaged primarily in the regulation and promotion of a stable and respected financial system. Examples of such institutions have included Singapore, Kuwait, Saudi Arabia, and the United Arab Emirates. Table 15.1 summarizes the major features of these four categories of central bank alternatives in comparison with the currency board and the central bank.

A 2009 IMF study reported a global trend toward relatively higher levels of central bank autonomy using alternative autonomy indexes and identified four broad patterns over this period:

1. There has been a shift in banking institutions from currency boards to single state central banks or currency unions (supranational central banks).
2. A majority of central banks have been granted the responsibility to set price stability or target inflation as one of their objectives of monetary policy. In addition, most of these countries also have autonomy with respect to setting the policy rate as it concerns the government. (The degree to which this measured autonomy corresponds to actual practice particularly over time and across periods of financial distress will be an ongoing consideration.)
3. There is divergence among central banks on the issue of financial supervision. Many central banks in developing countries have retained their key supervisory role. But the priority of most central banks is achieving medium-term price stability.
4. Participation in currency unions (or supranational central banks) has enhanced the autonomy of central banks in both developed and developing countries. Examples include the European Union of Central Banks (ESCP), the Central Bank of West African States (BCEAO), the Bank of Central African States (BEAC), and the East Caribbean Central Bank (ECCB).

THE ROLE OF DEVELOPMENT BANKING

Development banks are specialized public and private financial institutions that supply medium- and long-term funds for the creation or expansion of industrial enterprises. They have arisen in many developing nations because the existing banks usually focus on either short-term lending for commercial purposes (commercial and savings banks) or, in the case of central banks, the control and regulation of the aggregate supply of money. Moreover, existing commercial banks set loan conditions that are often inappropriate for establishing new enterprises or for financing large-scale projects. Their funds are more often allocated to “safe” borrowers (established industries, many of which are foreign-owned or run by well-known local families). True venture capital for new industries rarely obtains approval.

To facilitate industrial growth in economies characterized by a scarcity of financial capital, development banks have sought to raise capital, initially focusing on two major sources: (1) bilateral and multilateral loans from national aid agencies like the U.S. Agency for International Development (USAID) and from international donor agencies like the World Bank and (2) loans from their own governments. However, in addition to raising capital, development banks have had to develop specialized skills in the field of industrial project appraisal. In many cases, their activities go far beyond the traditional banker’s role of lending money to creditworthy customers. The activities of development banks often encompass direct entrepreneurial, managerial, and promotional involvement in the enterprises they finance, including government-owned and -operated industrial corporations.

INFORMAL FINANCE AND THE RISE OF MICROFINANCE

TRADITIONAL INFORMAL FINANCE

A 2009 study estimated that 2.5 billion adults do not use formal services to save or borrow. As noted earlier in the text, much economic activity in developing nations comes from small-scale

producers and enterprises. Most are non corporate, unlicensed, unregistered enterprises, including small farmers, producers, artisans, trades people, and independent traders operating in the informal urban and rural sectors of the economy. Their demands for financial services are unique and outside the purview of traditional commercial bank lending.

A variety of forms of informal finance have emerged to replace the moneylender and pawnbroker in some instances. These include local rotating savings and credit associations and group lending schemes. In the case of rotating savings and credit associations (ROSCAs), which can be found in such diverse countries as Mexico, Bolivia, Egypt, Nigeria, Ghana, the Philippines, Sri Lanka, India, China, and South Korea, a group of up to 50 individuals selects a leader who collects a fixed amount of savings from each member. This fund is then allocated (often randomly but frequently also sequenced through internal bidding) on a rotating basis to each member as an interest-free loan. ROSCAs enable people to buy goods without having to save the full amount in advance. With a ROSCA, individuals can make their planned purchases in half the time, on average. Many low-income people prefer to save and borrow this way, repayment rates are extremely high, and participation is very active.

MICROFINANCE INSTITUTIONS

Microfinance is the supply of credit, saving vehicles, and other basic financial services made available to poor and vulnerable people who might otherwise have no access to them or could borrow only on highly unfavorable terms. Microfinance institutions (MFIs) specialize in delivering these services, in various ways and according to their own institutional rules.19 In the case of village banking, or group lending schemes, a group of potential borrowers forms an association to borrow funds from a commercial bank, a government development bank, an NGO, or a private institution. The group then allocates the funds to individual members, whose responsibility is to repay the group. The group itself guarantees the loan to the outside lender; it is responsible for repayment. The idea is simple: By joining together, a group of small borrowers can reduce the costs of borrowing and, because the loan is large, can gain access to formal commercial credit. With at least implicit joint liability, group members have a vested interest in the success of the enterprise and therefore exert strong pressure on borrowing members to repay on time. The evidence shows that repayment rates compare favorably with formal-sector borrowers.

Economic research has consistently found that availability of credit is a binding constraint for micro enterprise development. A majority of micro enterprises are operated by women. But lack of credit particularly, though certainly not exclusively, affects women (micro entrepreneur) borrowers, for reasons ranging from lack of property rights to local cultural practices, but lack of collateral is arguably the most important. Let’s look a little more closely at how this works.

Three related factors have made it difficult to relax credit constraints to low income female micro entrepreneurs. First, poor micro entrepreneurs often have little or no collateral. Second, it is difficult for conventional lenders to determine borrower quality. Third, small loans are more costly to process per dollar lent.

Village banking seeks to solve these problems in part through the “collateral of peer pressure.” Small micro entrepreneurs are organized into credit cooperatives, to which seed capital is lent. In a traditional model, before qualifying for a loan, each member is required to identify several other members or potential members willing to cosign loans with them. Often, once a member of a cosigning group receives a loan, no other member may borrow until the first borrower has established a regular repayment record; and in any case, no repeat loans are approved until all

members' accounts are satisfactorily settled. Progressively larger loans are approved as borrowers gain experience and a credit history and identify productive uses for larger loans. Members know the characters of the cosigning group members they select and may be expected to join groups with members whom they believe are likely to repay their loans. Thus the banks make use of the information "embedded" in the village or neighborhood about who is a reliable and capable borrower and induce villagers to reveal this information. At the same time, implicit collateral is created by the pressure that members would be expected to exert on each member in the group to repay funds. The goodwill of these relatives and friends of the borrower represents part of the borrowers' capital, which failure to pay the loan puts at risk. Finally, village banks extensively use volunteer member labor (as traditional consumer). Cooperatives do), thus lowering the bank's effective costs. Bank members reveal by participating that the value of the time thus spent is less than the value of the enhanced credit. An example of an MFI that uses this model is FINCA International.

Another outstanding example of an MFI is the Grameen Bank in Bangladesh, examined in the case study at the end of this chapter. Grameen uses solidarity groups and takes advantage of opportunities for peer pressure by allowing increases in borrowing limits only if all members repay. But Grameen currently has no cosigning requirement.

Thus joint liability can play a key role in lowering interest rates for micro credit borrowers in some cases by distinguishing the more creditworthy (reducing adverse selection) and encouraging more diligent efforts to earn an adequate return and ensuring that borrowers do not feign bankruptcy or abscond (reducing moral hazard). This can be accomplished through either smaller solidarity groups or larger village banking groups. But joint liability also brings costs to borrowers, such as low flexibility, loss of social capital for default beyond a person's control, and peer pressure to undertake excessively risk-averse activities. However, with the increasingly common moves away from joint liability among microfinance institutions, it is clear that other microfinance strategies not relying on group lending are at work. With "dynamic incentives," a micro borrower is made eligible for a larger loan in the future if she repays her current smaller loan; indeed, the threat to stop lending if the borrower does not repay can be effective in many circumstances.

Another mechanism is the use of frequent repayment installments, even though the return on the investment may be generated over longer intervals. This can essentially tap into non micro enterprise household income flows or other borrowing sources that act as implicit guarantees of individual loans (or of group loans that are less than fully secure). Some NGOs use flexible collateral, accepting as a guarantee items valuable to the borrower even if they are not so valuable to the lender. Many NGOs use borrower groups for purposes other than joint liability: solidarity, sharing ideas, gaining information about borrower problems, facilitation of provision of other services (such as legal education), and informal pressure to repay. MFIs also publicize successes and failures at repayment to shame defaulters into repaying. Finally, NGOs particularly target women borrowers; doing so has development advantages, but practitioners also claim that women are more cautious in investments, more sensitive to public disclosure of default, more likely to help others in solidarity groups, less likely to have outside loan opportunities, and less likely to have outside job opportunities, all of which decrease the incentive to default even without actual joint liability.

Although the success of informal finance programs is impressive, the fact remains that throughout the developing world, the majority of rural and urban poor have little or no access to credit. Until legal reforms are enacted making it easier for small enterprises to gain access to the formal credit system or more NGO- or government-supported credit programs are

established to serve the needs of the non corporate sector, the financial systems of most developing countries will remain unresponsive to the fundamental requirements of participatory national development.

MFIs: THREE CURRENT POLICY DEBATES

One debate under way in the micro enterprise credit community is whether subsidies are appropriate. Known as the "microfinance schism," the debate pits the Consultative Group to Assist the Poor (CGAP), a donor consortium headquartered within the World Bank, and other mainstream donors against other NGOs and academic economists. CGAP effectively argues that one can reach more borrowers by requiring sustainability so that available dollars go further. This argument is reasonable as far as it goes, but there is no reason to believe that the poorest borrowers can afford to pay the high interest rates that this would require with the business opportunities they realistically face. Put more precisely, the interest elasticity of the demand for credit on the part of the poor is not close to zero. And the poor generally lack opportunities to invest in high-return projects. Thus some subsidy is generally required to truly reach the poorest current and potential micro entrepreneurs.

Of course, it will be essential to ensure that these subsidized credit programs are run efficiently, that the credit is allocated to appropriate investments, and that credit actually ends up in the hands of poor households. In this regard, a second debate concerns whether to combine microfinance with other programs. Proponents argue that it may be useful to tie credit to social services that are demanded only by the poor and inherently require time for participation, for at least three reasons. First, such required participation can act as a kind of screening mechanism to ensure that non poor borrowers are not taking advantage of a subsidy not intended for them (analogous to workfare screening, described in Chapter 5).

Second, the poor generally cannot make adequate use of credit without better health and education. There is usually at least some subsidy in programs that offer health or educational services along with credit. Third, many of the poor appear not to recognize the importance of human capital, and the availability of credit may act as a "hook" to get them enrolled in health and education programs. But it may be less costly to keep these programs separate, in accordance with the varying comparative advantage of different NGOs, and some low-income borrowers do not need these services. Accordingly, there is a growing debate in the microfinance community over whether to integrate credit with education, health, or other programs.

A third ongoing debate, related to the first two debates, is whether MFIs should undergo commercialization, whereby a (non-profit) NGO providing microfinance is converted into a for-profit bank. This movement was particularly pronounced in the mid-2000s. Advantages include the fact that the MFI becomes regulated as a bank, and so can legally accept savings deposits as well as disburse loans; and that the MFI acquires the discipline of the market and an added incentive to cut costs and expand its scale. Disadvantages include the problem that people living in poverty become considered in some cases too expensive to serve; or, that if they are served, very high interest rates will be charged and aggressive tactics may be used to collect funds. Note that there are some frequently overlooked alternatives, in that to be regulated and accept deposits does not imply a requirement to be a for-profit corporation in most legal systems; for example, the Grameen bank is a credit union mostly owned by its borrowers.

POTENTIAL LIMITATIONS OF MICROFINANCE AS A DEVELOPMENT STRATEGY

Microfinance has some potentially important limitations. Micro credit was first conceived and is still largely marketed as financing for micro enterprises, but most people probably prefer a regular wage and salary to running a risky micro enterprise. Although systematic evidence is lacking, interviews with factory workers in developing countries such as Peru and Bangladesh suggest that many are former micro entrepreneurs who gave up their enterprises in favor of a regular job. Most people are willing to pay for insurance, and a predictable wage offers insurance against the vagaries of micro enterprise proceeds. Typically, even laid-off professionals in rich countries go into self-employment only until they can find a suitable replacement job. Thus the primary problem may be the lack of available jobs paying a steady wage or salary—a problem compounded further when custom still prevents women from taking on outside employment that becomes available. To this extent, micro credit as classically conceived may prove to be in large measure a “transitional institution.” A related concern is that few micro entrepreneurs ever grow sufficiently to become bona fide small or medium-size enterprises (SMEs). BRAC found that most borrowers from its SME facility were middle-class entrepreneurs, rather than graduates from its microfinance activities. Of course, people will always need other forms of financial intermediation such as savings accounts and consumption loans. And some micro enterprises will go on to generate additional employment.

In sum, microfinance is a powerful tool, but it needs to be complemented with other growth, poverty reduction, financial sector development, human capital, infrastructure building, and—last but by no means least—conventional job creation policies. In the meantime, hundreds of millions of people depend in part on micro enterprises, so helping them to become more efficient is an important objective; and the provision of lending, saving, and insurance services can provide broad benefits for people living in poverty.

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